

The Journal of the American Medical Association

Published Under the Auspices of the Board of Trustees

VOL. 140 No. 1

CHICAGO, ILLINOIS
COPYRIGHT, 1949, BY AMERICAN MEDICAL ASSOCIATION

MAY 7, 1949

PSYCHIATRY IN UNDERGRADUATE MEDICAL EDUCATION

WILLIAM MALAMUD, M.D.
Boston

During the last few years, and particularly following the experience gained in World War II, an important change has developed in the position occupied by psychiatry within the general medical profession, and with it has come the need for a reorientation of the program. On the one hand, psychiatry has begun to appreciate more fully the significant role that the somatic reactions play in influencing psychologic and social adjustment and their importance in the causation and treatment of personality problems. On the other hand, the medical profession in general has come to realize the effects that emotional and social factors exert on the somatic functions and the importance of these factors in the development and maintenance of physical symptoms.

Medical educators have long recognized this development and with it the need for a revision of the status of psychiatry in the training program of physicians, both at the undergraduate and postgraduate levels. It is not possible to discuss the entire subject in this presentation, since it would have to cover all the phases of medical education, such as premedical requirements, undergraduate medical teaching, training at the general intern and resident levels, postgraduate refresher courses, training of the psychiatric specialist, and, eventually, also the role that the medical educator should play in the training programs of the ancillary disciplines, such as nursing, social service work, clinical psychology and occupational and physical therapy.

In the present paper, I should like to limit myself to a discussion of the place that psychiatry should occupy in undergraduate medical education only, that is, through the conventional four years of medical school teaching. I do this, first, because there is the limitation of space; second, because I think that this particular stage of medical education is the most important as far as the subject is concerned. I base this statement on the assumption that the main goals of undergraduate medical education are to build the proper foundation for any future career in the profession and to prepare the student for the practice of clinical medicine. To function adequately in such a capacity, he must gain an understanding of the problems of personality adjustment, since he will have to deal with them in an admittedly large number of his patients whether their symptoms are predominantly physical or

not. Furthermore, it is true that the physician in general practice is the one who is most likely to see the earliest manifestations of what may eventually develop into the more serious psychiatric disturbances, and he will have the best opportunity of preventing them if he is properly prepared for the recognition and treatment of early danger signals.

IMPORTANCE OF PSYCHIATRY IN MEDICAL EDUCATION

I am fully aware of the fact that, when a representative of any medical specialty engages in a discussion of the place of his field in medical education, he is likely to see his particular specialty as the most important of all and is apt to overestimate the amount of time and effort that should be allotted to his department. I emphasize this particularly since the program I wish to present for your consideration may be regarded by some as perhaps too ambitious, and I should like to have it understood that I present it with a full appreciation of the psychologic blind spots of the specialist. If I were discussing psychiatry now simply as another specialty, I should most probably restrict such a program to considerably narrower limits. There are two features, however, that render the teaching of psychiatry definitely different from that of any other specialty.

In the first place, psychiatry occupies a unique position in its role as intermediary between the biologic sciences on the one hand and the social and psychologic sciences on the other. This uniqueness has a number of features in it, several of which have contributed to the somewhat facetious remarks that are frequently made about psychiatry. To me, however, the most fundamental of these features is the fact that, of all medical disciplines, psychiatry stands out as the one which both in practice and in theory cannot divorce itself from the ever present need of consideration of the person as a whole, functioning within his social setting. One can think of the lancing of a boil, the amputation of a limb or, even, the treatment of an infection or an injury as limited to some particular part of the body, but one cannot conceive of the evaluation or treatment of a delusion or a phobia without, at the same time, considering the whole person and all the psychologic and social implications. Similarly, one can study a nerve-muscle preparation as isolated from the animal or test a specimen of urine removed from its source, but one cannot study thought or feeling in vitro.

It is because of this, perhaps, that it has been so difficult to restrict the practice of psychiatry to physicians. Long after the obstetrician took the place of the midwife and the surgeon that of the barber, psychiatric disturbances were, and to some extent still are, considered as legitimately the object for investiga-

Read at the Forty-Fifth Annual Congress on Medical Education and Accreditation, Chicago, Feb. 7, 1949.
Professor of psychiatry and neurology, Boston University School of Medicine, and chief of psychiatric service, Massachusetts Memorial Hospitals.

tion and treatment by persons who are not physicians. But it is also because of this that the psychiatrist, from the dawn of psychiatric practice to the present, has consistently centered his work around the concept of the person functioning in his social and environmental setting. This view has rendered scientific progress in the field slow and difficult, but during the last few decades progress, even though gradual, has been consistent, and today psychiatrists possess a respectable fund of knowledge of scientifically valid and teachable concepts of the laws that govern human behavior, interpersonal relations and the effects of these on the adjustment of the individual person, be it psychologic or somatic.

Related to this is the second feature which has, particularly recently, gained in prominence in the field of medicine in general, namely, the fact that the proper understanding and adequate treatment of any illness must be based on the consideration of the patient as a whole. The importance of this concept has been pointed out so many times in the last few years that I am sure I do not have to elaborate on it here. The results of reliable scientific investigations, such as the work of Cannon and his followers,¹ and of the more contemporary studies on the role of emotions in influencing physiologic functions and dysfunctions, attest to the validity of this concept. This knowledge gained by the experimental investigator has helped to formulate in a systematic manner experience which the practicing physician has always utilized in his medical work. Practical experience substantiated by experimental investigation has demonstrated that this aspect of medicine is both essential and teachable. Medical educators of today have come to accept the fact that an adequate preparation of the physician must include the knowledge of human beings as they function in society, as is demonstrated, for example, by Allen's discussion of this subject.²

This leads to the following conclusions: 1. The medical student must, during his course in medicine, be trained to understand the nature and significance of personality functions and the influence that psychologic and social stress exert on his own total adjustment. 2. By tradition, interests and accumulated knowledge, the psychiatrist is in the proper position, at least for the time being, to teach the medical student these basic concepts.

It is because of these conclusions that, in outlining a program for the status psychiatry should assume in undergraduate medical education, I consider it of importance that such a program must not be limited to the teaching of psychiatry as a specialty, i. e., the training of the student in the ability to recognize, classify and, perhaps, treat the psychoses or even the psychoneuroses. Over and above that, psychiatry must play an important role in teaching the student the basic concepts of human nature at the same time the other basic subjects of anatomy, physiology and pathology are being taught. Furthermore, these concepts should be presented not as theoretic curiosities, nor as ideas entirely limited to use in the treatment of extreme deviations in psychologic function, but as laws applicable to human beings in general and to all their illnesses, be the manifestations psychologic or physical. It implies, too, that psychiatry in this sense must be taught at both the

preclinical and the clinical levels. With these considerations as a point of departure, I should like to present the outline of a psychiatric teaching program, with reference to its content, the relationship between it and the other courses in the medical curriculum, the time that should be allotted to it, the facilities which are essential for its implementation and the teaching personnel which would be able to carry it out.

BASIS FOR THE SUGGESTED PROGRAM

In the presentation of such a suggested program I shall, of course, have to undertake the blueprinting of what might be considered as an ideal plan. To a large extent, however, such plans are even at present being followed in several of the medical schools, although variations among individual programs do exist. I shall lean particularly heavily on the suggested program that was published last spring by the committee on medical education of the Group for Advancement of Psychiatry³ and, more specifically, on the program that is at present being established at the Boston University School of Medicine. The fact that such a program has been made practical shows that it can be carried out. At Boston University the plan is already beginning to show the results which it is hoped will follow the introduction of such methods in other medical schools.

Certain important principles must be considered as basic in the establishment of such a program. In the first place, and in keeping with what was stated in the beginning, the presentation of the subject at the undergraduate level should not be in the form of a separate course in the medical curriculum, it should be made clear to the students that they are being trained not to be psychiatrists, but to gain knowledge which is of importance in the understanding and treatment of all diseases. Obviously, at some time during this course the student will have to learn about psychiatric syndromes, their development and their management and treatment within the scope of general clinical medicine. This should be done, however, during the time allotted to other clinical subjects, and the student should be enabled to apply the basic psychiatric concepts which he learned in the preclinical years to the understanding of such syndromes as dementia precox or hysteria, in much the same way as they can be applied to any other medical disease.

The second principle follows the first and consists in the importance of coordinating the teaching of psychiatry throughout the medical curriculum with the teaching in the other departments, both preclinical and clinical. This, obviously, must be done in the teaching of any subject in medical school. No one will question, for instance, the importance of coordination of the teaching of anatomy with that of physiology, so that the student can correlate the two when he is called on to apply this knowledge to problems in clinical medicine. It is just as important to emphasize the interrelation between the preclinical teaching of psychiatry and that of any of the other basic subjects in medical science and the fact that this correlation must be carried over into the clinical years.

Third, since psychiatry deals primarily with the behavior of the person as a whole in his relationship to the social setting in which he lives, it is important that the student should be presented from the beginning with actual demonstrations of these functions as they manifest themselves in living human beings.

1. Cannon, W. B.: *Bodily Changes in Pain, Hunger, Fear and Rage*, New York, D. Appleton & Co., 1915. Dunbar, H. F.: *Emotions and Bodily Changes*, ed. 2, New York, Columbia University Press, 1938.
2. Allen, R. B.: *Medical Education and the Changing Order*, New York, The Commonwealth Fund, 1946.

3. Report on Medical Education, Report no. 3, Group for the Advancement of Psychiatry, March 1948.

ORGANIZATION AND CONTENT OF THE PROGRAM

First Year.—The teaching of psychiatry should begin in the first year and, whatever the amount of time allotted per week may be, it should run through the entire academic year concurrent with instruction in the other basic sciences. It should consist of a systematic discussion of the structure, function and development of the personality in normal adjustment. The student should acquire an adequate working knowledge of the various components of the personality, such as behavior, intelligence, feelings, attitudes and emotions, in the same way as he will learn the somatic components in the course of anatomy. The main emphasis, however, should be placed on the interrelationships that exist among these components and the process of integration that characterizes all activities of the human being. He should be made aware of the fact that any apparently isolated act of behavior, psychologic or physical, is an expression of the organism working as a unit and is, therefore, dependent on other activities that are present at the time. He should be given a systematic understanding of the evolution of the personality from infancy, through childhood and adolescence, to maturity and the periods of involution and senescence. It should also be made clear to him that experiences in the past, whether they be consciously remembered or not, may affect behavior in the present and anticipations of the future. Finally, he must learn that the behavior of the individual person is closely integrated with and dependent on occurrences in the social and physical environment in which he lives. It is particularly important at this stage of the program to guard against the development of a cleavage between the so-called physical and psychologic manifestations of behavior. Coordination with the courses in anatomy and physiology should be more than simply temporal. Similarity in basic principles must be pointed out, as, for instance, the close resemblance of the mechanism of homeostasis with the equilibrium established between instinctive needs and social pressures.

It is obvious that this course should be given in the first year because that is when the student gets his basic concepts of the structure and the biologic functions of the normal person as they are presented in anatomy and physiology. But there is another reason for the desirability of teaching this material in the first year. The candidate for a medical degree comes to the school to learn how to treat human beings. In his premedical courses he should, and in most cases will, have learned a great deal about the general characteristics of human behavior and experience. He will have had them presented to him in his courses in biology, psychology, sociology and anthropology; he will have been made aware of the joys, the sorrows and the complexities of life in his courses in the humanities, and, finally, he will have been in contact with human beings all through his life. During the first two years the main goal of psychiatric teaching should be to preserve this concept of the unity of man that the student has brought with him when he entered medical school, so that, when he comes to his clinical studies, he will not have to face the problem of reintegration of the person whom by necessity he had to study in parts in most of his earlier work. To accomplish this, it will be important to demonstrate the existence of these functions and their mechanisms in actual persons, the variations as they occur within normal limits and the comparatively milder deviations as they are encountered on the wards of a general

hospital. He should also learn about his own attitudes and reactions and come to understand some of the factors which influence him in their development.

Second Year.—In the second year, when the student begins to extend his knowledge of normal variations to the study of the pathologic changes in the structure and functions of the body and the methods of examination and evaluation of these, the course in psychiatry should start with a presentation of the general concepts of psychopathology. The student should be made aware of the deviations from average behavior and the problems which they introduce, the manner in which such deviations are developed, the factors that influence them and the effects they have on adjustment. Care should be taken to discuss these not in terms of specific syndromes but rather as fundamental reaction types. The principle to be followed is the same as in general pathology, in which one starts with the presentation of general tissue reactions, such as inflammation. In psychopathology, therefore, one should start with a discussion of the nature and development of such general reactions as anxiety, pain, guilt and defense mechanisms, like repression, conversions, phobias or projections. The close interaction that exists in the so-called somatic and psychologic manifestations should be emphasized. The student should learn the basic principles of the effects of somatic dysfunctions, such as disturbed metabolism, on the function of the individual person as a member of society. At the same time, he should be made aware of the effects of psychologic functions on the various organ systems. A major portion of the course in the second year should be taken up with systematic and, if possible, individualized instruction in the all-important technic of interview and the management of the personal interrelationships of the physician and patient. To some extent, this will have been started even in the first year, if the method of presentation of human beings to the student was adopted. Whereas in the first year the student may have to be restricted to observing the instructor as he interviews a patient, in the second year the importance of following certain technics and rules in this function should be systematically presented. Here, too, and perhaps even more than in the first year, coordination with other fields should be stressed. Psychopathology should be closely integrated with pathologic physiology. Psychiatric examination and observation should be made an integral part of general physical and medical examination. Finally, the methods of obtaining historical data and their value should be taught in close coordination with the similar area of instruction in other departments.

Third Year.—In the third year the instruction should move on to the discussion of actual disease syndromes, their causation and development and the practical methods of treatment and management. It is here, of course, that the student should also be taught to recognize and treat the specific mental diseases. For that purpose, it will be important to utilize material primarily of psychoneurotic type, together with some of the more frequently encountered psychotic reactions. A major portion of the third year course, however, should consist in the teaching of personality factors in general medical disease. These should include not only the effects of emotional stress on the body organs but also the effects of physical illness on psychologic function. The organic syndromes, such as systemic infections and central nervous system diseases which may produce direct manifestations in terms of delirium, con-

fusion and character changes, should form a part of such instruction, but it is even more important to point out the indirect effects of physical illness, their meaning in terms of danger, the anxieties that develop and the tensions that follow them. The student should learn how to evaluate the historical factors in the life of the person as they may influence the severity of these reactions and how to utilize this knowledge in the management of such diseases in their impact on the personality.

It is quite obvious that teaching of this type in the third year can best be carried out in direct work with patients. Facilities must be provided for the presentation of the more serious personality disturbances as they are found either in mental hospitals or in psychiatric wards of a general hospital. But the major portion of the teaching in the third year should take place on the wards of the general hospital with medical, surgical and pediatric patients. It is in this way that the student will be prepared to deal with the everyday problems that he will see in his practice and be able to treat them not in the capacity of a psychiatrist but within the framework of comprehensive medicine.

Fourth Year.—In the fourth year the student should be given an opportunity to apply the knowledge that he has acquired during the first three years in more or less independent work with patients, preferably in an outpatient department. Such a department again should be part of a general hospital where the student will have the opportunity to deal with the general run of patients that he will probably see in his own office. Although this part of instruction will be undertaken by psychiatrists, it should be carried out in a setting which will enable the student to utilize psychiatric knowledge as it applies to general medical practice. Here more than in any part of his course he will have to be closely supervised by an adequate staff of instructors, but within that framework the student ought to be given an opportunity to carry out both evaluation and treatment personally and to learn the importance of establishing the proper interpersonal relationship with his patients. At this stage the student must be given an opportunity to gain firsthand experience in the simpler methods of psychotherapy. It is not necessary, in fact, it is probably inadvisable, to stress the more complex and intensive methods as they are used by specialists in psychiatry, although the student should be made aware of them. The student can, however, be taught systematically the use of the procedures that have recently been formulated under the term "brief psychotherapy." The range of the material will depend on the facilities available. If the instruction is given in the outpatient department of a large general hospital, however, the material will obviously include most of the problems that are seen in general practice: the everyday medical and surgical conditions, diseases of children and of the aged and genitourinary and gynecologic problems. Finally, the teaching in the fourth year must serve as a link between the psychiatric instruction in the undergraduate program and that which will be provided in the internship to follow.

TIME ALLOTMENT FOR TRAINING IN PSYCHIATRY

No mention has been made so far as to the amount of time that should be allotted to the teaching of psychiatry throughout the four years. Let me emphasize here that, although I consider a certain minimum of time as an important requisite, the actual amount of it is not quite as important as the manner in which

it is utilized. The psychiatric teaching staff should never take on more time than the members can profitably use. This will obviously depend on (a) how much actual knowledge the staff can contribute and (b) the number of instructors available. In general, instruction should be carried on throughout the entire first year so as to assure coordination with the other preclinical subjects. This means that it will be necessary to have at least one hour a week through the entire year. A similar minimum of time should also be allotted to the second year teaching. It must be added, however, that the part of the second year program during which the student will be instructed in interview technic, history taking and examination can be most adequately carried out with small groups of students rather than with the entire class at the same time. The student must be given an opportunity to interview and examine the patients under the supervision of the instructor, and this can best be done with small groups. The amount of time for the class could remain the same, but the feasibility of breaking the class up into groups and giving each group the same amount of time will depend on the number of instructors available. In terms of curricular hours, therefore, a minimum of thirty-two hours for each of the first two years should be allotted to the subject.

In the third year, in which work with patients on the ward is essential, obviously the amount of time, too, should be increased, and as much of the teaching as possible should be carried out on the basis of close relationship between the instructor and students. Finally, in the fourth year the principle of assigning the student for a given period, perhaps four weeks, to the subject of psychiatry should be followed and this block of time should be allotted to alternating small groups of students. It is especially desirable to have each student assigned to an instructor who knows the patients that the student is working with and who is able to supervise the work adequately. This means that a minimum of about two hundred and fifty hours will be required for the third and fourth years. In the clinical years, the coordination with other departments becomes particularly important so as to give the student an opportunity to integrate his psychiatric experience with that he will gain in general medicine and surgery. If possible, particularly in the third year, some of the psychiatric teaching should be made part of other courses. The demonstration, for instance, of the pathologic effects of emotional tension on the gastrointestinal system, would be most effective if it was presented as part of a course during which other phases of diseases of the gastrointestinal system are considered.

METHODS OF TEACHING AND TEACHERS

The methods of teaching will, of course, vary with such factors as the number of instructors available, the amount of time in the curriculum and the particular characteristics of a given teacher. In general, demonstration and seminar forms of teaching are more effective than formal lectures. This does not mean that lectures should be altogether deleted. Certain fundamental principles and dynamics of human behavior can perhaps best be described in a lecture, if it is well systematized and, particularly, if it is supported by brief presentations of cases. However, some instructors are much more effective at bedside teaching than in presenting a formal lecture. Obviously, in the third and fourth years lectures should gradually give way to work on the wards, and the formal contact between

the lecturer and class should be superseded by individual contact between instructor and student.

An important factor in organizing such a program and in carrying it out consists, of course, in the selection of the proper teaching personnel. Ability to teach, that is, to establish proper rapport with the student and to convey knowledge clearly and convincingly, is as important here as in any other field. In addition to that, an instructor in psychiatry should by preference be a good practical psychiatrist whose skill in psychotherapy would materially enhance his success as a teacher. He should have adequate training in the general basic sciences and the clinical subjects with which he is to coordinate his psychiatric teaching. A vital interest in his own field is essential, but not to the point of the development of blind spots for the importance of other fields of medicine. He should be able to choose, and be given the opportunity to use, the method of teaching which is most compatible, not only with the particular phase of the subject which he teaches but also with his own capacities. Some will do best as lecturers, others as clinical instructors. The teaching in the preclinical years, but particularly the first one, at present at least, has to be done by the members of the general staff of the psychiatric department. It must be admitted that frequently such an instructor, who is probably an excellent psychiatrist and well suited for teaching clinical psychiatry, may not be qualified by either his training or his particular personality to teach the basic concepts of human nature. If, in addition to this, the scarcity of good psychiatric teachers in general is considered, the possibility of utilizing adequately trained clinical psychologists for this phase of teaching should be given attention, and in some schools this policy is actually being followed. At present, however, it seems that the important thing is to teach the preclinical phases of psychiatry with a view toward their applicability to medical practice, and this could probably be most adequately accomplished by a psychiatrist who, in addition to his clinical insight and training, possesses the skill to organize and teach the general concepts basic to such a course.

OTHER CONSIDERATIONS

In the present discussion I have restricted myself entirely to the role that the psychiatrists should assume in a program for undergraduate training in psychiatry. No attempt was made to describe the degree of participation by representatives of other departments, a factor which is obviously important if real coordination is to be achieved. This includes the staffs of the other preclinical departments and, in the clinical years, of the departments of medicine, pediatrics, surgery and preventive medicine, as well as those of the specialties. This should also include the group of disciplines which, during recent years, has become so important in carrying out the "clinic team" program in dealing with personality problems. Of particular value in the undergraduate medical program are the psychiatric social worker, the clinical psychologist and the psychiatric nurse. The vast amount of knowledge that has been made available by these workers and the valuable techniques that they have developed in the understanding of the significance of social stress, the measurement of personality functions and the treatment and management of patients are of great importance in the practical work with such problems. The student should be made aware of these and of their application in the field of medicine, although no attempt should or could be made to develop these skills in him.

CONCLUSION

The main purpose of this presentation was merely to indicate the general trends that such a program for undergraduate education should follow rather than to offer a fixed and generally applicable plan. A number of conditions, such as the type of personnel, the time that can be allotted and the facilities available, are apt to show such wide variation that the details of the program will have to be worked out on an individual basis. Whatever these variations may be, however, the main goal must remain the same. The student should be given a workable, systematic knowledge of the basic facts of human nature and must learn how to apply them in the prevention and treatment of diseases.

MEDICAL EDUCATION IN PROGRAMS OF THE PUBLIC HEALTH SERVICE

LEONARD A. SCHEELE, M.D.
Surgeon General, United States Public Health Service
Washington, D.C.

A broad concept of medical education is essential in the present era. For the purposes of my discussion, I have taken medical education to include the basic and postgraduate training of the major professional groups concerned with the health care of the people.

The medical school is recognized as the indispensable, integrating force of the medical center of the future. The medical center, as we visualize it, would be the hub of continuous research and education, as well as of medical and public health services to outlying areas.

The contemporary problems of medical education are matters of public concern. In 1946 Dr. H. G. Weiskotten stated:¹

The first and most important step to be taken in improving the health and medical care of the American public is to see to it that medical schools are provided with sufficient funds to conduct a basically satisfactory program of medical education.

Since that time, the financial difficulties of many medical educational institutions have increased. Official and nonofficial agencies have become as concerned as medical educators and university officials that satisfactory solutions be found promptly.

All of us realize, too, that the problem of medical education is only part of a larger whole. The total structure of higher education in the United States has suffered unprecedented strains during the past decade. There is no doubt that the larger problem must be solved if we are to maintain our tradition of full educational opportunity for all. Medical education is so closely related to the conservation of man power—a vital concern to the nation—that it would seem unwise to delay much longer in meeting its urgent needs.

The Public Health Service has a dual interest in medical education. As a consumer, we draw on the professional schools to staff our medical and hospital programs, our research activities and our programs of preventive medicine and public health. As an investor, we provide grant-in-aid funds to improve national health through the work of organizations outside the federal government. Specifically, we provide grants to expand medical research, state and local health services and hospital facilities. Through financial and other assistance, we seek to increase the supply of well

Read at the Forty-Fifth Annual Congress on Medical Education and Licensure, Chicago, Feb. 7, 1949.

1. Weiskotten, H. G.: Financial Support of Medical Education, J. A. Am. M. Coll. 22: 1-4 (Jan.) 1947.

trained research scientists, public health personnel and clinicians in special fields.

As medical educators, you are especially interested in the role of the Public Health Service as an investor in medical education. The programs of the Public Health Service in aid to medical education and research have been developed in close cooperation with the medical schools, and mutually satisfactory principles have been applied to their administration. Let me, then, review briefly certain of the common characteristics, objectives and principles of our programs related to medical education.

POLICIES OF PUBLIC HEALTH SERVICE

The policies of the Public Health Service in aiding educational and research institutions that have emerged during the past twelve years have been based on our long-standing policies of cooperation with state and local agencies and medical institutions.

The National Cancer Act of 1937 established the pattern of aid to institutions for research, to individuals for research training and to clinicians for postgraduate training. The Public Health Service Act of 1944 broadened our authority for grants and fellowships for research to cover the entire health field.

In 1946, the National Mental Health Act authorized a program similar to that of the National Cancer Institute, with provision for grants to teaching institutions to improve their psychiatric training programs. In 1947, the National Cancer Institute was provided funds for teaching grants to medical and dental schools to improve undergraduate teaching of cancer. In 1947, Congress authorized construction grants for cancer research facilities. In 1948, the National Heart Act and the National Dental Research Act authorized programs parallel to the cancer program.

NATIONAL ADVISORY COUNCILS

National advisory councils, each established by law, play an important role in the administration of our research and training programs. The councils are composed of leaders in the various medical and dental specialties, in basic and clinical research, social science research, public health administration and education. The law specifies that the National Advisory Heart Council and the National Dental Research Council include leaders in public affairs. At present, the National Advisory Health Council deals with research and training in general medical sciences, whereas the special councils deal with the programs in cancer, cardiovascular diseases, mental health and dental research.

The problems faced by the several councils require special policies to meet special needs. However, certain basic policies characterize all of these programs. Academic freedom for the institutions and individuals receiving grants is a primary consideration. The intent of Congress, the recommendations of our councils and the traditions and experience of the Public Health Service insure maximum safeguards for that freedom. Every effort is made to insure the widest distribution of funds, taking into account the quantity and quality of the projects and the available resources.

FIVE TYPES OF AID

The programs of the Public Health Service give both direct and indirect aid to medical education. In certain programs, direct aid has been provided by teaching and construction grants to institutions. Less direct but significant support is available through research

grants, fellowships and traineeships. Five types of aid are thus available through the Public Health Service.

1. Teaching grants are authorized to initiate, expand or improve teaching in selected fields; namely, cancer, cardiovascular diseases, psychiatry and oral diseases. Teaching grants for cancer are available to medical and dental schools. Grants to individual schools are limited to \$25,000 per year to four year medical schools and \$5,000 to dental schools and two year medical schools.

2. Construction grants are authorized to assist institutions in providing more adequate facilities for laboratory and clinical research in cancer and cardiology. This form of assistance became available for cancer research in July 1947. It is hoped that funds will become available to assist in construction in the cardiovascular research fields next July.

3. Research grants are available throughout the whole range of medical and related sciences, with special funds earmarked for cancer, cardiovascular diseases, psychiatry, peptic ulcer research and dental research. The objective of these programs is to supplement support provided by other public and private resources and to stimulate research in neglected fields. During the fiscal year ended last June 30, the Public Health Service expended \$8,108,160 in research grants, covering seven hundred and ninety-five projects in the general, mental health and cancer fields. These projects were located in one hundred and ninety-eight institutions, in thirty-seven states, two territories and five foreign countries.

4. Research fellowships are awarded to qualified applicants for training in general research and in each of our specialized programs. During the three fiscal years 1946 to 1949, approximately six hundred fellowships have been awarded. The recipients have taken their training in sixty-six institutions of their own choosing.

5. Traineeships were first established to increase the number of clinical specialists in cancer. In the field of mental health, the training program has been expanded to include the training of psychologists, psychiatric social workers and psychiatric nurses. When the programs in cardiovascular diseases and oral diseases are implemented by appropriations for those purposes, traineeships will be available in these fields.

During the current fiscal year, ending June 30, 1949, the Public Health Service has had available a total of \$24,427,000 for these five types of aid to research and education. About \$11,000,000 has been invested in research grants; \$8,000,000 in construction grants; \$3,000,000 in fellowships and traineeships, and a little over \$2,250,000 for teaching grants. Approximately 84 per cent of the total funds available for research and training through the Public Health Service have gone to medical teaching institutions.

The foregoing summary of the research and educational activities of the Public Health Service shows that a large program has developed in those fields since the war. Through one or more of the five types of aid, almost every medical school and graduate school of public health is participating. The majority of dental schools, many related departments of universities, nursing schools and affiliated hospitals are receiving some form of assistance.

The development of the over-all program has been complicated by the allocation of funds to specific diseases or areas of study. The magnitude of such prob-

lems as cancer, mental disease and heart disease has properly captured the interest of the public; as a result, both public and private funds for research and training in these categories have increased enormously.

While these so-called categorical programs have been developing, the general financial problems of many medical and related schools have increased. The impact of Public Health Service grants for research and training in the light of increased costs of medical education has led to recognition that an evaluation of our programs must be made in order that sound policies of federal assistance may be formulated.

EVALUATING EFFECT OF GRANTS

The National Advisory Health Council at its meeting on Oct. 23, 1948, passed the following resolution:

Moved. That the Council approve a study of the Public Health Service programs of Research and Educational Grants and Fellowships and of the costs of medical education and also assemble data as to the breakdown of the cost of medical education, including that of hospital teaching beds, with a view to evaluating the effect of such research and educational grants on medical school finances and on medical education. The effect of such subsidies on national thinking must also be considered. One of the chief purposes of this study is to determine whether present Public Health Service programs or other methods may be recommended for the improvement and extension of medical education. For this purpose it is recommended that an ad hoc committee be appointed by the Surgeon General of the Public Health Service to include representatives of this and other Councils and such other persons as the Surgeon General may designate.

Since that time, the Public Health Service has held a series of conferences with the Committee on the Survey of Medical Education sponsored by the Association of American Medical Colleges and Council on Medical Education and Hospitals of the American Medical Association. The ad hoc committee has been appointed,² and it will work closely with the Committee on the Survey of Medical Education to develop a cooperative study the findings of which will be made available to both committees.

The objectives of the study will be to assemble the facts necessary for an evaluation of the programs of the Public Health Service. Such an appraisal is necessary as a basis for further planning, direction and administration of our programs.

The joint committees and the technical staffs of the Public Health Service and the Committee on the Survey of Medical Education are conferring during this Congress. By the end of the week, we hope that final decisions will have been made as to timing, methods and other factors in the conduct of the study. It is hoped, however, that no time will be lost and that the field work can begin immediately after the conference. If this can be done it is probable that a preliminary report will be available by June 1949.

The Public Health Service is deeply gratified at the cooperation extended to us in this project by the Committee on the Survey of Medical Education and its sponsors. I feel sure that a joint endeavor of this kind will yield fruitful returns, not only in the practical results of the study, but also in the development of close working relationships between our organization and the nation's medical schools.

You as medical educators and we as public health administrators are, in a broad sense, public servants

working toward common objectives. Close cooperation of this sort will make our tasks easier and will insure the best returns on the large investments for the people's health.

In our conferences with educators and others, and in our studies of the problem through the range of medical education, it has become evident that the professional schools are in need of more adequate financing. These discussions have led us to certain basic conclusions which should be invaluable in the development of future programs.

CONCLUSIONS

The financial problems of medical education vary, not only between the specific professions but among institutions in the same profession. We believe that more workers in all medical fields are urgently needed. Aid should have a dual objective. It should support and improve the base of present medical education and provide for increasing the supplies of personnel. In order to step up student output new schools should be established and enrolment should be increased in existing schools where expansion will not impair present standards of education. Institutions receiving aid should be accredited by acceptable professional bodies.

Advisory councils—possibly an assembly of all deans—should function in helping to guide a program of general aid to medical education. In the event that federal aid is added to any new voluntary aid program that may be organized, such an advisory group would assure wise use of federal funds and would safeguard the academic independence of teaching institutions.

I believe that federal aid is desirable and that it can be given without causing deterioration in teaching standards or loss of independence by the professional schools. A reasonable time limit should be placed on any federal aid program, with a requirement to study and periodically report on the effectiveness and usefulness of the program. Nondiscrimination should be adopted as a broad general policy, to insure an equal opportunity to all qualified students without regard to race or sex, creed or color.

On the basis of such principles, it would seem that a broad program of federal aid to medical education could be developed which would be mutually satisfying to the schools, the professions and the public. It is a matter of urgent concern that the schools which produce the nation's physicians, dentists and other essential personnel be assured continued vitality, growing usefulness and greater opportunities to impress their high standards on professional practice in our own country and in others.

Should a broad program of federal aid for medical education be authorized, the Public Health Service hopes to play as acceptable a role in its administration as we now play in aid to research and special fields of training. That is to say, we would expect to act as financial partner, co-worker and consultant. The principle of cooperation, without control or regimentation, would apply as it has in our long-standing activities with state and local agencies, private organizations and the professions. These are the aims and policies of the Public Health Service and our parent organization, the Federal Security Agency.

As a physician and an administrator of varied programs in medical research, clinical practice, public health and preventive medicine, I feel that the professions must keep medical education a living force—capable of change and adaptation to new times and environments.

2. The ad hoc committee is composed of twelve members; they are representatives of the advisory councils of the Public Health Service and other experts in medical education.

The educational needs of physicians, dentists and nurses—whether in public or private institutions or in private practice—shift with the changing needs of humanity and the forward thrust of medical knowledge. In our basic courses of training, we need better preparation in psychiatry, preventive medicine and the social and administrative aspects of medical service. Particularly urgent is the need for stimulating undergraduate students in medicine and dentistry to enter the field of scientific research as a career.

Throughout the whole range of undergraduate, graduate and postgraduate study, we need to develop a progressive attitude about prevention and rehabilitation. At every step in our study of the patient or the community we should be alert to the possibilities of preventing disease or its serious consequences. We should be alert to the possibilities of restoring the patient to maximum physical, mental and vocational function.

Above all, the professions must preserve an attitude of scientific skepticism toward existing methods and technics for the health care of the people. From skepticism springs the drive to find the answers to perplexing problems, leading to the ultimate goal of medicine—prevention. Recent developments in some of the medical training centers of the nation are prophetic of the future alliance of education, research, medical service and public health. The interplay and stimulus of these several forces can but result, eventually, in higher levels of national health.

THE ESTABLISHMENT OF NEW MEDICAL SCHOOLS

H. G. WEISKOTTEN, M.D.

Chairman, Council on Medical Education and Hospitals,
American Medical Association
Syracuse, N. Y.

During the past few years the need for more adequate support of medical education has been repeatedly emphasized. At the last meeting of this congress, President Valentine of the University of Rochester designated the situation as a crisis. Later, last spring, Dr. Leonard Scheele in his inaugural address as Surgeon General, United States Public Health Service, said:

The crisis in the professional schools of the Nation is the most serious problem which faces the medical and health professions today. Unless or until the crisis is resolved, the nation will be hampered in all its efforts to increase its health resources and to improve the health of the people.

It has been a natural consequence of the development of high standards of medical education that medical schools have greatly increased their responsibilities and their influence. Medical school teaching and research programs, when integrated into the activities of hospitals, outpatient clinics and health and medical care programs, have so improved these activities and programs that they have become essential to their full success.

Recognition of the contributions of medical schools to these programs is indicated by the fact that practically every new program in the field of health and medical care is planned to center about medical schools. At the same time an increasing amount of research essential to the advancement of medicine is being channeled into and through the schools by federal agencies,

industry and private foundations. The development of the Federal Hospital Construction Program will place ever increasing responsibilities on the medical schools, as will also the proposed expansion of public health programs. Hence, there appears to be no possibility of any retrenchment in the activities and responsibilities of the medical schools of this country. On the other hand, there is every indication that the responsibilities and financial needs will continue to increase as they broaden their contributions to the improved health and medical care of the public.

It is not my purpose at this time to justify the high cost of medical education. I propose rather to point out that the present so-called crisis in medical education involves far more than the mere financial support of existing medical schools, which I believe will in some manner be provided. It involves programs which may influence the high standards of medical education and medical care which have already been achieved.

Paradoxical as it may appear in the face of the present plight of the existing medical schools, there is developing a demand that these schools greatly increase the sizes of their student bodies and that new schools be established. This is due to several factors. There are many indications that there is need for an increased number of physicians, although it is likely that this need has at times been greatly exaggerated. It is also obvious that there has developed, not alone an increased demand for opportunities to study medicine, but also an increased number of well prepared applicants for admission to the medical schools of the country.

Furthermore, many medical schools have adopted rather rigid geographic limitations in their acceptances. Practically all of the state and city-supported medical schools (28 of the 71 four year schools), and some of the privately supported schools are limiting their acceptances more and more to residents of the state or locality in which they are situated. The apparent need for opportunities for the youth of the states not having medical schools to undertake the study of medicine is creating a demand that new medical schools be established in these states.

The Federal Hospital Construction Program, involving the development of medical centers together with the recognition of the need for an affiliation of such centers with medical schools, has furnished an added stimulus for the development of medical schools in these states. Still another factor influencing this trend is the recognition of the contributions which medical schools can make to all of the health and medical care programs of the area in which they are located. Finally, the prospect of federal support for medical schools has proved an added incentive for the development of new schools. Five states are now in various stages in the development of new medical schools. At least three additional states are seriously considering the development of new schools in connection with their state universities.

The development of new medical schools is a serious business. There are many factors which are essential to the development of satisfactory programs of medical education. In some instances all of these are receiving careful study in sound programs for the development of new schools. In other cases, far too little attention to many of these factors may seriously handicap the schools in the development and maintenance of high standards of education and in meeting their full responsibilities to medical education and to the American public. The fact that the proposed new schools would

be developed as a part of the educational systems of their respective states makes the problem a far more serious one than would be the case if they were developed under private auspices. This is because it would be extremely difficult for a state licensing board to refuse accreditation to a medical school conducted by its own state university, although it might fail to meet the approval of unofficial national accrediting bodies.

In view of these present trends, it is probably worth while to discuss briefly the various factors involved in the satisfactory development of a new medical school and the establishment of sound educational, research and service programs. Although all of these factors are so interrelated that it is difficult to discuss them separately, brief comments in regard to them may be worth while in emphasizing their importance and interrelationships.

FINANCIAL SUPPORT

Three years ago I estimated the essential basic minimum required as the annual budget for a well established medical school with not more than fifty students in a class, located in a community which had available competent and interested volunteer clinical teachers, to be between \$315,000 and \$415,000. I realized at that time that my estimate was low, although it was higher than the budgets of many of the medical schools in this category. Today that estimate is as much out of date as the old ten cent loaf of bread. The amount required for the annual budget will vary greatly in different schools. Likewise the amount required for construction will vary greatly, depending on a variety of circumstances. No new medical school should be established without first being assured of adequate funds for its full development and its continued support.

SPONSORSHIP AND ORGANIZATION

Sound educational sponsorship comparable to that of a well established university is essential if there is to be assurance of the stability of a newly developed medical school. At the same time, the medical school should be organized as a closely integrated unit without unwarranted responsibilities in connection with any other educational programs. It should also be organized to provide ample opportunity for autonomous development and for continuous study and experimentation in the conduct of its activities.

FACULTY

The development and maintenance of medical school faculties is one of the most serious problems facing the medical schools today. The problem is only in part a financial one. There simply is not a sufficient number of competent and well trained men to fill the required positions in the existing medical schools. This is especially true in the basic science departments. Newly developed medical schools with sufficient funds may secure faculty members by "raiding" existing schools for men now essential to the programs of those schools. This contributes little to medical education on a national basis. More adequate financial support of medical schools and increased opportunities for research will offer more attractive careers in the basic sciences and attract more graduates to them.

Competent clinical faculty members, although less scarce, are frequently more difficult to move from schools and communities in which they have become established. The mere presence of competent and interested practitioners in a community in which it is

proposed to develop a new medical school is not in itself assurance that the school can readily develop a competent clinical faculty. On the other hand, the absence of such competent clinicians in the community means that the school must necessarily build its clinical faculty entirely from outside sources. In any circumstances, the school must have a considerable number of its faculty in the major clinical departments serving on an academic basis if it is to maintain satisfactory standards. It must also have available for teaching a considerable group of competent physicians in the more narrow clinical specialties. No newly developed medical school will have readily available the competent, experienced and interested clinical teachers which many of the existing schools have developed over a period of many years.

INDEPENDENCE

Given a competent faculty, a school must be independent of any domination or coercion in the development of its teaching and research programs as long as satisfactory standards of medical education are maintained. These programs will differ in various schools, depending on a variety of factors. The great progress which has been made in medical education in this country has been due in a large measure to the independence of schools in developing their own teaching and research programs.

CLINICAL FACILITIES

The mere fact that more than half of the undergraduate programs of medical schools are today carried on in hospitals and outpatient clinics is evidence of the important place of clinical facilities in the development of a school. Practically all of the graduate programs and postgraduate refresher courses are conducted in hospitals. Hence, one of the most important features of a program for the development of a new medical school is the availability of clinical facilities which are not alone adequate in both quantity and quality but are definitely under the control of the school so that they may be fully available for both teaching and research.

LOCATION

The unsatisfactory location of a medical school may for all time handicap it in its teaching, research and service programs. The number and variety of clinical cases both on the hospital wards and in the outpatient clinics which are essential for a satisfactory program of clinical teaching and research may depend in a large measure on the location of the school. In general, it is extremely difficult to provide adequate hospital and outpatient material for satisfactory clinical instruction in a community of less than 200,000 population. The availability of the competent teachers in all of the various specialties of medicine which are essential to the conduct of a well rounded teaching, research and service program may also depend on the size and nature of the community in which the school is located. Consideration should also be given to the location in which the school can most effectively render its contribution to the health and medical care programs of the section of the country that it will be called on to serve.

The ideal location for a medical school is on a general university campus in intimate relationship with the other colleges of a large university if at the same time the school can have readily available all of the other essential personnel and facilities required for

its teaching and research programs. Such a location permits a medical school to broaden more readily its activities and responsibilities in both teaching and research. However, in these circumstances it is especially important to emphasize that the medical school should be organized as a closely integrated unit without unwarranted responsibilities for other educational programs.

LEADERSHIP

Either in its dean, with its faculty or in the faculty itself, the school must have sound, intelligent, effective leadership which views the school as an integrated whole in regard to its educational and research programs, its relationships to hospitals and outpatient clinics and to all health and medical programs of the area in which it is located, as well as its place in the nation as a whole.

COMMUNITY COOPERATION

Without the full cooperation of the medical, health, social and welfare agencies of the community in which it is located, a medical school may be greatly handicapped in providing a satisfactory educational program and in its continued support and development. A medical school has much to offer such agencies in terms of high standards of service. At the same time the service programs of the community agencies, both public and private, may offer unusual opportunities for both teaching and research. Although the over-all benefits of such cooperation are becoming more generally recognized, it is important that a newly developing medical school give attention to such available community agencies and seek their cooperation and support from the very beginning. Several schools which in the past have failed to do this have functioned under serious handicaps for a number of years before they have been able to convince the community agencies of the mutual advantages of cooperation in the conduct of their programs.

PHYSICAL PLANT

Just as industry has learned that efficiency in the operation of its plants depends in large measure on sound planning and construction, so medical schools have learned that the efficient functioning of a school as an integrated whole, operating in satisfactory relationship with all of the programs in which it participates, requires sound physical planning. An official of a well known and long-established medical school which has developed its various laboratories and clinical departments in separate buildings recently stated that the faculty of this school had even considered the advisability of abandoning their entire plant and starting over again in the development of a well integrated physical plant.

The wisdom of appointing major department heads sufficiently early in the development of a new medical school to permit them to plan the construction of their departments has been demonstrated in the development of several schools. The important features to keep in mind in the construction of a new medical school include efficiency, simplicity, flexibility and expandability, together with proper physical relationships between basic science and clinical departments in their teaching, research and service programs. In this connection it is important to realize that nothing will cement the relationships of the various units of a medical school's development quite like cement. Furthermore, nothing will prevent barriers between departments quite like eliminating them in construction plans.

I have briefly indicated these various factors which are involved in the development of sound programs of medical education in the hope that they may stimulate careful study and planning on the part of those who contemplate the development of new medical schools.

The Council on Medical Education and Hospitals of the American Medical Association, working in cooperation with the Association of American Medical Colleges, is anxious to be of assistance to any responsible groups which may contemplate the development of new medical schools.

It is hoped that the survey of medical education now being initiated by the Council on Medical Education and Hospitals and the Association of American Medical Colleges will provide intelligent guidance for the future development of medical education in all of its various relationships to the improvement of the health and medical care of the American public.

LICENSING OF FOREIGN MEDICAL GRADUATES IN THE UNITED STATES

CREIGHTON BARKER, M.D.
and
GRACE MOONEY, Ph.D.
New Haven, Conn.

The licensing of graduates of European and other foreign medical schools, except those in Canada, has been a matter of grave concern to examining boards in a majority of our states for the last ten or a dozen years. Prior to that time, the number of graduates of foreign schools seeking settlement in this country was small, and often the candidates were of such unusual attainment that their coming here presented little question. However, coincidental with political changes in central Europe during the thirties, a substantial number of émigré physicians sought refuge in America, and licensing boards were faced with a new and complicated problem. At about the same time many American students went to Europe for medical education and returned here to practice. The Council on Medical Education of the American Medical Association has reported that from 1930 through 1947, 14,520 graduates of foreign schools, not including Canadian, were examined by boards in the United States. Of these, 7,547 passed; there was a failure rate of 48 per cent. The largest number, 2,088, was examined in 1940.

The two groups, that is, the émigré and the foreign educated American, met with somewhat different reactions on the part of boards. On the one hand were aliens seeking refuge in a new country; they knew little of the standards of medical practice here, and in many states they were completely barred. On the other hand were natives who had obtained their education abroad, and the same objections could scarcely be raised about them. But underlying both types of reaction was the question of the quality of medical education the graduates had received. The Council on Medical Education does not grade medical schools outside the United States and Canada, and information concerning most foreign schools is inadequate. In an earlier day, a few were well known to American physicians who did postgraduate work in them, but the years have

Read in a panel discussion at the Forty-Fifth Annual Congress on Medical Education and Licensure, Chicago, Feb. 8, 1949.
Dr. Barker is secretary and Dr. Mooney is executive assistant of the Connecticut Medical Examining Board.

brought many drastic changes. At this time, no agency except the State Board of Medical Examiners in New York, which Dr. Lochner told us about a year ago,¹ has reliable information concerning these schools.

While it is possible that the peak of the years 1938 to 1942 may not again be experienced, the problem is still with us. There are literally thousands of displaced physicians in central Europe. Many more, although not actually displaced, are unhappy and are using every means to remove themselves elsewhere, particularly to the United States.

FUTURE PROBLEMS

The future is further dangerous by reason of three other factors. One is the tremendous present enrolment in German medical schools, as was reported here a year ago by Dr. Wright,² and which I (C. B.) observed in detail while I was with the American Military Government there last September. How these new thousands of physicians can be absorbed into the economy of a bankrupt and all but ruined country, already oversupplied with medical personnel, is impossible to understand.

The second reason for concern is the ruling of the Veterans Administration that American veteran students may use their allowances under Public Law No. 346 (G. I. Bill of Rights) to obtain education, including medical education, in foreign schools. Mention of this was made in Dr. Lochner's paper¹ last February, and, since that time, a large number of examining boards have written to the Veterans Administration criticizing this ruling and stating that veteran graduates so trained will not be eligible for licensure here when they return. The Veterans Administration has not changed its stand, but, from recent correspondence, I am led to the impression that a better effort is being made to inform these students that there is no assurance that they can be licensed to practice in this country. I am sure that many of you have had inquiries about their eligibility from these prospective students. The bulk of them seems to be gravitating toward Switzerland. When I was in that country last summer, I asked representatives of several schools about the status of American students and inquired whether they had any. I gathered, without collecting actual figures, that in several Swiss schools as many as 10 per cent of the students are Americans. The Swiss welcome our students and say they find them well prepared.

Finally, there is the increasing awareness on the part of the public of the apparent shortage of physicians. The expression "apparent shortage" is used advisedly because no one seems to know the real answer. Statisticians of the American Medical Association tell us that we are better supplied with doctors than any other country in the world and that there is no shortage. The first statement is undoubtedly true, but perhaps because of our broad field of medical care in the United States we need a great many more than any other country. It is said that there is faulty distribution, and probably that can be admitted, but it is a natural distribution that seems highly satisfactory to the physicians who distribute themselves badly, and that is an element of our freedom. In any case, statistics are cold comfort to communities that cannot get a doctor and state hospitals that cannot fill their staffs.

The concerned public is thinking, as Dr. Murphy of the University of Kansas pointed out, that the medical profession itself is limiting the production of physicians as a matter of self protection. Certain groups of this same public are also accusing medical examining boards of limiting the supply of physicians by not admitting émigrés to licensure. A few states have already been sharply faced with this, and I believe that others of us will be. Representative Case of South Dakota introduced a bill into the Congress on January 31 that would let five hundred additional displaced doctors enter the United States from Europe for service on Indian reservations without state license. All of us here must realize that these potent influences are at work.

VARIATIONS IN STATE BOARD REGULATIONS

The ways for meeting this problem of licensing foreign graduates, particularly those from European and Latin American schools, vary from state to state, and although last June the Council published an analysis of the rules of boards, these rules change rapidly and what applied then is different now. At best it is difficult to get an over-all picture. Last autumn, with the approval of Dr. W. L. Bierring, Secretary, Federation of State Medical Boards of the United States, we undertook a canvass of all the states and territories to determine which laws and regulations apply. The inquiry was answered generously by all of you and I wish to thank you for your assistance. Information was received from all but one state; Florida is missing. I shall try to consolidate the findings. However, it must be admitted that it is not always possible to make categorical statements because there appears to be a good deal of flexibility in some regulations. I hope my summary is accurate and helpful, but I realize it is subject to comment and perhaps revision because the information received has not always lent itself to exact interpretation.

Canadian Graduates.—Strictly speaking, Canadian schools should be classified as "foreign." Generally, however, graduates of Council-approved Canadian schools are accepted on the same basis as graduates of schools in the United States. An exception is Massachusetts, which has a recently established Approving Authority. As of November 1948, that Authority had approved only four schools in Canada for matriculants after Jan. 1, 1948. Graduates of Canadian schools prior to that time are not affected.

Michigan does not accept graduates of Canadian schools unless they repeat the fourth year of training in an approved school in the United States. This seems a little unusual since the Canadian schools are Council approved, but the rule appears to have been established to restrict foreign graduates and Canada became involved. Louisiana has a similar rule, but it is not applied to Canadian graduates. The requirement of United States citizenship deters some Canadian nationals. Thirty-two states, Alaska, Hawaii and Puerto Rico require that candidates be citizens of the United States. Eight of these states, however, exempt Canadians from this requirement. Louisiana requires first papers and withholds permanent license until naturalization.

Foreign Graduates.—As to graduates of schools outside of North America, widely diverse and increasingly restrictive regulations are found. In most cases, these are rules established by boards rather than by

1. Lochner, J. L.: Licensure Evaluation of European Medical Graduates, *J. A. M. A.* 137: 16 (May 1) 1948.

2. Wright, I. S.: Medical Education in Germany and Austria, *J. A. M. A.* 137: 5 (May 1) 1948.

statute. From this point on, graduates of Canadian schools will not be included in the discussion. There are a few minor limitations put on the endorsement of United States licenses for graduates of Canadian schools, but they do not have broad significance.

The data at hand show that twenty-three states will not admit graduates of any schools outside the United States and Canada. The special regulations in Michigan have already been mentioned; Florida and the Virgin Islands are not included in the analysis. The territories of Alaska, Hawaii, Puerto Rico and the Canal Zone will be mentioned briefly. Alaska admits foreign graduates. Hawaii states that foreign graduates are not admitted, "but there may be exceptions"; United States citizenship is required. Puerto Rico accepts foreign graduates after individual consideration, and applicants must be citizens. There is no private practice in the Canal Zone and civil service rules apply.

Twenty-two other states and the District of Columbia remain to be considered. Two of these, Mississippi and Rhode Island, appear to admit foreign graduates without much restriction. Eight states do not accept foreign graduates after a fixed date. The dates established are usually in the early years of World War II. Three states require that the candidate be eligible for examination by the National Board of Medical Examiners. This rule has served to bar foreign graduates because the National Board has not admitted them for a number of years. Mr. Everett S. Elwood, the executive secretary, has informed me lately that the board now accepts graduates of medical schools connected with the universities in England, Scotland and Ireland. The remaining nine states are quite difficult to classify and can be grouped only as those states which state that each case is given individual consideration, and what rules guide those considerations I do not know. There appear to be exceptions for graduates of schools in Great Britain. Some states will accept such graduates when they will not admit graduates of continental or South American schools. It is probable that there is still confusion on the part of some of the boards about the University of Edinburgh, an ancient school of high repute, and the extramural schools of Edinburgh.

SUMMARY

So far as fixed and understandable regulations apply, and for practical purposes, there are eight states in which recent graduates of foreign medical schools can be admitted. This conclusion is somewhat inconsistent with the licensing records of 1947 published by the Council on Medical Education.³ The discrepancy may be explained in part by the change in rules in several states since 1947, as is the case in Connecticut, and the inclusion under the classification "foreign medical faculties" of schools in Great Britain whose graduates are acceptable in several states. Also during the past few days I have learned of new policies in North Dakota and Minnesota. It seems from our data that the eight states are: California, the District of Columbia, Georgia, Maine, Mississippi, Missouri, Rhode Island and Virginia.

I suppose that exceptions will be taken to the statements that I have made, and, if they are, it serves to show how confusing and uncertain the regulations are.

WHAT SHOULD THE GENERAL PRACTITIONER DO ABOUT ALLERGY?

STEARNS S. BULLEN Sr., M.D.
Rochester, N. Y.

There is a growing body of evidence that altered reactivity of the tissues on reexposure to certain substances is the causative factor in the production of several diseases the causation of which has been obscure, such as periarteritis nodosa, dermatomyositis, acute glomerular nephritis and others. However, it is the allergic manifestations which appear on the covering and lining membranes of the body, that is, the skin and the mucous membranes of the respiratory and gastrointestinal tracts, which present the day by day problems in practice. These include the eczemas of the infantile, "atopic" and contact types; urticaria; coryzas of the seasonal and perennial varieties; asthma, and some disturbances of the gastrointestinal tract which are usually functional in nature and in which the tissue changes are generally reversible.

In uncomplicated cases, these allergic diseases seldom cause death, but their chronicity and the suffering and disability which they produce demand careful clinical consideration, especially in the early stages, because the physical changes in the tissues are largely reversible and proper treatment may prevent permanent damage. The frequency with which they occur and the variability of their manifestations make it certain that every physician will be confronted with the problems which they present.

It is known that allergic persons differ from the average in the manner in which they react to contact with certain substances. It is sometimes forgotten that they are subject to the same psychic and somatic disorders as are the rest of the human race and that these nonallergic disturbances may modify the allergic disease or be modified by it.

It is an axiom that adequate treatment depends on accurate diagnosis. Accurate diagnosis in the allergic diseases does not consist merely in attaching a name to the presenting syndrome, but is concerned with finding the cause of the disturbance which produces that syndrome.

DIAGNOSIS

As in other fields in medical practice, the most important diagnostic measure is a complete and detailed history. Such a history can be obtained and evaluated only if the history taker has a knowledge of the usual pattern of symptoms of the disease in question and is willing to take time to build up the clinical picture from the beginning and not be content merely with a description of the most recent attack. This is especially important in the case of the allergic diseases because they tend to recur over such long periods of time that the primary cause which loaded the gun may be hidden by a number of factors of less importance which at various times have pulled the trigger and caused explosions of symptoms.

Certain generalities may give a framework on which the picture can be built up. The age of onset of symptoms may suggest important connotations. Food sensitivity is a common cause of allergic diseases which

3. Medical Licensure Statistics for 1947; Forty-Sixth Annual Presentation of Licensure Statistics by Council on Medical Education and Hospitals of American Medical Association, J. A. M. A. 137: 603 (June 12) 1948.

From the Department of Medicine, School of Medicine and Dentistry, University of Rochester, Rochester, N. Y.

Read before the Section on Miscellaneous Topics in the Session on Allergy at the Ninety-Seventh Annual Session of the American Medical Association, Chicago, June 23, 1948.

begin in infancy and early childhood, with inhalant sensitivity in a relatively minor role. When the manifestations begin in later childhood and the adolescent years, food allergy occurs with lessened frequency and inhalant sensitivity appears oftener. In my experience, food sensitivity is seldom the cause of allergic disease which begins in young adult life and later, whereas inhalants can commonly be incriminated. In asthma which begins after the age of 40, specific sensitivity to extrinsic factors can seldom be found by any test presently available.

In the case of the dermatoses at all ages the possibility of sensitivity to some substance which comes in contact with the skin must be considered.

The time of year at which symptoms occur is often suggestive. Coryzas, often accompanied with asthma, which conform to the pattern of seasonal hay fever and which coincide in onset and offset with the pollen seasons in a given locality can usually be proved to be caused by sensitivity to pollen. However, in the northeastern states, the season at which mold spores are in greatest abundance in the air roughly coincides with the ragweed pollen season and mold sensitivity must be kept in mind.

The presence of animals in the household or in the immediate environment should be noted. I have been impressed with the number of cases of allergic coryza, asthma and eczema which flare up each fall when the heating plants are started and which can often be explained on the basis of dust sensitivity. The occupation of the patient and other members of the household, who may bring home dusts of various kinds on their clothes, must be investigated.

The present widespread use of the new synthetic drugs and antibiotics makes it especially important to inquire about the use of medicaments, because, in general, the only way to determine whether they are causative factors is by history and clinical trial by administration to the patient, a procedure which may be dangerous.

The fact that the leading manufacturers of cosmetics expend so much effort in producing "hypoallergic" preparations is good evidence of the importance of these substances as sensitizers. The relation of the occurrence of symptoms to the use of such things as wave sets for the hair, perfumes, makeup preparations, deodorants, depilatories, sun tan lotions and nail polish needs consideration.

As the plastics have come into greater use, it has become increasingly evident that they not infrequently produce sensitivity. While the workers who handle these substances are the persons most likely to experience dermatoses or allergic manifestations in the respiratory tract as the result of sensitivity to them, instances of such sensitivity in the general population are by no means uncommon.

A detailed story of the manner in which symptoms developed in an acute attack often gives evidence suggesting the type of substance which is the cause. An attack of asthma, urticaria or dermatitis appearing a short time after the ingestion of a food or drug, especially if this occurs repeatedly, points to the obvious relation between the two events. Likewise, the prompt appearance of symptoms after contact with an animal or a cosmetic preparation or after exposure to large amounts of dust gives strong evidence that an inhalant sensitivity must be suspected.

Patients frequently make such statements as "I just get over one cold when another one starts," or "I have asthma only when I catch cold." In a majority of such cases, questioning will develop the story that these "colds" fit into the pattern of symptoms of allergic coryza, with nasal obstruction, watery nasal discharge which does not become thick and purulent, paroxysms of sneezing and, at times, redness and itching of the eyes and itching in the throat. In children in whom asthma follows these symptoms of the upper part of the respiratory tract, especially if little or no fever is present, inhalant sensitivity should be suspected.

It is often difficult to rule out infections as the cause of the coryza, but if these episodes recur every two to four weeks, infection is improbable.

In conditions like seasonal hay fever the essential historical background can usually be obtained in a short time. However, in cases of long-continued asthma and in the dermatoses it is commonly necessary to go over the story time after time to develop new leads which the patient may have forgotten or which have seemed insignificant to him. It is common knowledge that it is seldom possible to get an adequate picture of a patient's personality and the way he may be affected by domestic discord or difficulties with his job except by repeated interviews.

The physical examination in allergic conditions, as in other medical problems, should aim not only to evaluate the observations of the presenting syndrome but to determine the presence or absence of disease due to other causes. In an otherwise complete examination, too often a study of the nose is neglected.

Nasal obstruction due to a swollen pale mucosa plus a large amount of thin mucoid discharge is suggestive of an allergic coryza, rather than one due to infection. Not infrequently, however, even in such clearcut allergic conditions as seasonal hay fever, the appearance of the nasal mucous membrane may be normal in the middle of the day even though the patient may have pronounced symptoms morning and evening. The presence or absence of nasal polyps should be determined and a search made for purulent discharge from the sinuses.

Cutaneous tests for sensitivity have attained a deservedly important place in the specific diagnosis of the cause of allergic diseases. However, like all other tests, they deserve serious consideration only when properly done and the results well evaluated. It must be remembered that positive reactions to scratch or intradermal tests of the immediate wheal type will be obtained only in conditions in which a skin-sensitizing antibody is present. Such an antibody usually exists in allergic diseases affecting the respiratory tract, but occurs much less frequently when the manifestations occur on the skin or in the gastrointestinal tract, and, therefore, in these latter cases, such tests are frequently of no diagnostic value.

Whether one does scratch or intradermal tests is a matter of individual preference, if it is kept in mind that the material for the scratch test must be fifty or more times stronger than that for the intradermal method. It is worthy of emphasis that a scratch test with an extract of strength appropriate for intradermal testing may fail to give a positive reaction because it is too weak, and, conversely, that one appropriate for scratch testing may produce a serious generalized reaction if it is injected into the skin.

A common error in scratch testing is the failure to rub off the blood clot from the surface of the scratch, thus preventing the test material from coming in contact with the cells in the deeper layers of the skin. With the intradermal technic, all too frequently, too much material is injected, producing nonspecific whealing which may be wrongly interpreted as a positive reaction. An amount not to exceed 0.02 cc. should be used. It is obvious that fluid preparations must be used for intradermal testing, and it must be remembered that fluid extracts tend to lose their potency and must be renewed frequently.

Contact or "patch" tests, by which an attempt is made to reproduce in miniature at the test site the lesion of a contact type dermatitis, are not interchangeable with scratch or intradermal tests. They are not of value in conditions affecting the internal organs, nor do scratch or intradermal tests commonly give information in cases of contact dermatitis.

Positive cutaneous reactions do not, with certainty, mean that the substance giving the reaction is the cause of the presenting symptoms. If a positive reaction is to be considered significant, it must be possible to show that contact with the reacting substance actually produces the symptoms. Often evidence that such is the case may be obtained from the history, but occasionally it is necessary and desirable to attempt to reproduce the symptoms by exposure to the reacting substance. On the other hand, negative cutaneous reactions do not, with certainty, rule out the possibility of sensitivity to the substances tested. This may be due to the fact that the test substance is too weak to produce a positive reaction, or that it is not of the exact chemical composition of the material which produces the symptoms.

Cutaneous tests with drugs give almost uniformly negative reactions even in cases of proved clinical sensitivity to them. Tests with bacterial extracts are also unsatisfactory, seldom producing the immediate wheal reaction. Delayed reactions of the tuberculin type are common, but they mean only that the body has been invaded by the organism in question at some past time and has produced antibodies which react with the antigen, and, while this reaction is specific for the organism, it usually has no relation to the clinical syndrome.

"Group" testing in which a short cut is sought through the use of groups of biologically related substances in one extract is untrustworthy. It has been suggested as a means whereby, with a relatively small number of tests, a patient may be "completely studied" for sensitivity to everything with which he may conceivably come in contact. Because one substance in the group may be irritating to the skin, a false positive reaction may implicate the whole group, or, on the other hand, a potential reactor may be in too great dilution to give a positive reaction. A selection of test materials, based on an evaluation of the clinical picture as developed by the history, gives a more intelligent and practical approach to the problem.

While it is improbable that complete agreement will be reached on what tests shall be used routinely, it is generally conceded that, in the average case, when the tests are chosen intelligently, with relation to the pattern of symptoms presented, a few dozen will give adequate information. Such a list may be comprised of extracts of the pollens and molds prevalent in the

locality where the patient lives; materials from furniture and mattress stuffing, such as cotton and kapok and their seeds; dust; cosmetic preparations, such as wave set materials and orris powder; the epithelium of the domestic animals, including feathers, and the common foods, such as milk, egg, cereals, chocolate, vegetables, meats, nuts, fish, shellfish and fruits.

In some patients, of course, the history will suggest other leads which must be followed up. However, if it is remembered that frequently recurring bouts of symptoms must come from frequent or regular exposure to the excitant, the possibilities can be fairly well delimited.

Tests in cases of contact dermatitis must be chosen for the individual case as the history suggests possibilities and may range from nail polish, cosmetics and soaps through a great variety of substances used in industry.

Results of tests with extracts of foods are often disappointing. This may be due to the fact that the extract does not contain material of the same chemical structure as that which is ingested or that the specific excitant is a partial digestion product of the food and as such is not contained in the test material. Another important factor may well be that food tests are often used indiscriminately in many conditions in which food sensitivity rarely occurs.

When food sensitivity is suspected in spite of negative reactions to cutaneous tests, clinical trial by means of an elimination diet and the later addition of foods, one at a time, may give useful information. If a food is the cause of symptoms, improvement should result in a relatively few days and a patient should not be kept on a rigidly restricted diet for long periods. Because food sensitivity is so rarely the cause of a condition like asthma which begins in middle life or later, elimination diets are unwise in such cases.

Roentgen studies of the sinuses, teeth, chest and gastrointestinal tract are frequently necessary. The observation of eosinophilia in the blood and secretions from the respiratory tract, when other causes of eosinophilia can be ruled out, gives confirmatory evidence of the presence of an allergic process, although its absence does not prove that allergy is not the cause of the symptoms.

TREATMENT

In allergic diseases, as in all others, the best treatment is removal of the patient from contact with the cause. Hyposensitization by injection of extracts of pollens, molds, dusts and the like is much less satisfactory, but is often necessary. It would seem unnecessary to emphasize the importance of choosing extracts of substances which fit into the clinical picture which the patient presents if it were not for the all too frequent use of, for instance, grass pollen extract for treatment of patients who have symptoms only during the ragweed pollen season.

Injection therapy in allergic persons is not without danger, and the dosage must be regulated in accordance with the tolerance of the patient. Hyposensitization by means of injecting extracts of foods and drugs has been proved to be valueless.

The eradication of foci of infection in the teeth, tonsils and sinuses is desirable, but the usual indications for such operations should be present. They should not be done solely because asthma or allergic coryza exists.

Treatment for the temporary alleviation of symptoms by means of epinephrine and similarly acting drugs or expectorants is usually necessary. To this group, the antihistaminic drugs have been added. Some recent printed and radio advertising would seem to try to give the impression that it has been established that the liberation of histamine explains all allergic manifestations and that these can be controlled by the administration of the advertised drug.

The antihistaminic drugs are definitely useful. As with ephedrine, when it was first introduced, there is a tendency for one to rely on them too much, instead of searching for and treating the cause.

The vast literature dealing with allergic disease has been well summarized in several books¹ which make available in convenient reference form present day knowledge of this complicated subject.

The answer to the question presented in the title of this paper differs in no way from the procedure in any of the other branches of medicine, which have been accepted as specialized fields.

1. The general practitioner may undertake the necessary diagnostic studies and carry out the indicated treatment.

2. He may not care to make or have the facilities for making the special studies and may refer the patient to a qualified person for diagnosis and then carry out the treatment himself.

3. He may desire to transfer the whole problem to some one working in this field.

ABSTRACT OF DISCUSSION

DR. JOHN H. MITCHELL, Columbus, Ohio: In at least one third of patients with perennial asthma, the history, cutaneous tests and clinical trial with disguised allergens fail to demonstrate specific hypersensitivity and no physical cause such as heart disease, emphysema, tumor, foreign body, or bronchiectasis can be found. There remain then those difficult cases of asthma in which the condition fails to fit the allergic pattern and is classified as "intrinsic." Since personality factors are often of major significance in many nonseasonal allergic disorders, a good history is essential. When the patient is permitted to tell his story in his own way, pertinent diagnostic data are obtained, but of greater importance is the therapeutic effect of such free expression. Moreover, if the physician is more than a kindly attentive listener and carefully abstracts the feelings and the emotional content from the patient's statements, calmly reflecting these back to him, a dynamic process is initiated which allows further discussion of deep emotional feelings and significant personal problems. In this patient-centered nondirective approach, the early interviews are characterized by a multiplicity of complaints and numerous statements of negative emotional attitudes, such as confusion, fear, escape, dependency, hostility, rejection, social maladjustment and unhappiness. The patient thus assumes more and more responsibility for his illness and for talking about himself. The physician, on the other hand, is relieved of asking direct questions, of interpreting the psychologic meaning of the

patient's statements and of giving advice and direction about personal problems. Since only conscious material which has been verbalized is dealt with, there is little danger of doing psychologic harm or of aggravating symptoms. As the interviews continue, attitudes become more positive, statements of improvement are frequent, insights develop and the patient becomes aware of relationships between his bodily disorders, emotional conflicts and personal problems. In the successful case, the patient finally sees better ways of doing things and makes the necessary choices to improve his life pattern. Thus, relating the history becomes a profound psychotherapeutic experience where, with the aid of the interviewer's skill, problems are faced and worked through to a satisfactory solution. Although many previously frustrating and apparently hopeless problems in allergy have been controlled, the beginner should realize that as his interviewing skill increases its therapeutic effectiveness also improves.

LOBOTOMY FOR INTRACTABLE PAIN

JOHN B. DYNES, M.D.

and

JAMES L. POPPEN, M.D.
Boston

Pain is a frequent symptom of disease or injury and in most instances may be relieved by the removal of the underlying cause or by the use of anesthetic agents or analgesic drugs, or it may be tolerated with fortitude and varying degrees of resignation by those who possess such qualities of temperament. Every physician has patients in his practice who experience pain which is unrelieved by the usual measures and in whom great physical and mental suffering result. Not infrequently such patients are totally incapacitated, a burden to their families, addicted to drugs, at times mentally unbalanced, unpredictable and always self concerned. In the majority of instances, if not in all, there is originally a discernible anatomic or physiologic reason for the pain experienced. In certain instances, however, a fixed pain pattern is set up prior to the removal of the existing cause. This pain pattern may be interrupted or altered by a variety of therapeutic procedures (psychotherapy, psychoanalysis, hypnosis, nerve block, nerve section, shock therapy, drug and sleep therapy, general anesthesia, sympathectomy, cordotomy and, finally, lobotomy). We do not intend to imply that these procedures are always applied in the order named, as patients with intractable pain secondary to a metastatic malignant condition (to mention only one cause of pain) should not be treated in the same way as patients having intractable pain and secondary drug addiction and in whom there is no evidence on examination of the original disease that initiated the pain pattern. We believe, however, that it is advisable in the latter instance to apply any or all of those measures which are likely to alter the pain pattern before one undertakes operative procedures that permanently interrupt certain nervous pathways.

Prefrontal lobotomy (the surgical severing of the neural pathways to the frontal lobes of the brain) was introduced by Moniz,¹ in 1936, for the treatment of certain mental disorders. Freeman and Watts² first

1. Blanton, W. B.: *A Handbook of Allergy for Students and Practitioners*, Springfield, Ill., Charles C Thomas, Publisher, 1942. Cooke, R. A.: *Allergy in Theory and Practice*, Philadelphia, W. B. Saunders Company, 1947. Crip, L. H.: *Essentials of Allergy*, Philadelphia, J. B. Lippincott Company, 1945. Feinberg, S. M.: *Allergy in Practice*, ed. 2, Chicago, The Year Book Publishers, Inc., 1946. Gay, L. N.: *The Diagnosis and Treatment of Bronchial Asthma*, Baltimore, Williams & Wilkins Company, 1946. Ratner, B.: *Allergy, Anaphylaxis and Immunotherapy*, Baltimore, Williams & Wilkins Company, 1943. Rowe, A. H.: *Elimination Diets and the Patient's Allergies: A Handbook of Allergy*, ed. 2, Philadelphia, Lea & Febiger, 1944. Sulzberger, M. B.: *Dermatologic Allergy*, Springfield, Ill., Charles C Thomas, Publisher, 1940. Sulzberger, M. B.: *Office Immunology, Including Allergy*, Chicago, The Year Book Publishers, Inc., 1947. Tuft, L.: *Clinical Allergy*, Philadelphia, W. B. Saunders Company, 1938. Unger, L.: *Bronchial Asthma*, Springfield, Ill., Charles C Thomas, Publisher, 1945. Vaughan, W. T.: *Practice of Allergy*, St. Louis, C. V. Mosby Company, 1939.

From the Department of Neuropsychiatry (Dr. Dynes) and the Department of Neurosurgery (Dr. Poppen), The Lahey Clinic, Boston.

Read before the Section on Nervous and Mental Diseases at the Ninety-Seventh Annual Session of the American Medical Association, Chicago, June 25, 1948.

1. Moniz, E.: *Tentatives opératoires dans le traitement de certaines psychoses*, Paris, Masson & Cie, 1936.

2. Freeman, W., and Watts, J. W.: *Psychosurgery*, Springfield, Ill., Charles C Thomas, Publisher, 1942.

employed this operation in the treatment of mental disease in this country, and they were also the first to call attention to the fact that after lobotomy several patients were relieved of pain, if pain was a prominent preoperative symptom associated with their mental disorder. It was not until 1946³ that reports appeared in the literature in which patients having intractable pain as their chief or only symptom were subjected to this operation.

Lobotomy for the relief of intractable pain has been performed on 18 patients at the Lahey Clinic and forms the basis of the present report. Of this number there were 9 who had metastatic malignant disease. Of the remaining 9 patients in the heterogenous group, 2 had an atypical tic douloureux and 1 had a cerebral aneurysm and intractable pain from headache which was not relieved by ligation of the internal carotid. Two patients had gastric tabetic crises, 1 of these having a

table illustrates the preoperative diagnoses and the degree of benefit derived from the operation, as well as certain other interesting and pertinent information about these patients.

The symptoms following lobotomy in these non-psychotic patients were variable, but in general our patients revealed two postoperative behavior patterns with occasional mixtures of these two patterns of behavior. In this respect, our data are in agreement with Stevens and Mosovich.⁴ In one group the behavior of the patients was uninhibited and euphoric, and they were somewhat restless with a seemingly purposeless type of activity. Those in the second group were slowed up in both thinking and acting; they were dull and at times completely lacking in emotional expression or display and showed a striking reduction in interest and driving energy. There seemed to be one consistent regularly occurring personality trait which character-

Summary of Cases

Case No.	Age, Yr.	Sex	Clinical Diagnosis	Duration of Symptoms	Personality		Date of Lobotomy	Relief from Pain	Relief from Mental Suffering	Narcotic Addiction	
					Before Lobotomy	After Lobotomy				Before	After
1	48	M	Metastatic carcinoma of lung	6 mo.	Normal (extravert)	Euphoric (mixed)	Dec. 1947	Good	Excellent	Yes	No
2	56	M	Carcinoma of rectum	3 yr.	Normal (introvert)	Retarded	Jan. 1948	Poor	Good	No	No
3	53	M	Carcinoma, metastatic	6 mo.	Normal	Retarded	Dec. 1947	Good	Good	No	No
4	28	F	Carcinoma of rectum	3 yr.	Normal (extravert)	Euphoric	Jan. 1948	Excellent	Excellent	No	No
5	59	F	Carcinoma of rectum	3 yr.	Normal (introvert)	Retarded	Dec. 1947	Good	Excellent	No	No
6	48	F	Carcinoma of cervix	1 yr.	Normal	Retarded	Dec. 1947	Good	Excellent	Yes	No
7	38	F	Carcinoma of breast	7 yr.	Anxiety state	Euphoric	April 1947	Fair	Good	Yes	No
8	60	M	Carcinoma of lung	1 yr.	Normal (introvert)	Retarded	June 1947	Excellent	Excellent	No	No
9	61	M	Carcinoma of lung	6 mo.	Normal	Retarded	Jan. 1946	Good	Good	No	No
10	34	F	Tic douloureux, atypical	4 yr.	Anxiety state	Euphoric	May 1944	Excellent	Excellent	Yes	No
11	30	F	Aneurysm, cerebral	5 yr.	Constitutionally inadequate	Retarded	July 1946	Good	Excellent	Yes	No
12	55	M	Gastric crises (negative serologic reaction)	25 yr.	Psychopath	Euphoric (mixed)	April 1946	Fair	Excellent	Yes	No
13	60	M	Tabetic crises (positive serologic reaction)	24 yr.	Anxiety state	Euphoric	July 1946	Good	Good	Yes	No
14	40	M	Brachial neuralgia	3 yr.	Psychopath	Retarded (mixed)	Oct. 1946	Good	Good	Yes	No
15	67	F	Sciatica	25 yr.	Hysteria	Retarded	Jan. 1946	Fair	Fair	Yes	No
16	65	F	Arthritis; cervical osteoma	7 yr.	Menopausal (agitated)	Retarded	Feb. 1947	Poor	Fair	Yes	No
17	62	F	Tic douloureux, atypical	12 yr.	Psychopath	Retarded	July 1947	Poor	Fair	Yes	No
18	38	F	Lipoma, cauda equina	10 yr.	Behavior disorder	Euphoric	Jan. 1945	Good	Excellent	Yes	No

positive serologic reaction and definite evidence of tabes and the other having consistently negative serologic reaction. Another patient had brachial neuralgia following sympathectomy. Another had sciatica with intractable pain. Another had arthritis and a cervical osteoma, and the last patient had a lipoma involving the cauda equina. All of these patients had received quantities of narcotic and analgesic drugs, in an effort to relieve them of pain, and many of them were definitely addicted to drugs. Most of these patients had had some operation previous to lobotomy, such as rhizotomy, nerve block or cordotomy, in an effort to relieve them of the intractable pain, but these operative procedures had not been successful. In selecting patients for this operation of lobotomy, we relied chiefly on the degree of incapacity or disability of the patient, the duration of symptoms, the potential seriousness of the existing disorder (malignant conditions) and the failure of all other types of therapy. The

ized all patients who had had a lobotomy. This was an inappropriate or misplaced emotional reaction or response. It was not lack of emotional response as our two groupings of behavior patterns would indicate, but the inappropriateness of the reaction. For instance, it could not be said that the euphoric uninhibited patient did not display some emotion, but the quality of his emotional response was altered or perverted. The same was true for the slowed up person who showed diminished driving energy. From observing their behavior, one might think that such patients were depressed or melancholy, but they never admitted that they were mentally depressed and at no time did they show grief or shed tears. They were indifferent to sorrow and grief and seemed incapable of sensing or appreciating the feelings of others. One would hardly characterize these patients as being selfish or egocentric when they apparently were incapable of appreciating or behaving as if they understood the quality of the situation in which they found themselves. This alteration in their

3. Poppen, J. L.: Prefrontal Lobotomy for Intractable Pain: Case Report, Lahey Clin. Bull. 4: 205-207 (Jan.) 1946. Freeman, W., and Watts, J. W.: Pain of Organic Disease Relieved by Prefrontal Lobotomy, Lancet 1: 953-955 (June 29) 1946.

4. Stevens, H., and Mosovich, A.: Clinical and EEG Investigation of Prefrontal Lobotomy Patients, Am. J. Psychiat. 104: 73-80 (Aug.) 1947.

emotional response was accompanied with varying degrees of inertia or apparently purposeless restlessness. Patients would mechanically carry out routine household duties or other fairly simple and routine tasks, but in this group, after lobotomy, there was no one who was capable of creative work. As an example, one patient (case 12, table) was an inventor, and although after lobotomy he was euphoric and restless and showed no distinct intellectual or memory deficit, he was totally incapable of creative work or the visualization of a problem. He was unable to concentrate or to plan for the future. He seemed to lack interest or actually to be able to maintain an interest for more than a few minutes at a time. Incentive or the reason for being interested in an invention no longer appeared to be present. He had no appreciation of the value of money, nor did he have an interest in increasing his holdings, although he had a good income from previous inventions. At the time of last observation he was incapable of judiciously administering his estate, although he was relatively free of pain and no longer addicted to narcotics.

This raises the question of medicolegal responsibility of a patient who has had a lobotomy. To our knowledge, there have been no court rulings in this matter. The ordinary criteria for establishing mental competency would not appear to be greatly altered. The patient's memory is not usually greatly impaired. From ordinary questioning one would gather that he seems to know what he is doing and what he wishes to do. Undoubtedly, the question of "understanding the nature and the purpose of his acts" could be debated. However, the permanent alteration of those elements of personality that have to do with the patient's emotional life and his affection and regard for his family and friends are of great importance. The making of wills and, when indicated, the appointment of proper persons to be responsible for the patient's affairs would seem reasonable, as every one would agree that although lobotomy produces definite alleviation from certain mental symptoms, and also alteration of pain, it also produces permanent alteration in the patient's personality. These comments apply to the person who was judged insane or incompetent before lobotomy and even more so to those patients reported here who were not considered mentally unbalanced prior to lobotomy for intractable pain.

The primary objective in this series of patients was the relief of pain. In general, the 9 patients who suffered from pain of metastatic malignant disease were more successfully relieved of pain and mental suffering than the 9 remaining patients, although there were exceptions. Only 1 patient who had malignant disease could be considered to be neurotic or unstable emotionally prior to the development of cancer. This was not true of the remaining heterogeneous group of 9 patients as listed in the table, for it will be noted that all of these 9 patients in the heterogeneous group had some form of personality disorder. The better results in the group with pain secondary to metastatic malignant disease could be more closely correlated with their previous stable type of personality than with any other single factor. We do not intend to imply that the results were good in all patients with malignant disease and poor in those with no malignant disease or those in the heterogeneous group, but this may be determined by reference to the table.

In addition to the relief of pain, lobotomy relieves the patient of worry and concern, and in patients who are dying of cancer there can be no doubt that their remaining days are free of mental suffering and happier than they would otherwise have been. Patients who, prior to lobotomy, were racked with pain and unusually fearful of death could, after lobotomy, talk freely about their disorder and approaching death with apparent complete detachment and absence of emotional feeling or concern. Certain patients with metastatic malignant disease never again complained of pain in the few remaining months of life. This, however, was the exception and not the rule. Most patients with metastatic malignant disease continued to complain of pain if asked whether they had pain; however, if no comment was made to them and no questions asked, they would not spontaneously complain of pain after lobotomy. We are not able to explain this alteration in the pain pattern other than to say that it was altered by what appears to be the severing of one of the essential links in the pattern. The patient, as a rule, was unconcerned about pain, and in practically all instances he was no longer anxious and fearful as he had been prior to lobotomy. He tolerated pain with little or no objective evidence of suffering. This was true of both the group with metastatic malignant disease and the heterogeneous group previously mentioned. It was not necessary again to resort to the use of narcotics in either group, although a number of patients were given sedatives and some were given narcotics to quiet restlessness. It did not seem to make much difference what type of medication was given. One type of medicine seemed to have as much effect as another. Those patients who had been addicted to narcotics before lobotomy were able to dispense with them completely after the operation. Of the 18 patients in this series, 12 were addicted to narcotic drugs prior to lobotomy. Only 3 of the 9 with metastatic malignant disease were considered to be addicted to either morphine or meperidine hydrochloride (demerol hydrochloride®), whereas all 9 in the heterogeneous group of patients suffering from intractable pain were considered to be addicted to narcotics. This does not mean that the 6 remaining patients in the group with metastatic malignant disease had not been taking narcotics. All patients in this series had been taking narcotic drugs. Certain patients had rather severe withdrawal reactions following lobotomy, and narcotics were gradually withdrawn completely in this group.

Lobotomy for intractable pain appears to benefit the patient in two ways. The first is by an alteration of the pain pattern or the patient's appreciation of pain, the exact mechanism not being known, and, second, by an alteration of the patient's personality so that he no longer worries or is concerned about the problems of living or the pain of dying. Mental suffering is reduced and in most instances abolished by this operation. The great value of this procedure for patients dying of metastatic malignant disease, we believe, is related more to the alteration of the patient's personality and the subsequent reduction of mental suffering than it is actually to the relief of pain, although, as we have said, there were certain patients who never again complained of pain following this operation.

SUMMARY

Lobotomy for the relief of intractable pain has been performed on 18 patients at the Lahey Clinic. Relief of suffering, both mental and physical, was accomplished by this operation. In general, the results were more favorable in patients with metastatic malignant disease than in any other group and least satisfactory in those patients who displayed an exaggerated pain response in the presence of long-standing emotional instability, although there were exceptions. Lobotomy in this series definitely altered the patients' anxiety and fear reaction in such a manner that no anxiety, fear or concern over their impending death from cancer was manifest. Selection of patients is discussed, and the characteristic changes in personality following lobotomy are recorded. The case histories are briefly summarized in the table. In selected cases of metastatic malignant disease and also in cases of chronic pain of other origin, lobotomy may become the operation of choice to relieve intractable pain and the related mental suffering.

ABSTRACT OF DISCUSSION

DR. Y. D. KOSKOFF, Pittsburgh: The therapeutic effect of lobotomy in these 18 patients confirms the efficacy of this procedure in the treatment of chronic pain. Reduction of drug dependence is most gratifying. In the Pittsburgh series, my co-workers and I did not observe significant symptoms due to withdrawal of drugs. Indications for lobotomy described by the authors appear appropriate but perhaps a little rigorous. Unilateral lobotomy, ipsilateral or contralateral to the pain sites, appears useful for a definite period in certain chronic pain states. May not this procedure be offered prior to a last resort measure? The authors' explanation of the relatively better results in the group with malignant disease, because of their more intact personalities, is worthy of emphasis. Computation of the authors' data indicates that symptoms persisted for an average of 2.2 years, as contrasted with 12.8 years for the group without malignant disease. May not this difference be a factor in the better results in the group with malignant disease? The second point concerns itself with the psychologic effects of lobotomy. These data well support prior observations with their emphasis on the inappropriateness of the responses of the lobotomized patient. We did not observe specificity of function loss. Not only are creative capacities dulled, but the entire intellectual orbit may be affected. The third point deals with the theoretical explanation of the relief of chronic pain following lobotomy. The authors indicate two possible mechanisms: First, an alteration of the pain pattern; would the authors describe its nature? Second, "unconcern for living or dying"—eloquently described in this paper—this result is certainly basic. In any evaluation of the extent of relief, dichotomy of concept, namely, physical pain as distinct from mental pain, may become misleading. Both psychic and physical irritants converge in chronic pain states to form the basis of suffering. In a sense, frontal lobotomy is not surgical treatment for the relief of pain, but rather surgical treatment for the relief of suffering.

DR. WILLIAM P. CHAPMAN, Boston: These patients before lobotomy had not been relieved either by intensive medical treatment or by surgical treatment or by other forms of therapy, and after lobotomy about 14 of the 18 patients had been relieved. Apparently varying degrees of intellectual impairment and personality change are to be expected following this procedure. For that reason the decision to offer this operation for relief of pain in the group of patients in the younger age range or in persons in whom the pain is not due to a malignant or terminal type of lesion is difficult; this decision will probably remain difficult until more is known

of the over-all effect of lobotomy not only in the psychotic patients but in those patients with intractable pain who are relatively free of psychiatric illness and whose symptoms are really only the emotional symptoms which are associated with the pain. At the Boston Psychopathic Hospital we have been interested in the factors which may account for the relief of pain in these patients. We have been surprised to find that after lobotomy these patients tolerate less heat discomfort when applied to the forehead than before operation. This also applies to heat discomfort which is applied to other parts of the body. The Hardy-Wolff-Goodell pain threshold apparatus was used for these studies. In the group of 23 patients studied it was not possible to obtain pain perception thresholds presumably due in part to their mental state. At the end of the fifteen to sixty day postoperative period, and at intervals of three, six and twelve months after lobotomy, these patients winced and pulled their head away from the apparatus at significantly less intense heat stimulation than on either test I or test II before lobotomy. We have no explanation for the discrepancy that, on the one hand, these patients may be relieved of intractable pain by lobotomy and yet seem to tolerate less readily stimuli such as are applied to the skin. It would seem that, whatever the mechanism or the factors responsible for the relief in these patients, it is not related to the fact that they can tolerate more readily after lobotomy discomforting stimuli such as were applied to the skin.

DR. WALTER FREEMAN, Washington, D. C.: With regard to frontal lobotomy for the treatment of intractable pain, we are probably in the same position that we were five or six years ago in the treatment of mental disorders. We have learned that it can be done. Now we have to find out how it can be done without sacrifice of useful personality functions. It is rather easy to relieve pain of almost any type by lobotomy. In my experience, many patients who have been operated on for relief of chronic pain have thereafter relaxed and have given up the struggle for existence. I have had no experience with unilateral lobotomy. I have had some experience with trans-orbital lobotomy, which is not particularly satisfactory as yet. It is interesting that these patients, after lobotomy, respond more vigorously and actively to pain than they did before operation. That seems to indicate that frontal lobotomy has the effect of preventing the continuous contemplation of pain, the prolonged attention given to pain, which is so common in cases of severe pain. Pain seems to be of only momentary importance. It carries neither the forward-looking significance of death and disability nor the reverberations that occur following a distressing experience. These must belong to the emotional aspects of the pain phenomenon and, when the emotion is done away with, then pain either becomes no longer significant or actually disappears. In a good many cases it just disappears.

DR. R. P. MACKAY, Chicago: One of the justifications of the old-fashioned introspective psychology was that it taught something about subjective experiences which can be obtained in no other way. It taught that pain is almost unique among subjective sensations and experiences because it is accompanied with a particular degree of affect which might be summarized by the term "unpleasantness." Most of the work that has been done on frontal lobotomy for pain has tended to show, as does the work presented so ably here, that it is not pain which is abolished but the unpleasant emotional aspect. The interference with pain experience that results from lobotomy or cortical ablation consists largely of the abolition of affect. This is consistent with what is known about the phylogenesis of the nervous system. Pain, perhaps the most primitive of all sensations, has apparently little cortical representation, whereas discriminatory sensation, position sense, weight perception and so on, being later acquired, have cortical representation. The work that has been presented here shows—and it is important that one remember it from a physiologic point of view—that operation on the frontal lobe does not abolish or interfere with pain as a sensation, but it does apparently abolish a great deal of the affective component.

DR. JOHN B. DYNES: Dr. Koskoff was a little critical of the rigorous method of selecting patients for lobotomy. I feel that we should continue to be rigorous in our selection of patients for lobotomy, particularly in view of the fact that it is the last thing we can do, and certainly with patients in the younger age group who have had intractable pain for many years I think it would be foolhardy to operate before every other type of treatment has been exhausted. I believe, in patients with metastatic malignant disease, in patients dying of cancer, that one may be less rigorous, but even in those cases I think that one should be careful about explaining the situation to the family, who must realize that the patient is going to have a personality alteration. They must likewise realize that it is not an operation to save the patient's life. It is only an operation to aid in his future care and the relief of pain. If the patient has only a few weeks to live, I think that frequently medication will do just as well, but if the patient has many months to live or possibly a year or two, lobotomy does offer something very definite for the relief of intractable pain. My co-workers and I have had some experience with unilateral lobotomy and to date have not been favorably impressed. We have been aware of Dr. Koskoff's work in that field, and we wished to try it. I do not believe that there is anything definitely in favor of operating on the dominant frontal lobe. There is no evidence in our cases in which unilateral lobotomy was done that that procedure worked out. Operation on what was thought to be the dominant hemisphere was unsuccessful. Our experience in doing unilateral lobotomy is very limited. We finally changed to operation on both sides, and the results were successful. We would not condemn unilateral lobotomy until we have had further experience. Dr. Chapman's remarks are a bit disquieting. One wonders why the patient does gain relief from pain when actually there seems to be even more reaction to cutaneous stimuli. I suppose that Dr. Freeman's and Dr. Mackay's remarks likewise apply here and perhaps are the explanation I could offer for that seemingly increased reaction to maintained stimuli, but a general response with lessening of pain generally. Dr. Koskoff asked about addiction to drugs and stated that in his series there were no patients who had withdrawal reactions after lobotomy. That is an important problem, I think perhaps physiologically as well as with respect to this operation. I cannot say, however, that we had patients who did not have drug withdrawal reactions. We had patients who had typical symptoms of drug withdrawal—tachycardia, increased respiration, shock and all the other phenomena that would make one feel that they were having withdrawal reactions, and in turn those withdrawal reactions were relieved by administration of narcotics for a brief period and, finally, gradually withdrawing them.

Ulcer of the Greater Curvature.—The location of an ulcerative lesion in the stomach is one of the most reliable guides in deciding on the probability of its being benign or malignant. The hazards of conservative treatment in this regard have been fairly well determined. This is especially true in lesions of the greater curvature which are nearly always malignant. . . . In the experience of the Massachusetts General Hospital, lesions of the greater curvature are malignant in 100 per cent, of the prepyloric area in 65 per cent, and of the anterior and posterior walls in 20 per cent, of the pylorus in 10 per cent. Similar figures are reported from the Mayo Clinic. Wiley in his review on gastric ulcer has found prepyloric ulcer variously reported as 75 to 83 per cent malignant.

The rarity of benign ulcers of the greater curvature is attested to in general terms by Kirklin, Palmer, Templeton and Bockus. . . . Lahey has never seen a benign ulceration of the greater curvature. Sproul's communications with leading roentgenologists in 1931 showed not one who had a histologically confirmed diagnosis of benign greater curvature ulcer. He . . . could find only 10 histologically proved cases in the literature up to 1928. Holmes and Hampton cite Orator's study of 330 cases of gastric ulcer from Eiselberg's clinic without a single benign ulcer of the greater curvature.—Kennedy, G. R., and Beck, Erwin, *The American Journal of Surgery*, October 1948.

Clinical Notes, Suggestions and New Instruments

TAP WATER SODIUM IN THE LOW SALT DIET

SEYMOUR L. COLE, M.D.
Los Angeles

The sodium content of the food in the daily diet has become recognized as an important factor in the salt and water balance of persons with heart failure, hypertension and renal disease.¹ With the exception of occasional casual mention,² however, drinking water has been overlooked as a source of sodium large enough to nullify attempts to restrict that element in the solid part of the diet. Furstenberg and his associates³ reported drinking water of high sodium content to be the cause of failure of a low salt diet in the treatment of Ménéière's disease. This they corrected by substituting water of low sodium content. Lenel, Katz and Rodbard^{3a} varied the blood pressure of laboratory animals with changes in the sodium content of the drinking water.

The purpose of this paper is to emphasize that the determination of the sodium content of the water supply of a community is an essential part in the establishment of a low salt regimen.

Chemical analyses of public water supplies are on record and additional data can be obtained from the various state and municipal laboratories. The sodium content of the water must not be ignored when it is more than 10 mg. per hundred cubic centimeters,⁴ as in Aberdeen, S. D.; Biloxi, Miss.; Crandall, Galveston and Houston, Texas; Galesburg, Ill.; Kansas City and Nevada, Mo.; Los Angeles; Marion, Ohio; Minot, N. D.; Oklahoma City, and Phoenix, Ariz.

SODIUM IN THE PUBLIC WATER SUPPLY OF LOS ANGELES

This is illustrated by a study of the drinking water of the city of Los Angeles.⁵ There are three main sources of supply,⁶ the Owens River and Valley Aqueduct, with a sodium content of 47 parts per million (p.p.m.), the Los Angeles River, with a sodium content of 55 p.p.m., and the Colorado River (Metropolitan Water District) with a sodium content of 194 p.p.m. These are averages for the fiscal year 1946-1947. A maximum deviation of 25 per cent from the average may be expected during the year. The sodium content in milligrams per hundred cubic centimeters may be obtained by dividing parts per million by 10.

Since water from any one of the three sources is distributed through the same pipes to all parts of the city, depending on the season and peak water demands, the source of highest sodium content should be the basis for dietary calculations.

Read by title before the Western Society for Clinical Research, Oct. 22, 1948.

From the Los Angeles County Hospital and the Department of Medicine of the University of Southern California School of Medicine.

Determinations of the sodium content of tap water at the Los Angeles County Hospital were done by Dr. D. G. Simonsen, chemist. Estimations of hidden water and sodium in the low salt diets were done by Lillian J. Emoff, consulting dietician.

1. (a) Schroeder, H. A.: Studies on Congestive Heart Failure: I. Importance of Restriction of Salt as Compared to Water, *Am. Heart J.* 22: 141-153 (Aug. 1941); (b) Low Salt Diets and Arterial Hypertension, *Am. J. Med.* 4: 578-587 (April) 1948. (c) Schemm, F. R.: High Fluid Intake in Management of Edema, Especially Cardiac Edema: I. Details and Basis of Regime, *Ann. Int. Med.* 17: 952-969 (Dec.) 1942; II. Clinical Observations and Data, *ibid.* 21: 957-976 (Dec.) 1944. (d) Kemper, W.: Treatment of Kidney Disease and Hypertensive Vascular Disease with the Rice Diet, *North Carolina M. J.* 5: 125-133 (July) 1944; (e) Treatment of Hypertensive Vascular Disease with Rice Diet, *Am. J. Med.* 4: 545-577 (April) 1948. (f) Wheeler, E. O.; Bridges, W. C., and White, P. D.: Diet Low in Salt (Sodium) in Congestive Heart Failure, *J. A. M. A.* 133: 16-20 (Jan. 4) 1947. (g) Archard, C., and Loepner, M.: Sur la rétention des chlorures dans les tissus au cours de certains états morbides, *Compt. rend. Soc. de biol.* 53: 346, 1901; cited by Wheeler, Bridges and White.¹⁴ (h) Allen, F. M., and Sherrill, J. W.: The Treatment of Arterial Hypertension, *J. Met. Research* 2: 429-545 (Oct.) 1922. (i) Grollman, A.; Harrison, T. R.; Mason, M. F.; Baxter, J.; Cramp-ton, J., and Reichman, F.: Sodium Restriction in the Diet for Hypertension, *J. A. M. A.* 129: 533-537 (Oct. 20) 1945.

2. Landowne, M.: The Low Sodium Diet in Vascular Diseases, *J. Am. Dietet. A.* 24: 187-193 (March) 1948. Kemper.¹⁶

3. Furstenberg, A. C.; Richardson, G., and Lathrop, F. D.: Ménéière's Disease: Addenda to Medical Therapy, *Arch. Otolaryng.* 34: 1083-1092 (Dec.) 1941.

3a. Lenel, R.; Katz, L. N., and Rodbard, S.: Arterial Hypertension in the Chicken, *Am. J. Physiol.* 152: 557-562 (March) 1948.

4. Mead Johnson and Company: Sodium and Potassium Analyses of Foods and Waters, October 1947, Fifth List.

5. Chemical Analyses of Los Angeles Water, Average for Fiscal Year, 1946-1947.

6. California Water Supply Statistics, Bulletin 63, State of California Department of Public Health, 1941. Footnote 5.

Therefore, the figures in this paper are based on samples from the Metropolitan Water District.

Besides its natural high sodium content, the Colorado River water contains large amounts of calcium and magnesium which make it "hard."⁷ To counteract this, an average of more than 3,660 tons (3,320 metric tons) of salt per month is added to the Colorado River from the softening plant of the Metropolitan Water District at La Verne, Calif. This raises the sodium content by an average of 86 p.p.m., or 8.6 mg. per hundred cubic centimeters.⁷

The sodium content of the water may be further increased by the softening processes in the various institutions in which it is used. In the Los Angeles County Hospital the water contained 20 mg. of sodium per hundred cubic centimeters before softening and 26 mg. of sodium when it came out of the softening process. (These determinations were made by the flame photometer method.) On another occasion, the cold tap water had a sodium content of 25 mg.; a sample from the adjacent hot water faucet had a sodium content of 30 mg. per hundred cubic centimeters. This is a factor to be considered when water is heated for any purpose in the preparation of food for patients with hypertension, renal disease and heart failure.

EFFECT ON LOW SALT DIETS

The table shows the effect of the use of water with a sodium content of 25 mg. on representative low salt diets. It gives the ranges of daily sodium and fluid intakes permitted by the various authors.

The Effect of the Use of Tap Water with a Sodium Content of 25 Mg. per Hundred Cubic Centimeters in the Low Salt Diets of Schroeder, Schemm and Kempner

	Diet: Sodium, Gm.	Fluid, Cc.		Sodium from Fluid, Gm.		
		In- take	Hidden	In- take	Hidden	Total
Schroeder ^{1a}	0.500 to 1.000	3,000	300	0.750	0.075	0.825
Schemm ^{1c}						
Initial.....	0.850	3,000	780	0.750	0.175	0.925
Neutral.....	0.850	5,000 to 10,000	780	1.250 2,500	0.175	1.425 2.675
Kempner (rice) ^{1d}	0.200	1,000	600	0.250	0.150	0.400

The water used in cooking rice and other vegetables and foods is estimated and represented by the figures for hidden fluid.

The last column shows the sum total of the sodium derived from drinking and hidden water. In Schroeder's diet, it exceeds the minimum and approaches the maximum sodium permitted. In the Schemm and Kempner diets, the sodium from fluid sources is greater than the total sodium allowed for the entire diet.

Thus, the high sodium content of drinking water may account for the failure of low salt diets in the treatment of some patients with hypertension and heart failure in Los Angeles and other areas with water of similar salinity. To avoid this situation, tap water of high sodium content should be replaced by distilled or deionized water of low sodium content for all oral needs of such patients.

SUMMARY

This paper emphasizes the importance of studying the sodium content of tap water in the establishment of a low salt diet in the treatment of high blood pressure, heart failure and renal disease.

The tap water of an institution is described and the factors contributing to its high sodium content are discussed. The effect of the use of such water on representative low salt diets is illustrated.

It is suggested that substitution of distilled, deionized or spring water of low sodium content for tap water of high sodium content is a necessary precaution to insure the success of a low salt diet.

6333 Wilshire Boulevard (36).

7. The Metropolitan Water District of Southern California, Report for the Fiscal Year, July 1, 1945 to June 30, 1946.

Council on Foods and Nutrition

The following product has been accepted as conforming to the Rules of the Council.

JAMES R. WILSON, M.D., *Secretary.*

The H. J. Heinz Company, Pittsburgh

HEINZ STRAINED CHICKEN SOUP consists of chicken, carrots, celery, onions, egg noodles, salt, cream, milk, brewers' yeast, wheat flour and water to prepare.

Analysis (submitted by manufacturer).—Total solids 11.60 per cent, total sugar as sucrose 0.96 per cent, acidity, as lactic 0.12 per cent, protein (N $\times$ 6.25) 2.38 per cent, fat (by acid hydrolysis) 3.33 per cent, crude fiber 0.16 per cent, ash 1.05 per cent, total carbohydrates (by difference) 4.68 per cent.

Calories.—0.6 per gram; 16.4 per ounce.

Vitamins and Minerals

	Per Hundred Grams
Vitamin A	230 I.U.
Thiamine	0.018 mg.
Riboflavin	0.060 mg.
Niacin	0.590 mg.
Calcium	27.0 mg.
Phosphorus	42.0 mg.
Iron	0.1 mg.
Copper	0.09 mg.
Salt	920.0 mg.

Use.—For use in the feeding of infants, convalescents and others requiring a soft diet.

HEINZ STRAINED VEGETABLES AND BACON WITH CEREAL consists of carrots, potatoes, celery, tomato solids, bacon, wheat flour, onions, farina, salt and brewers' yeast.

Analysis (submitted by manufacturer).—Total solids 12.44 per cent, total sugar as sucrose 0.94 per cent, protein (N $\times$ 6.25) 1.28 per cent, fat (by acid hydrolysis) 2.98 per cent, crude fiber 0.35 per cent, ash 1.13 per cent, total carbohydrates (by difference) 6.66 per cent.

Calories.—0.59 per gram; 16.7 per ounce.

Vitamins and Minerals

	Per Hundred Grams
Vitamin A	1,375 I.U.
Thiamine	0.114 mg.
Riboflavin	0.057 mg.
Ascorbic acid	0.10 mg.
Niacin	0.478 mg.
Calcium	12.00 mg.
Phosphorus	20.00 mg.
Iron	0.32 mg.
Copper	0.06 mg.
Salt	880.00 mg.

Use.—For use in the feeding of infants, convalescents and others requiring a soft diet.

HEINZ STRAINED SQUASH consists of steamed, peeled and trimmed Boston marrow or pink banana squash, sugar and salt.

Analysis (submitted by manufacturer).—Total solids 8.35 per cent, total sugar as sucrose 3.46 per cent, acidity, as citric 0.21 per cent, protein (N $\times$ 6.25) 0.84 per cent, fat (by acid hydrolysis) 0.06 per cent, crude fiber 0.74 per cent, ash 1.09 per cent, total carbohydrates (by difference) 5.41 per cent.

Calories.—0.26 per gram; 7.3 per ounce.

Vitamins and Minerals

	Per Hundred Grams
Vitamin A	1,200 I.U.
Thiamine	0.008 mg.
Riboflavin	0.026 mg.
Niacin	0.224 mg.
Ascorbic acid	1.20 mg.
Calcium	29.00 mg.
Phosphorus	37.00 mg.
Iron	0.32 mg.
Copper	0.08 mg.
Salt	540.00 mg.

Use.—For use in the feeding of infants, convalescents and others requiring a soft diet.

HEINZ STRAINED PLUMS WITH FARINA consists of pitted Italian type plums, sugar, farina and water to prepare.

Analysis (submitted by manufacturer).—Total solids 27.78 per cent, total sugar as sucrose 17.93 per cent, acidity, as citric 0.51 per cent, protein (N $\times$ 5.7) 0.82 per cent, fat (by acid hydrolysis) 0.70 per cent, crude fiber 0.22 per cent, ash 0.40 per cent, total carbohydrates (by difference) 25.13 per cent.

Calories.—1.09 per gram; 30.9 per ounce.

Vitamins and Minerals

	Per Hundred Grams
Vitamin A	330 I.U.
Thiamine	0.020 mg.
Riboflavin	0.012 mg.
Niacin	0.32 mg.
Ascorbic acid	2.2 mg.
Calcium	11.0 mg.
Phosphorus	16.0 mg.
Iron	0.7 mg.
Copper	0.08 mg.
Salt	60.00 mg.

Use.—For use in the feeding of infants, convalescents and others requiring a soft diet.

Council on Pharmacy and Chemistry

NEW AND NONOFFICIAL REMEDIES

The following additional articles have been accepted as conforming to the rules of the Council on Pharmacy and Chemistry of the American Medical Association for admission to *New and Nonofficial Remedies*. A copy of the rules on which the Council bases its action will be sent on application.

AUSTIN SMITH, M.D., Secretary.

SULFADIAZINE-SULFAMERAZINE COMBINED.

—Mer-Diazine-McNeil.—A mixture of equal parts of sulfadiazine and sulfamerazine to which there may or may not be added a suitable compatible agent to increase the μ of the urine.

Actions and Uses.—The combination of equal parts of sulfamerazine and sulfadiazine has been shown to provide approximately the same therapeutic activity that is obtained when either drug is administered singly in doses equal to the sum of the two. Comparable total sulfonamide blood levels are thus produced with the same doses of the mixture as for either drug given alone. Because each of the component sulfonamides has its own distinct urinary solubility, the combination which contains only half the usual therapeutic dose of each drug is also potentially less toxic and less liable to be accompanied by crystal deposition from the urine. It has been demonstrated that the incidence of renal crystalluria is reduced to about the same extent as it would be by the administration of 12 Gm. of sodium bicarbonate per day with therapeutic doses of either sulfonamide alone. The simultaneous administration of a urinary alkali with the mixture of sulfonamides, still further reduces the tendency of the drug to crystallize out and form deposits in the kidney, although less alkali is required than when the drugs are given singly. It should be emphasized however, that because of the closely similar chemical structure of the two drugs, the incidence of drug sensitivity and other toxic manifestations of sulfonamide therapy is considered to be about the same for the mixture as for either drug alone.

Dosage.—The dosage of total sulfonamides represented by the mixture should be not less nor more than is recommended for the therapeutic use of the constituent sulfonamides singly. See statements under Sulfadiazine and Sulfamerazine. The use of a lower total sulfonamide dose than the single recommended dose would not be therapeutically effective; the use of a higher total dose than customary for the drug given singly would defeat the purpose of the mixture.

Tests and Standards.—

The sulfadiazine and sulfamerazine used in the manufacture of Sulfadiazine-Sulfamerazine Combined respond to the tests and assays given for these substances in the U. S. Pharmacopoeia.

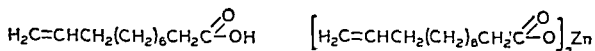
SULFADIAZINE-SULFAMERAZINE COMBINED, LIQUID SUSPENSION: This preparation is a thick, creamy, stable, liquid suspension.

Determine the total sulfonamides present in a 5 cc. aliquot of the suspension by the diazotization-titration described in the assay for Sulfadiazine in U. S. P. XIII, p 526. Each cc. of tenth-normal sodium nitrite is equivalent to 0.02573 Gm. of sulfadiazine-sulfamerazine combined; the total sulfonamides present should not be less than 95.0 nor more than 105.0 per cent of the labeled amount.

MCNEIL LABORATORIES, INC., PHILADELPHIA 32

Liquoid Mer-Diazine: 120 cc. and 480 cc. bottles. A suspension containing 1.5 Gm. sulfamerazine and 1.5 Gm. sulfadiazine per 30 cc. solution.

ZINCUNDECATE.—"Desenex"—Wallace & Tiernan.—A preparation containing as its active ingredients undecylenic acid and zinc undecylenate. Their structural formulas may be represented as follows:



Actions and Uses.—Zincundecate is proposed for use in superficial dermatomycosis, including epidermatosis inguinale, tinea pedis, otomycosis, moniliasis, tinea corporis and tinea versicolor.

Dosage.—Apply twice daily, preferably using the ointment at night, and with ambulatory patients, the powder during the day.

Tests and Standards.—

UNDECYLENIC ACID.—10-hendecenoic acid.—10 undecenoic acid.— $\text{C}_{11}\text{H}_{20}\text{O}_2$ —M. W. 184.27.

Undecylenic acid occurs as a yellow liquid with a characteristic odor. It is practically insoluble in water and very soluble in alcohol. The refractive index at 25 C. is about 1.4486. The specific gravity of undecylenic acid at 25 C. is about 0.9110.

Add potassium permanganate T.S. dropwise to about 1 cc. of undecylenic acid: the permanganate color is discharged.

Add bromine water T.S. dropwise to about 1 cc. of undecylenic acid: the bromine color is discharged rapidly.

Add 1 cc. of aniline to 1 cc. of undecylenic acid and reflux for 1 hour. Cool and add 5 cc. of alcohol to the mixture and then 5 cc. of ether. Wash the ether with four 20 cc. portions of water. Evaporate the solution to dryness and recrystallize the residue from benzene: the product melts in the range 67.0-67.5 C.

Shake 1 cc. of undecylenic acid with 20 cc. of water and then separate the solution. Add 5 drops of silver nitrate T.S. to the aqueous portion: no turbidity appears.

Shake 1 cc. of undecylenic acid with 10 cc. of water and then separate the layers. Add 1 cc. of barium chloride T.S. to the aqueous layer: no turbidity develops.

Shake 5 cc. of undecylenic acid with 5 cc. of water and filter through a moistened paper. Add 1 drop of methyl orange T.S. to the solution and titrate with 0.1 N sodium hydroxide: no more than 0.1 cc. of 0.1 N sodium hydroxide is necessary to bring the color to that corresponding to 1 drop of methyl orange in 5 cc. of water.

Boil 1 cc. of undecylenic acid with 0.5 Gm. of sodium carbonate in 30 cc. of water: no more than a very slight opalescence appears in the hot solution.

Ash about 1 Gm. of undecylenic acid: the residue does not exceed 0.15 per cent of the weight of the original substance.

Determine the heavy metal content according to the U.S.P. XIII, p. 657: the heavy metal content does not exceed 10 ppm.

Determine the iodine value of undecylenic acid according to the U.S.P. XIII, p. 647: the iodine value is not less than 131 nor more than 138.

Weigh, accurately, about 0.5 Gm. of undecylenic acid. Titrate the acid with 0.1 N potassium hydroxide. Each cc. of 0.1 N potassium hydroxide is equivalent to 0.018427 Gm. of undecylenic acid: the undecylenic acid content is not less than 95 nor more than 108 per cent of the weighed amount.

ZINC UNDECYLENATE.—The zinc salt of undecylenic acid.— $\text{C}_{22}\text{H}_{40}\text{O}_2\text{Zn}$.—M. W. 431.90.

Zinc undecylenate occurs as a very fine white powder. It is practically insoluble in alcohol and in water.

Dissolve about 0.1 Gm. of zinc undecylenate in 10 cc. of water by adding 1 cc. of strong ammonia solution. Add sodium sulfide T.S.: a white flocculent precipitate develops.

Acidify about 0.1 Gm. of zinc undecylenate with 10 cc. of sulfuric acid. Extract the solution with two 25 cc. portions of ether. Wash the ether solution with 3 successive 25 cc. portions of water. Evaporate the ether on a steam bath. The residue responds to the tests described in the monograph on Undecylenic Acid-N.N.R.

Weigh, accurately, about 0.1 Gm. of zinc undecylenate. Dry it at 105 C. for 2 hours: the loss in weight does not exceed 1.25 per cent.

Boil 1.5 Gm. of zinc undecylenate with 50 cc. of water and 10 cc. of hydrochloric acid. Filter the hot solution and wash the residue with about 50 cc. of hot water. Make the combined filtrate and washings alkaline with ammonia T.S. and add ammonium sulfide T.S. to precipitate the zinc completely. Dilute to 200 cc., mix, and filter. Add 0.5 cc. of sulfuric acid to 100 cc. of the clear filtrate. Evaporate to dryness and ignite to constant weight in a muffle furnace at 500 to 700 C.: the weight of the residue does not exceed 7.5 mg.

Weigh, accurately, about 0.25 Gm. of zinc undecylenate in a tared crucible and ash the sample over a low flame to constant weight. Each 0.1 Gm. of ash is equivalent to 0.531 Gm. of zinc undecylenate: the zinc undecylenate content is not less than 98 nor more than 102 per cent of the dry sample.

WALLACE & TIERNAN PRODUCTS, INC., BELLEVILLE, N. J.

Desenex (Powder): 45 Gm. sifter containers and 454 Gm. jars. A fungicidal powder containing zinc undecylenate 20%, undecylenic acid 2% and talc U.S.P. 78%.

Ointment Desenex: 30 Gm. tubes and 454 Gm. jars. A fungicidal ointment containing zinc undecylenate 20%, undecylenic acid 5% in a water-miscible base q.s.

U. S. trademark registered.

DIPHThERIA TOXOID, ALUM PRECIPITATED.—U.S.P. (See New and Nonofficial Remedies 1948, p. 497).

CUTTER LABORATORIES, BERKELEY, CALIF.

Diphtheria Toxoid Aluminum Hydroxide Adsorbed (Alhydrox): 10 cc. and two 1 cc. and 10 cc. vials. Each cc. contains the required amount of diphtheria toxoid. Preserved with sodium ethylmercurithiosalicylate 1:10,000.

DIETHYLSTILBESTROL-U.S.P. (See New and Nonofficial Remedies 1948, p. 378).

The following dosage form has been accepted:

AMERICAN PHARMACEUTICAL COMPANY, NEW YORK

Tablets Diethylstilbestrol: 0.5 mg., 1 mg. and 5 mg.

PERTUSSIS VACCINE COMBINED WITH DIPHThERIA TOXOID (See New and Nonofficial Remedies 1948, p. 507).

CUTTER LABORATORIES, BERKELEY, CALIF.

Diphtheria Toxoid and Pertussis Vaccine Combined (Diptussis): 2.5 cc. and 10 cc. vials. Each cc. contains 40,000 million *H. pertussis* phase I and the required amount of diphtheria toxoid. Preserved with sodium ethylmercurithiosalicylate 1:10,000.

Diphtheria Toxoid Aluminum Hydroxide Adsorbed and Pertussis Vaccine Combined (Diptussis Alhydrox): 1 cc.

and packages of two 1 cc. vials. Each cc. contains 20,000 million *H. pertussis* phase I and the required amount of diphtheria toxoid aluminum hydroxide adsorbed. Preserved with sodium ethylmercurithiosalicylate 1:10,000.

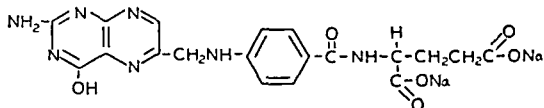
PERTUSSIS VACCINE COMBINED WITH DIPHTHERIA AND TETANUS TOXOIDS (See New and Nonofficial Remedies 1948, p. 508).

CUTTER LABORATORIES, BERKELEY, CALIF.

Diphtheria and Tetanus Toxoid and Pertussis Vaccine Combined (Dip-Pert-Tet): 2.5 cc. and 10 cc. vials. Each cc. contains the required amount of both diphtheria and tetanus toxoids plus 40,000 million *H. pertussis* phase I. Preserved with sodium ethylmercurithiosalicylate 1:10,000.

Diphtheria and Tetanus Toxoid Aluminum Hydroxide Adsorbed and Pertussis Vaccine Combined (Dip-Pert-Tet Alhydrox): Two 1 cc. vials and 10 cc. vials. Each cc. contains the required amount of diphtheria and tetanus toxoids plus 20,000 million *H. pertussis* phase I. Preserved with sodium ethylmercurithiosalicylate 1:10,000.

SODIUM FOLATE.—**Sodium Folvite-Lederle.**—Sodium pteroylglutamate. — Sodium N - [4 - { (2 - amino - 4 - hydroxy - 6 - pteridyl) methyl} - amino } benzoyl] glutamate - $C_{19}H_{17}N_7NaO_6$. M.W. 463.4.—Sodium folate is made by dissolving folic acid in dilute sodium hydroxide. The salt is not isolated from the solution. The structural formula of sodium folate may be represented as follows:



Actions and Uses.—Sodium folate possesses the activity of folic acid and is preferred when parenteral therapy is indicated.

Dosage.—Same as for folic acid. (See N. N. R. 1948, p. 558).

Tests and Standards.—

The folic acid used in preparing sodium folate solution responds to the tests and assay given in the monograph for Folic Acid-N.N.R.

SODIUM FOLATE SOLUTION: The solution is a clear, mobile liquid, yellow to orange-yellow in color. In a concentration equivalent to 15 mg. of folic acid per cc., the solution has a pH between 8.5 and 11.0.

Sodium folate solution is assayed spectrophotometrically. Prepare a standard curve as directed in the monograph for folic acid starting with "Place about 0.1 Gm. of *para*-aminobenzoic acid . . ." Then, by means of a pipette, accurately measure into a 100 cc. volumetric flask sufficient sodium folate solution to contain about 0.1 Gm. of folic acid, dilute to the mark with tenth-normal sodium hydroxide, and proceed with the assay as directed in the folic acid monograph, starting with "Transfer 1 cc. of the solution to a 100 cc. volumetric flask and add 80 cc. of water, 10 cc. of five normal hydrochloric acid . . ." The sodium folate content corresponds to a folic acid concentration of not less than 90 nor more than 115 per cent of the labeled amount.

KREMERS-URBAN COMPANY, MILWAUKEE 1

Solution Sodium Folate: 15 mg. per cc., 1 cc. ampuls.

AMINOPHYLLINE-U. S. P. (See New and Nonofficial Remedies 1948, p. 325).

The following dosage forms have been accepted:

BREWER & COMPANY, INC., WORCESTER 8, MASS.

Tablets Aminophylline: 0.1 Gm. and 0.2 Gm.

BUFFINGTON'S, INC., WORCESTER, MASS.

Tablets Aminophylline: 0.1 Gm. and 0.2 Gm.

Solution Aminophylline: 0.5 Gm., 2 cc. and 20 cc. ampuloids and 0.25 Gm., 10 cc. ampuloids.

ESTROGENIC SUBSTANCES (WATER INSOLUBLE) (See New and Nonofficial Remedies 1948, p. 370).

The following dosage form has been accepted:

THE SMITH-DORSEY COMPANY, LINCOLN, NEB.

Aqueous Suspension Estrogenic Substances: 10,000 I. U. per cc., 1 cc. ampuls and 10 cc. vials; 50,000 I. U. per cc., 10 cc. vials. Preserved with carbolic acid 0.5 per cent.

TETANUS TOXOID, ALUM PRECIPITATED-U.S.P. (See New and Nonofficial Remedies 1948, p. 501).

CUTTER LABORATORIES, BERKELEY, CALIF.

Tetanus Toxoid Aluminum Hydroxide Adsorbed (Alhydrox): Two 1 cc. vials and 10 cc. vial. Each cc. contains the required amount of tetanus toxoid. Preserved with sodium ethylmercurithiosalicylate 1:10,000.

MUCIN-ALUMINUM HYDROXIDE-MAGNESIUM TRISILICATE.—"Mucotin"—Harrower.—An antacid mixture of gastric mucin, dried aluminum hydroxide gel, U.S.P. ($Al_2O_3 \cdot xH_2O$), and magnesium trisilicate, U.S.P. ($2MgO \cdot 3SiO_2 \cdot xH_2O$), containing the labeled amounts of these ingredients.

Actions and Uses.—A mixture of histamine-free gastric mucin, aluminum hydroxide and magnesium trisilicate has been found to be an effective combination for oral administration in the control of symptomatic gastric hyperacidity and as an adjunct in the treatment of peptic ulcer. Gastric mucin has been shown to impart to the mixture a more distinct protective coating effect on the gastric mucosa than can be demonstrated with the use of antacids alone. Gastroscopic studies indicate that the mucin-antacid combination definitely coats the ulcer crater and may remain in the stomach for over an hour after instillation of the mixture. The antacid effect of the rapidly reacting aluminum hydroxide and the more slowly but prolonged reacting magnesium trisilicate, imparts to the mixture the advantages of both these antacids. The presence of magnesium trisilicate is also believed to counteract the constipating effect of the aluminum hydroxide but the available evidence on this point is not conclusive.

Dosage.—There is as yet no definite evidence by which to determine the optimum exact proportions of the antacids to be used in the mixture, but observations thus far indicate that best results are obtained with preparations containing approximately 10 per cent of gastric mucin. A ratio of 1:1.5:2.75 for gastric mucin-aluminum hydroxide-magnesium trisilicate has been found to give good results. A tablet preparation of these proportions containing gastric mucin 0.16 Gm., dried aluminum hydroxide gel 0.25 Gm. and magnesium trisilicate 0.45 Gm. is recommended in doses of two tablets every 2 hours. The tablets should be well chewed and no fluids taken during the following half hour.

Tests and Standards.—

MUCIN-ALUMINUM HYDROXIDE-MAGNESIUM TRISILICATE TABLETS: These tablets are light cream-colored.

Accurately weigh 25 tablets and grind them to a fine powder. Weigh a portion of powder equivalent to 1 tablet and transfer it to a 250 cc. flask. Add exactly 100 cc. of 0.1 N hydrochloric acid and keep the flask at 37.5 C. for 1 hour, shaking or stirring the mixture continuously during this time. Titrate the excess acid with 0.1 N sodium hydroxide using bromophenol blue T.S.; the volume of 0.1 N hydrochloric acid consumed is not less than 75 cc. for 1 tablet weighing about 1.25 Gm.

Accurately weigh a portion of mucin-aluminum hydroxide-magnesium trisilicate powder equivalent to 3 tablets and determine its nitrogen content according to *Official and Tentative Methods of Analysis of the Association of Agricultural Chemists*, 6th ed., p. 25; each tablet contains not less than 7.0 nor more than 9.0 per cent of the labeled amount of gastric mucin.

Accurately weigh into a platinum crucible a portion of mucin-aluminum hydroxide-magnesium trisilicate powder, equivalent to 1 tablet, add 2 Gm. of anhydrous sodium carbonate and 4 Gm. of anhydrous potassium carbonate, and carefully mix. Ignite at 500 C. for 1 hour and then ignite carefully over a Meker burner until fusion is complete and practically no carbon remains. Cool the crucible, leach the fused mass with about 50 cc. of water, heating if necessary, and transfer solution and residue to a 250 cc. beaker. Slowly add 25 cc. of concentrated hydrochloric acid. Evaporate the solution to dryness on a steam bath, then heat at 100 C. for 2 hours. Treat the residue with 2 cc. of hydrochloric acid and 50 cc. of water, heat to boiling, cool, transfer the solution and insoluble matter to a 250 cc. volumetric flask, make up the solution to the mark, and mix thoroughly. Filter the solution through a No. 42 Whatman paper, rejecting the first 15 cc. of filtrate and saving the precipitate for the silica determination described later. Transfer exactly 100 cc. of the filtrate to a 250 cc. beaker and proceed with the assay for aluminum oxide as directed in U.S.P. XIII, p. 27, in the monograph on Dried Aluminum Hydroxide Gel, beginning with the words, ". . . add 3 drops of methyl red T.S. . . ." Save the filtrate and washings for the magnesium determination described later. The amount of aluminum oxide is not less than 45.0 nor more than 55.0 per cent of the labeled amount of dried aluminum hydroxide gel.

To the combined filtrate and washings saved for the magnesium determination, add 1 Gm. of dibasic ammonium phosphate ($(NH_4)_2HPO_4$) and then add 2 cc. of ammonia T.S., dropwise and with constant stirring; a crystalline precipitate forms. Allow the mixture to stand for 15 minutes, add 15 cc. of strong ammonia solution, let the mixture stand 4 hours or overnight, and transfer the precipitate to a tared Gooch crucible and wash it with two 5 cc. portions of 1.4 per cent ammonium hydroxide solution. Dry the crucible at 100 C. and ignite to constant weight over a Meker burner, cool and weigh the magnesium oxide formed: the amount of magnesium oxide is not less than 18.0 nor more than 22.0 per cent of the labeled amount of magnesium trisilicate.

Transfer the filter paper containing the precipitate saved from the aluminum oxide determination to a tared platinum crucible and proceed with the assay for silica as directed in U.S.P. XIII, p. 300, in the monograph on Magnesium Trisilicate, beginning with the words, "Heat to dryness . . ." The amount of silicon dioxide is not less than 40.5 nor more than 49.5 per cent of the labeled amount of magnesium trisilicate.

THE HARROWER LABORATORY, INC., GLENDALE 5, CALIF.

Tablets Mucotin: Each tablet contains gastric mucin 0.16 Gm., dried aluminum hydroxide gel 0.25 Gm. and magnesium trisilicate 0.45 Gm.

U. S. patent applied for Lutheran Univ. Assn. (Valparaiso University); U. S. trademark 519,949.

HOSPITAL SERVICE IN THE UNITED STATES

TWENTY-EIGHTH ANNUAL PRESENTATION OF HOSPITAL DATA BY THE COUNCIL
ON MEDICAL EDUCATION AND HOSPITALS OF THE AMERICAN
MEDICAL ASSOCIATION

By F. H. Arestad, M.D., and Mary A. McGovern

TABLE OF CONTENTS

HOSPITAL SERVICE: TABLES AND TEXT.....PAGES 23-36

TABLE 1. HOSPITAL FACILITIES BY STATES AND CONTROL.....PAGES 26-28

TABLE 2. HOSPITAL FACILITIES BY STATES AND TYPE OF SERVICE.....PAGES 29-30

NURSING SERVICE: TABLES AND TEXT.....PAGES 33-34

MEDICAL MOTION PICTURES.....PAGE 34

CERTIFICATION IN RELATION TO STAFF APPOINTMENTS.....PAGES 34-35

GENERAL PRACTICE SECTIONS IN HOSPITALS.....PAGE 35

ESSENTIALS OF A REGISTERED HOSPITAL.....PAGES 35-36

LIST OF REGISTERED HOSPITALS.....PAGES 37-97

LIST OF APPROVED TECHNICAL SCHOOLS:

APPROVED SCHOOLS FOR X-RAY TECHNICIANS.....PAGES 98-101

APPROVED SCHOOLS FOR MEDICAL RECORD LIBRARIANS.....PAGES 101-102

APPROVED SCHOOLS FOR OCCUPATIONAL THERAPY TECHNICIANS.....PAGES 102-103

APPROVED SCHOOLS FOR PHYSICAL THERAPY TECHNICIANS.....PAGES 103-104

APPROVED SCHOOLS FOR MEDICAL TECHNOLOGISTS.....PAGES 104-110

The present Annual Report on Hospital Service in the United States for 1948 is based on information received from individual hospitals registered by the American Medical Association. Uniformity in reporting is accomplished through the distribution of annual census blanks prepared by the Council on Medical Education and Hospitals in collaboration with the American College of Surgeons. These forms are sent to all registered hospitals, which in turn supply information either for the calendar year or for the latest twelve month period for which statistics are available. As in previous years the active participation and response of nearly 98 per cent of all registered hos-

ties, the hospitals accredited by the American College of Surgeons as meeting unconditionally its requirements for general standardization, and hospitals conducting schools of nursing education accredited by the respective State Boards of Nurse Examiners; (3) statistical tables and textual material giving detailed information by states on the number, size and classification of hospitals, bed capacity, percentage occupancy, number of births, patients admitted, average daily census and total patient days; (4) a survey of professional and auxiliary nursing personnel in hospitals, schools of nursing education and student enrolment; (5) lists and other information on technical schools approved by the Council

SUMMARY OF HOSPITAL DATA—1948

All Registered Hospitals		General Hospitals	
Number	6,335	Number	4,589
Bed capacity.....	1,423,520	Bed capacity.....	576,459
Bassinets	87,596	Bassinets	83,497
Patients admitted.....	16,422,774	Patients admitted.....	15,160,062
Births	2,794,281	Births	2,715,645
Average daily census.....	1,217,154	Average daily census.....	437,590
Patient days.....	445,478,364	Patient days.....	160,157,940

pitals is continued evidence of the excellent cooperation which the American Medical Association receives in the hospital field. For this generous support the Council on Medical Education and Hospitals wishes to extend its appreciation to each individual hospital, to the medical departments of the United States Army, United States Air Force, United States Navy, United States Public Health Service, Veterans Administration, the Federal Security Agency and to all other organizations and persons who have helped to make possible the preparation of this report.

The current report for 1948 presents (1) a complete list of all hospitals in the United States, territories and possessions that have been registered by the American Medical Association in accordance with standards adopted by the Council on Medical Education and Hospitals; (2) a further designation by symbols of those hospitals approved by the American Medical Association for internships and residencies in special-

on Medical Education and Hospitals in the fields of medical technology, x-ray technic, physical therapy, occupational therapy and medical record library science; (6) a survey of the use of medical motion pictures in hospitals, and (7) studies on specialty certification in relation to hospital staff appointments, and the establishment of general practice sections in hospitals.

While internship and residency hospitals are shown in the present issue, a separate listing of approved internships and residencies with additional information on hospital educational services will appear in THE JOURNAL, May 14, 1949.

Scope of Survey

All hospitals registered by the American Medical Association are represented in the present report. Included in the registered list are (1) civilian hospitals in the United States; (2) hospital services maintained

and packages of two 1 cc. vials. Each cc. contains 20,000 million *H. pertussis* phase I and the required amount of diphtheria toxoid aluminum hydroxide adsorbed. Preserved with sodium ethylmercurithiosalicylate 1:10,000.

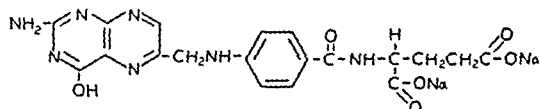
PERTUSSIS VACCINE COMBINED WITH DIPHTHERIA AND TETANUS TOXOIDS (See New and Nonofficial Remedies 1948, p. 508).

CUTTER LABORATORIES, BERKELEY, CALIF.

Diphtheria and Tetanus Toxoid and Pertussis Vaccine Combined (Dip-Pert-Tet): 2.5 cc. and 10 cc. vials. Each cc. contains the required amount of both diphtheria and tetanus toxoids plus 40,000 million *H. pertussis* phase I. Preserved with sodium ethylmercurithiosalicylate 1:10,000.

Diphtheria and Tetanus Toxoid Aluminum Hydroxide Adsorbed and Pertussis Vaccine Combined (Dip-Pert-Tet Alhydrox): Two 1 cc. vials and 10 cc. vials. Each cc. contains the required amount of diphtheria and tetanus toxoids plus 20,000 million *H. pertussis* phase I. Preserved with sodium ethylmercurithiosalicylate 1:10,000.

SODIUM FOLATE.—Sodium Folvite-Lederle.—Sodium pteroylglutamate. — Sodium N - [4 - { (2 - amino - 4 - hydroxy - 6 - pteridyl) methyl } - amino } benzoyl] glutamate- $C_{10}H_{14}N_7NaO_4$. M.W.-463.4.—Sodium folate is made by dissolving folic acid in dilute sodium hydroxide. The salt is not isolated from the solution. The structural formula of sodium folate may be represented as follows:



Actions and Uses.—Sodium folate possesses the activity of folic acid and is preferred when parenteral therapy is indicated.

Dosage.—Same as for folic acid. (See N. N. R. 1948, p. 558).

Tests and Standards.—

The folic acid used in preparing sodium folate solution responds to the tests and assay given in the monograph for Folic Acid-N.N.R.

SODIUM FOLATE SOLUTION: The solution is a clear, mobile liquid, yellow to orange-yellow in color. In a concentration equivalent to 15 mg. of folic acid per cc., the solution has a pH between 8.5 and 11.0.

Sodium folate solution is assayed spectrophotometrically. Prepare a standard curve as directed in the monograph for folic acid starting with "Place about 0.1 Gm. of para-aminobenzoic acid . . ." Then, by means of a pipette, accurately measure into a 100 cc. volumetric flask sufficient sodium folate solution to contain about 0.1 Gm. of folic acid, dilute to the mark with tenth-normal sodium hydroxide, and proceed with the assay as directed in the folic acid monograph, starting with "Transfer 1 cc. of the solution to a 100 cc. volumetric flask and add 80 cc. of water, 10 cc. of five normal hydrochloric acid . . ." The sodium folate content corresponds to a folic acid concentration of not less than 90 nor more than 115 per cent of the labeled amount.

KREMERS-URBAN COMPANY, MILWAUKEE 1

Solution Sodium Folate: 15 mg. per cc., 1 cc. ampuls.

AMINOPHYLLINE-U. S. P. (See New and Nonofficial Remedies 1948, p. 325).

The following dosage forms have been accepted:

BREWER & COMPANY, INC., WORCESTER 8, MASS.

Tablets Aminophylline: 0.1 Gm. and 0.2 Gm.

BUFFINGTON'S, INC., WORCESTER, MASS.

Tablets Aminophylline: 0.1 Gm. and 0.2 Gm.

Solution Aminophylline: 0.5 Gm., 2 cc. and 20 cc. ampoules and 0.25 Gm., 10 cc. ampoules.

ESTROGENIC SUBSTANCES (WATER INSOLUBLE) (See New and Nonofficial Remedies 1948, p. 370).

The following dosage form has been accepted:

THE SMITH-DORSEY COMPANY, LINCOLN, NEB.

Aqueous Suspension Estrogenic Substances: 10,000 I. U. per cc., 1 cc. ampuls and 10 cc. vials; 50,000 I. U. per cc., 10 cc. vials. Preserved with carbolic acid 0.5 per cent.

TETANUS TOXOID, ALUM PRECIPITATED-U.S.P. (See New and Nonofficial Remedies 1948, p. 501).

CUTTER LABORATORIES, BERKELEY, CALIF.

Tetanus Toxoid Aluminum Hydroxide Adsorbed (Alhydrox): Two 1 cc. vials and 10 cc. vial. Each cc. contains the required amount of tetanus toxoid. Preserved with sodium ethylmercurithiosalicylate 1:10,000.

MUCIN-ALUMINUM HYDROXIDE-MAGNESIUM TRISILICATE.—"Mucotin"—Harrower.—An antacid mixture of gastric mucin, dried aluminum hydroxide gel, U.S.P. ($Al_2O_3 \cdot xH_2O$), and magnesium trisilicate, U.S.P. ($2MgO \cdot 3SiO_2 \cdot xH_2O$), containing the labeled amounts of these ingredients.

Actions and Uses.—A mixture of histamine-free gastric mucin, aluminum hydroxide and magnesium trisilicate has been found to be an effective combination for oral administration in the control of symptomatic gastric hyperacidity and as an adjunct in the treatment of peptic ulcer. Gastric mucin has been shown to impart to the mixture a more distinct protective coating effect on the gastric mucosa than can be demonstrated with the use of antacids alone. Gastroscopic studies indicate that the mucin-antacid combination definitely coats the ulcer crater and may remain in the stomach for over an hour after instillation of the mixture. The antacid effect of the rapidly reacting aluminum hydroxide and the more slowly but prolonged reacting magnesium trisilicate, imparts to the mixture the advantages of both these antacids. The presence of magnesium trisilicate is also believed to counteract the constipating effect of the aluminum hydroxide but the available evidence on this point is not conclusive.

Dosage.—There is as yet no definite evidence by which to determine the optimum exact proportions of the antacids to be used in the mixture, but observations thus far indicate that best results are obtained with preparations containing approximately 10 per cent of gastric mucin. A ratio of 1:1.5:2.75 for gastric mucin-aluminum hydroxide-magnesium trisilicate has been found to give good results. A tablet preparation of these proportions containing gastric mucin 0.16 Gm., dried aluminum hydroxide gel 0.25 Gm. and magnesium trisilicate 0.45 Gm. is recommended in doses of two tablets every 2 hours. The tablets should be well chewed and no fluids taken during the following half hour.

Tests and Standards.—

MUCIN-ALUMINUM HYDROXIDE-MAGNESIUM TRISILICATE TABLETS: These tablets are light cream-colored.

Accurately weigh 25 tablets and grind them to a fine powder. Weigh a portion of powder equivalent to 1 tablet and transfer it to a 250 cc. flask. Add exactly 100 cc. of 0.1 N hydrochloric acid and keep the flask at 37.5 C. for 1 hour, shaking or stirring the mixture continuously during this time. Titrate the excess acid with 0.1 N sodium hydroxide using bromophenol blue T.S.; the volume of 0.1 N hydrochloric acid consumed is not less than 75 cc. for 1 tablet weighing about 1.25 Gm.

Accurately weigh a portion of mucin-aluminum hydroxide-magnesium trisilicate powder equivalent to 3 tablets and determine its nitrogen content according to *Official and Tentative Methods of Analysis of the Association of Agricultural Chemists*, 6th ed., p. 25; each tablet contains not less than 7.0 nor more than 9.0 per cent of the labeled amount of gastric mucin.

Accurately weigh into a platinum crucible a portion of mucin-aluminum hydroxide-magnesium trisilicate powder, equivalent to 1 tablet, add 2 Gm. of anhydrous sodium carbonate and 4 Gm. of anhydrous potassium carbonate, and carefully mix. Ignite at 500 C. for 1 hour and then ignite carefully over a Meker burner until fusion is complete and practically no carbon remains. Cool the crucible, leach the fused mass with about 50 cc. of water, heating if necessary, and transfer solution and residue to a 250 cc. beaker. Slowly add 25 cc. of concentrated hydrochloric acid. Evaporate the solution to dryness on a steam bath, then heat at 100 C. for 2 hours. Treat the residue with 2 cc. of hydrochloric acid and 50 cc. of water, heat to boiling, cool, transfer the solution and insoluble matter to a 250 cc. volumetric flask, make up the solution to the mark, and mix thoroughly. Filter the solution through a No. 42 Whatman paper, rejecting the first 15 cc. of filtrate and saving the precipitate for the silica determination described later. Transfer exactly 100 cc. of the filtrate to a 250 cc. beaker and proceed with the assay for aluminum oxide as directed in U.S.P. XIII, p. 27, in the monograph on Dried Aluminum Hydroxide Gel, beginning with the words, ". . . add 3 drops of methyl red T.S. . . .". Save the filtrate and washings for the magnesium determination described later. The amount of aluminum oxide is not less than 45.0 nor more than 55.0 per cent of the labeled amount of dried aluminum hydroxide gel.

To the combined filtrate and washings saved for the magnesium determination, add 1 Gm. of dibasic ammonium phosphate ($(NH_4)_2 HPO_4$) and then add 2 cc. of ammonia T.S., dropwise and with constant stirring; a crystalline precipitate forms. Allow the mixture to stand for 15 minutes, add 15 cc. of strong ammonia solution, let the mixture stand 4 hours or overnight, and transfer the precipitate to a tared Gooch crucible and wash it with two 5 cc. portions of 1.4 per cent ammonium hydroxide solution. Dry the crucible at 100 C. and ignite to constant weight over a Meker burner, cool and weigh the magnesium oxide formed; the amount of magnesium oxide is not less than 18.0 nor more than 22.0 per cent of the labeled amount of magnesium trisilicate.

Transfer the filter paper containing the precipitate saved from the aluminum oxide determination to a tared platinum crucible and proceed with the assay for silica as directed in U.S.P. XIII, p. 300, in the monograph on Magnesium Trisilicate, beginning with the words, "Heat to dryness . . .". The amount of silicon dioxide is not less than 40.5 nor more than 49.5 per cent of the labeled amount of magnesium trisilicate.

THE HARROWER LABORATORY, INC., GLENDALE 5, CALIF.

Tablets Mucotin: Each tablet contains gastric mucin 0.16 Gm. dried aluminum hydroxide gel 0.25 Gm. and magnesium trisilicate 0.45 Gm.

U. S. patent applied for Lutheran Univ. Asso. (Valparaiso University); U. S. trademark 519,949.

HOSPITAL SERVICE IN THE UNITED STATES

TWENTY-EIGHTH ANNUAL PRESENTATION OF HOSPITAL DATA BY THE COUNCIL
ON MEDICAL EDUCATION AND HOSPITALS OF THE AMERICAN
MEDICAL ASSOCIATION

By F. H. Arestad, M.D., and Mary A. McGovern

TABLE OF CONTENTS

HOSPITAL SERVICE: TABLES AND TEXT.....	PAGES	23-36
TABLE 1. HOSPITAL FACILITIES BY STATES AND CONTROL.....	PAGES	26-28
TABLE 2. HOSPITAL FACILITIES BY STATES AND TYPE OF SERVICE.....	PAGES	29-30
NURSING SERVICE: TABLES AND TEXT.....	PAGES	33-34
MEDICAL MOTION PICTURES.....	PAGE	34
CERTIFICATION IN RELATION TO STAFF APPOINTMENTS.....	PAGES	34-35
GENERAL PRACTICE SECTIONS IN HOSPITALS.....	PAGE	35
ESSENTIALS OF A REGISTERED HOSPITAL.....	PAGES	35-36
LIST OF REGISTERED HOSPITALS.....	PAGES	37-97
LIST OF APPROVED TECHNICAL SCHOOLS:		
APPROVED SCHOOLS FOR X-RAY TECHNICIANS.....	PAGES	98-101
APPROVED SCHOOLS FOR MEDICAL RECORD LIBRARIANS.....	PAGES	101-102
APPROVED SCHOOLS FOR OCCUPATIONAL THERAPY TECHNICIANS.....	PAGES	102-103
APPROVED SCHOOLS FOR PHYSICAL THERAPY TECHNICIANS.....	PAGES	103-104
APPROVED SCHOOLS FOR MEDICAL TECHNOLOGISTS.....	PAGES	104-110

The present Annual Report on Hospital Service in the United States for 1948 is based on information received from individual hospitals registered by the American Medical Association. Uniformity in reporting is accomplished through the distribution of annual census blanks prepared by the Council on Medical Education and Hospitals in collaboration with the American College of Surgeons. These forms are sent to all registered hospitals, which in turn supply information either for the calendar year or for the latest twelve month period for which statistics are available. As in previous years the active participation and response of nearly 98 per cent of all registered hos-

ties, the hospitals accredited by the American College of Surgeons as meeting unconditionally its requirements for general standardization, and hospitals conducting schools of nursing education accredited by the respective State Boards of Nurse Examiners; (3) statistical tables and textual material giving detailed information by states on the number, size and classification of hospitals, bed capacity, percentage occupancy, number of births, patients admitted, average daily census and total patient days; (4) a survey of professional and auxiliary nursing personnel in hospitals, schools of nursing education and student enrolment; (5) lists and other information on technical schools approved by the Council

SUMMARY OF HOSPITAL DATA—1948

All Registered Hospitals

Number	6,335
Bed capacity.....	1,423,520
Bassinets	87,596
Patients admitted.....	16,422,774
Births	2,794,281
Average daily census.....	1,217,154
Patient days.....	445,478,364

General Hospitals

Number	4,589
Bed capacity.....	576,459
Bassinets	83,497
Patients admitted.....	15,160,062
Births	2,715,645
Average daily census.....	437,590
Patient days.....	160,157,940

pitals is continued evidence of the excellent cooperation which the American Medical Association receives in the hospital field. For this generous support the Council on Medical Education and Hospitals wishes to extend its appreciation to each individual hospital, to the medical departments of the United States Army, United States Air Force, United States Navy, United States Public Health Service, Veterans Administration, the Federal Security Agency and to all other organizations and persons who have helped to make possible the preparation of this report.

The current report for 1948 presents (1) a complete list of all hospitals in the United States, territories and possessions that have been registered by the American Medical Association in accordance with standards adopted by the Council on Medical Education and Hospitals; (2) a further designation by symbols of those hospitals approved by the American Medical Association for internships and residencies in special-

ties, the hospitals accredited by the American College of Surgeons as meeting unconditionally its requirements for general standardization, and hospitals conducting schools of nursing education accredited by the respective State Boards of Nurse Examiners; (3) statistical tables and textual material giving detailed information by states on the number, size and classification of hospitals, bed capacity, percentage occupancy, number of births, patients admitted, average daily census and total patient days; (4) a survey of professional and auxiliary nursing personnel in hospitals, schools of nursing education and student enrolment; (5) lists and other information on technical schools approved by the Council

on Medical Education and Hospitals in the fields of medical technology, x-ray technic, physical therapy, occupational therapy and medical record library science; (6) a survey of the use of medical motion pictures in hospitals, and (7) studies on specialty certification in relation to hospital staff appointments, and the establishment of general practice sections in hospitals.

While internship and residency hospitals are shown in the present issue, a separate listing of approved internships and residencies with additional information on hospital educational services will appear in THE JOURNAL, May 14, 1949.

Scope of Survey

All hospitals registered by the American Medical Association are represented in the present report. Included in the registered list are (1) civilian hospitals in the United States; (2) hospital services maintained

by the United States Army, United States Air Force, United States Navy, United States Public Health Service, Veterans Administration and other federal agencies; (3) hospitals located in Alaska, the Canal Zone, Guam, Hawaii, Puerto Rico and Virgin Islands, and (4) United States Army hospitals in the European

TABLE A.—Summary of Growth of Hospitals, 1909 to 1948

Year	Federal Hospitals		State Hospitals		All Other Hospitals		Total	
	Num-ber	Capac-ity	Num-ber	Capac-ity	Num-ber	Capac-ity	Num-ber	Capac-ity
1909	71	8,827	232	189,049	4,056	223,189	4,359	421,065
1914	93	12,602	294	232,834	4,650	287,045	5,017	532,481
1918	110	18,815	303	262,234	4,910	331,182	5,323	612,251
1923	220	53,569	601	302,208	6,009	399,615	6,830	755,722
1928	294	61,765	695	369,759	5,903	461,410	6,852	892,931
1931	291	69,170	576	419,282	5,746	485,693	6,613	974,115
1932	301	74,151	568	442,601	5,693	497,602	6,562	1,011,351
1933	295	75,635	557	459,610	5,585	491,765	6,437	1,027,016
1934	313	77,865	544	473,035	5,177	497,201	6,334	1,018,101
1935	316	83,353	526	483,991	5,404	507,792	6,246	1,015,139
1936	323	81,234	524	503,306	5,342	509,181	6,189	1,090,721
1937	329	97,951	522	508,913	5,277	517,684	6,128	1,124,548
1938	330	92,248	523	511,279	5,313	527,853	6,169	1,161,380
1939	329	96,338	523	500,575	5,374	538,113	6,226	1,195,026
1940	336	108,928	521	572,079	5,431	545,238	6,291	1,226,215
1941	428	179,202	530	600,320	5,400	544,859	6,358	1,211,381
1942	474	220,938	530	606,437	5,311	545,152	6,315	1,283,527
1943	527	476,673	531	610,115	5,297	562,466	6,655	1,619,251
1944	798	551,135	539	609,025	5,274	569,785	6,611	1,739,945
1945	765	546,384	549	619,612	5,257	572,918	6,611	1,738,911
1946	404	264,486	537	628,363	5,259	575,845	6,280	1,468,714
1947	401	213,204	563	626,618	5,312	585,370	6,276	1,425,222
1948	372	185,098	567	648,386	5,396	590,036	6,335	1,423,520

TABLE B.—Number of Hospitals According to Size

Bed Capacity	General Hospitals	Nervous and Mental	Tuber- culosis	Other Hos- pitals	Total Number
Below 25.....	1,001	28	27	141	1,197
26-50.....	1,112	78	70	209	1,469
51-100.....	986	74	122	189	1,371
101-200.....	769	52	96	109	1,026
201-300.....	342	28	47	41	458
Over 300.....	379	320	76	33	814
Totals.....	4,589	556	438	722	6,335

Command. It should be noted that hospitals in the territories and possessions are not included in the statistical report, which is limited solely to hospital facilities within the continental United States. There are in the registered group 1,387 hospitals approved by the American Medical Association for internship and/or residencies in specialties and 2,611 fully accredited by the American College of Surgeons under its program of general standardization. Changes, corrections and additions have been made in the registered list up to the date of publication and, therefore, totals derived from the list, itself, may vary slightly from those presented in the tables of the statistical report.

Number, Size and Classification of Hospitals

Perhaps the earliest available record of hospitals in the United States is the list prepared under the auspices of the United States Bureau of Education and published in the Transactions of the American Medical Association in 1873. This list contained the names of 178 hospitals with a total of 35,604 beds to which 146,472 patients were admitted during the year 1872. Apparently there were no major attempts to provide further lists of hospitals during the ensuing thirty years or until the publication in 1903 of the Standard Medical Directory. In 1904 the American Medical Association took over the records of the Standard Directory and compiled a list of 2,608 hospitals which were published in the first edition of the American Medical Directory

in 1906. The subsequent listing of 4,359 hospitals in 1909 is generally regarded as the first complete list of hospital services in the United States. Thereafter the number of hospitals published by the American Medical Association increased gradually until a total of 6,852 was reached in 1928. By 1937, however, the registered hospitals had decreased to 6,128, but during the war the number increased again to 6,655. Since 1928 the registration of hospitals has been carried out in accordance with specific standards adopted by the Council on Medical Education and Hospitals.

The number of hospitals currently registered by the American Medical Association is 6,335. Of this total, 4,435 or 70 per cent are nongovernmental hospitals, whereas 1,900 or 30 per cent operate under governmental control. Compared with 1947 the nongovernmental group reported increases in all categories except in the hospitals operating under individual or partnership control. These showed a loss of 11, whereas the church related hospitals gained 17, the other nonprofit associations 51 and the corporations unrestricted as to profit 19. The governmental hospitals, however, decreased by 17. This loss was chiefly in the federal group, which reported 29 fewer hospitals in 1948. The municipal hospitals had 1 less, but the state, county

TABLE C.—Summary of Hospital Service Classified by Control

	Hospi- tals	Beds	Bassi- nets	Admis- sions	Average Census	Births
Governmental.....	372	185,098	2,343	1,185,574	147,159	49,596
Federal.....	567	648,386	2,056	817,630	611,410	54,117
State.....	530	101,327	4,397	831,655	82,469	129,145
County.....	368	73,797	6,847	1,232,070	58,075	188,567
City-county.....	63	11,159	1,094	213,262	8,465	26,116
Total governmental.....	1,900	1,019,767	15,757	4,290,491	907,569	437,541
Nongovernmental.....	1,068	144,036	27,615	4,719,967	113,225	942,497
Church.....	2,016	298,936	34,990	5,933,318	159,835	1,135,423
Nonprofit associations.....	3,084	352,972	62,635	10,633,285	275,050	2,077,922
Total nonprofit.....	973	27,567	5,668	814,776	17,457	148,116
Individual and partnership Corporations (profit unrestricted).....	378	23,214	3,536	661,222	17,078	110,702
Total proprietary.....	1,351	50,781	9,201	1,478,995	34,545	258,818
Total nongovernmental.....	4,435	401,733	71,839	12,132,283	309,385	2,386,740
Total all hospitals.....	6,335	1,423,520	87,596	16,422,774	1,217,154	2,794,281

TABLE D.—Summary of Hospital Data According to Type of Service

	Hospi- tals	Beds	Bassi- nets	Admis- sions	Average Census	Births
General.....	4,589	576,459	63,497	15,160,062	437,590	2,715,645
N & M.....	586	691,499	279	305,000	664,399	2,323
Tuberculosis.....	438	81,993	21	105,588	66,484	127
Maternity.....	100	5,226	3,319	98,114	3,393	75,039
Industrial.....	33	2,910	1	61,817	2,051	2
E. E. N. T.....	46	2,531	13	118,355	1,524	.....
Children's.....	39	4,530	105	112,689	3,148	.....
Orthopedic.....	85	6,924	16	35,065	5,033	.....
Isolation.....	61	12,073	146	220,776	5,681	71
Conv. and rest.....	97	6,516	20	37,242	4,689	.....
Institutions.....	189	23,361	177	126,235	15,047	174
All other hospitals.....	72	9,468	2	41,821	8,107	.....
Total all hospitals.....	6,335	1,423,520	87,596	16,422,774	1,217,154	2,794,281

and city-county groups showed gains of 4, 4 and 5 respectively. The present registration of 6,335 hospitals represents a net gain of 59 compared with the total of 6,276 in 1947. Reference should be made to table C, which gives a summary of hospitals by control, and also table F, which contains a further breakdown of the federal hospital group.

Table D presents a classification of hospitals in accordance with the type of service rendered. Here the

general hospitals constitute the largest group, with 4,589 or 72 per cent of all institutions included in this report. While there was a loss of 27 hospitals in the federal classification and 15 in the individual and partnership group, the addition of 92 in other categories gave a net gain of 50 general hospitals as compared with the previous year. The psychiatric hospitals now total 586 compared with 585 in 1947 and 575 in 1946. In the tuberculosis field, however, there has been a gradual decline from 450 in 1946 and 441 in 1947 to the present total of 438. Relatively few changes have occurred in the other classifications, which include maternal, industrial, eye, ear, nose and throat, children's, orthopedic, isolation, convalescent and institutional services as shown in table D. Tables E and G give further summaries of the registered hospitals in accordance with type of service and control, while table A shows the changes that have occurred in the number of hospitals and bed capacity since 1909.

TABLE E.—*Governmental and Nongovernmental Hospital Service*

	Hospitals	Beds	Bassi- nets	Admis- sions	Average Census	Births
Governmental						
General.....	960	235,666	14,797	3,604,333	176,880	447,630
N&M.....	363	671,975	221	225,649	647,853	443
Tuberculosis.....	319	71,499	20	90,007	57,838	125
Special.....	106	20,056	563	263,460	11,478	9,169
Institutions.....	147	20,571	156	107,042	13,530	174
Total governmental.....	1,900	1,019,767	15,757	4,290,491	907,569	457,541
Nongovernmental						
General.....	3,629	340,793	68,700	11,555,729	260,710	2,268,015
N&M.....	218	19,524	55	79,351	16,546	1,850
Tuberculosis.....	119	10,494	1	15,581	8,656	2
Special.....	427	39,152	3,059	462,429	22,156	66,843
Institutions.....	42	2,790	21	19,193	1,517	.....
Total nongovernmental.....	4,435	403,753	71,839	12,132,283	369,585	2,336,740
Total all hospitals.....	6,335	1,423,520	87,596	16,422,774	1,217,154	2,794,281

TABLE F.—*Federal Hospital Service*

	Hospitals	Beds	Bassi- nets	Admis- sions	Average Census	Births
U. S. Army.....	55	28,779	772	261,347	19,435	18,031
U. S. Air Force.....	38	6,146	316	84,627	2,253	6,825
U. S. Navy.....	39	20,327	769	229,384	13,878	16,669
U. S. Public Health Service	47	12,059	73	120,072	8,450	1,002
Veterans Administration.....	125	105,904	...	428,042	93,240	4
Indian Affairs.....	62	3,217	403	48,088	2,081	5,204
Other Federal.....	6	8,566	70	12,314	7,822	1,691
Total Federal.....	372	185,098	2,343	1,185,874	147,159	49,596

In table B the general, psychiatric, tuberculosis and other hospitals have been grouped according to size. Here it may be noted that 4,037 or approximately 64 per cent of the registered hospitals have 100 beds or less, 1,484 or 23 per cent range from 101 to 300 beds, while 814 or 13 per cent have more than 300 beds. While the general hospitals follow this same pattern with 68, 24 and 8 per cent respectively, the psychiatric group shows a preponderance of large institutions considering that 56 per cent are over 300 beds.

Bed Capacity

Comparative Totals
1947: 1,425,222
1948: 1,423,520

As mentioned previously, the list of hospitals published in 1873 reported a total of 35,604 beds. By 1909 the capacity had increased to 421,065 and by 1932 it exceeded the million mark. The highest point was reached in 1945, when a total of 1,738,944 beds were reported. Then following the war came a reduction in hospital beds to 1,468,714 in 1946, 1,425,222

in 1947 and 1,423,520 in 1948. In each of these years there was an increase in the nongovernmental hospital beds, but the governmental classification showed losses that were attributed chiefly to the federal group. Thus in the present report the nongovernmental hospitals added 8,736 beds, while the governmental group lost 10,438, a net loss of 1,702 in comparison with the previous year.

TABLE G.—*Summary of Hospital Service in the United States According to Type of Service and Agencies Concerned from the 1948 Census of Hospitals Registered by the American Medical Association*

U. S. Totals.....	6,335	1,423,520	87,596	16,422,774	1,217,154	2,794,281
Type	Hospitals	Beds	Bassi- nets	Admis- sions	Average Census	Births
Federal						
Totals.....	372	185,098	2,343	1,185,874	147,159	49,596
General.....	290	111,848	2,313	1,075,005	82,294	49,567
N&M.....	34	59,916	11	49,701	54,659	9
TB.....	24	9,548	.....	25,021	8,274	1
Special.....	3	1,612	13	23,649	878	4
Institutions.....	21	2,174	6	13,098	1,054	15
State						
Totals.....	567	648,386	2,056	817,630	611,410	54,117
General.....	58	21,072	1,633	368,569	15,621	53,015
N&M.....	283	584,268	194	162,410	566,220	389
TB.....	82	26,100	1	24,011	20,200	51
Special.....	42	8,939	84	184,728	5,493	500
Institutions.....	102	7,947	144	77,972	3,966	159
County						
Totals.....	530	101,327	4,397	851,655	82,460	129,145
General.....	275	43,601	3,997	787,523	32,084	120,411
N&M.....	48	26,937	10	12,237	26,262	45
TB.....	174	23,119	4	24,762	19,023	35
Special.....	19	3,528	386	17,546	2,397	8,654
Institutions.....	14	4,142	.....	9,587	2,634	.....
City						
Totals.....	363	73,797	5,867	1,232,070	58,075	188,567
General.....	292	51,108	5,785	1,163,734	41,184	188,518
N&M.....	3	854	6	1,301	712	.....
TB.....	25	10,730	15	14,139	8,617	38
Special.....	39	5,702	55	35,446	2,618	11
Institutions.....	9	5,403	6	5,450	4,944	.....
City-County						
Totals.....	63	11,159	1,094	213,262	8,465	36,116
General.....	45	8,037	1,063	207,562	5,697	36,116
N&M.....	.....	.....	.....	.....	.....	.....
TB.....	14	2,002	.....	2,074	1,714	.....
Special.....	3	215	25	2,691	182	.....
Institutions.....	1	995	.....	935	872	.....
Church						
Totals.....	1,068	144,036	27,645	4,719,967	115,225	942,497
General.....	945	133,442	26,400	4,650,946	106,934	920,567
N&M.....	19	3,106	.....	6,771	2,755	.....
TB.....	18	1,919	.....	2,982	1,691	.....
Special.....	85	5,429	1,239	59,109	3,815	21,930
Institutions.....	1	140	6	99	30	.....
Nonprofit						
Totals.....	2,016	208,936	34,990	5,933,318	159,825	1,135,425
General.....	1,619	171,570	33,472	5,847,762	131,187	1,097,381
N&M.....	42	6,579	52	24,036	5,720	1,805
TB.....	76	7,156	1	10,266	5,731	2
Special.....	238	20,981	1,450	331,500	15,700	36,237
Institutions.....	41	2,650	15	19,094	1,487	.....
Individual and Partnership						
Totals.....	973	27,567	5,668	814,776	17,457	148,116
General.....	792	20,423	5,427	748,393	11,924	140,798
N&M.....	85	4,312	.....	22,341	3,443	.....
TB.....	17	733	.....	1,238	604	.....
Special.....	80	2,142	241	42,804	1,521	7,318
Institutions.....	.....	.....	.....	.....	.....	.....
Corporations						
Totals.....	378	23,214	3,536	664,222	17,078	110,702
General.....	273	15,358	3,401	608,628	10,665	109,269
N&M.....	72	5,827	6	25,543	4,623	75
TB.....	8	686	.....	1,095	630	.....
Special.....	24	1,600	129	28,956	1,120	1,358
Institutions.....	.....	.....	.....	.....	.....	.....

The hospitals operating under governmental control have 1,019,767, or 71.6 per cent of all hospital beds, while the nongovernmental group has 403,753 or 28.4 per cent. These ratios may be compared with 72.3 and 27.7 per cent in 1947 and 73.7 and 26.3 in 1946. A summary of the control classification will be found in table C, while table F gives a further breakdown of the federal group, which has 372 hospitals and 185,098 beds. Included in these totals are 125 Veterans hospitals with 105,904 beds.

TABLE 1.—HOSPITAL FACILITIES BY STATES AND BY CONTROL: A. GOVERNMENT HOSPITALS

Marginal No.	Federal				State				County				City				City-County				Total Governmental				Marginal No.		
	Hospitals	Beds	Basinets	Patients	Hospitals	Beds	Basinets	Patients	Hospitals	Beds	Basinets	Patients	Hospitals	Beds	Basinets	Patients	Hospitals	Beds	Basinets	Patients	Hospitals	Beds	Basinets	Patients		Average Census	
1	Alabama.....	7	3,978	17	17,610	3,469	9,922	92	48,531	7,800	2,654	200	4	231	69	12,697	168	804	160	32,309	539	1,000	10,707	15,437	4,900	907,569	
2	Arizona.....	18	1,863	90	21,048	1,421	3,363	31	1,043	1,383	66	11,661	7	115	5	524	7	30	101	2,377	151	30	4,268	101	91	907,569	
3	Arkansas.....	4	3,707	11	31,806	2,772	6,769	31	8,396	6,114	915	399	105	4	300	72	11,715	162	2	522	7,657	1,017	10,707	15,437	4,900	907,569	
4	California.....	29	19,304	383	163,036	15,363	47,656	20	33,118	53,107	10,700	1,670	56	19,631	70	11,336	219	1	580	30	21,982	2,922	110	70,304	124	236,415	
5	Colorado.....	3	4,427	36	21,362	3,121	6,828	20	6,831	5,960	70	11,336	219	1	89	21	3,718	73	1	580	30	10,585	410	24	11,701	183	495,415
6	Connecticut.....	3	4,427	36	21,362	3,121	6,828	20	6,831	5,960	70	11,336	219	1	89	21	3,718	73	1	580	30	10,585	410	24	11,701	183	495,415
7	Delaware.....	1	130	1	1,807	140	2,363	7	925	2,231	...	...	...	4	778	8	4,343	521	...	...	...	6	9,487	7	9,738	7	7
8	District of Columbia.....	7	9,621	117	27,962	9,391	...	63	...	7,733	...	...	...	4	3,360	135	23,388	2,641	...	...	...	11	13,227	232	81,350	17	17
9	Florida.....	12	3,144	157	34,696	2,145	6,125	10	...	1,367	...	...	...	10	1,024	221	33,470	732	...	...	...	45	11,560	617	147,487	10	10
10	Georgia.....	10	4,539	56	33,314	3,931	4	1,961	...	1,800	...	...	...	6	1,835	195	49,476	1,636	...	...	...	39	20,621	638	147,487	11	11
11	Idaho.....	1	263	...	3,143	199	4	1,961	...	1,800	...	...	...	1	25	6	539	14	...	...	...	2	2,480	84	13,265	11	11
12	Illinois.....	10	10,997	62	52,385	8,204	29	46,331	51	43,677	...	...	...	23	3,319	240	12,307	2,884	...	...	...	80	63,171	608	226,715	12	12
13	Indiana.....	4	2,873	...	10,149	2,974	17	15,309	62	11,429	...	...	...	39	2,921	448	70,116	2,429	...	...	...	65	22,015	587	113,536	13	13
14	Iowa.....	2	2,214	...	6,026	2,137	12	9,849	62	9,337	...	...	...	10	334	111	13,343	247	...	...	...	32	12,948	213	62,821	14	14
15	Kansas.....	11	3,568	62	29,707	6,030	12	8,615	47	8,115	...	...	...	10	334	111	13,343	247	...	...	...	42	12,948	213	62,821	15	15
16	Kentucky.....	8	4,534	42	28,392	3,833	10	8,641	23	7,621	...	...	...	3	312	79	14,322	230	...	...	...	11	15,638	400	108,885	16	16
17	Louisiana.....	6	2,568	23	18,890	1,600	12	12,990	372	10,408	...	...	...	1	102	37	2,064	142	...	...	...	19	15,638	400	108,885	17	17
18	Maine.....	2	934	...	4,144	806	6	4,437	2	4,136	...	...	...	...	...	...	...	...	...	...	...	11	5,533	39	8,346	18	18
19	Maryland.....	9	6,655	107	40,375	3,972	17	10,627	84	10,160	...	...	...	2	2,678	80	8,854	1,315	...	...	...	29	18,720	361	77,629	19	19
20	Massachusetts.....	10	5,631	107	40,375	3,972	17	10,627	84	10,160	...	...	...	2	2,678	80	8,854	1,315	...	...	...	70	47,917	643	135,175	20	20
21	Michigan.....	7	9,911	37	13,937	4,357	39	25,475	46	23,919	...	...	...	28	4,911	625	21,712	4,034	...	...	...	93	47,917	643	135,175	21	21
22	Minnesota.....	7	2,563	24	13,937	4,357	39	25,475	46	23,919	...	...	...	16	1,707	20	5,290	1,346	...	...	...	88	22,811	747	81,606	22	22
23	Mississippi.....	6	2,985	9	13,937	4,357	39	25,475	46	23,919	...	...	...	3	188	29	4,508	84	...	...	...	26	8,783	222	61,621	23	23
24	Missouri.....	6	2,985	9	13,937	4,357	39	25,475	46	23,919	...	...	...	14	5,315	246	63,732	4,167	...	...	...	41	24,880	410	101,063	24	24
25	Montana.....	5	299	97	6,390	972	2	2,981	...	2,047	...	...	...	4	57	21	1,946	30	...	...	...	21	2,770	44	8,178	25	25
26	Nebraska.....	4	484	28	5,132	343	10	6,047	32	6,296	...	...	...	3	416	5	5,925	320	...	...	...	9	926	73	10,752	26	26
27	Nevada.....	1	130	10	1,086	170	3	2,229	...	3,262	...	...	...	2	129	15	3,117	38	...	...	...	10	3,822	55	8,233	27	27
28	New Hampshire.....	1	130	10	1,086	170	3	2,229	...	3,262	...	...	...	2	129	15	3,117	38	...	...	...	9	926	73	10,752	28	28
29	New Jersey.....	1	130	10	1,086	170	3	2,229	...	3,262	...	...	...	2	129	15	3,117	38	...	...	...	9	926	73	10,752	29	29
30	New Mexico.....	5	4,931	64	26,740	4,265	15	17,889	55	17,171	...	...	...	3	327	60	40,573	2,404	...	...	...	19	2,786	316	95,500	30	30
31	New York.....	13	14,534	91	67,500	11,504	49	107,325	163	26,511	16,217	574	...	46	22,118	1,063	311,420	20,219	...	...	...	130	150,432	1,425	438,233	31	31
32	North Carolina.....	21	14,312	80	67,500	11,504	49	107,325	163	26,511	16,217	574	...	46	22,118	1,063	311,420	20,219	...	...	...	130	150,432	1,425	438,233	32	32
33	North Dakota.....	6	3,192	97	5,171	273	4	4,417	...	3,338	...	...	...	4	415	70	1,738	251	...	...	...	43	13,761	320	82,764	33	33
34	Ohio.....	7	4,898	...	20,427	4,408	27	22,609	37	23,696	...	...	...	10	3,334	200	14,520	2,611	...	...	...	12	3,882	47	7,915	34	34
35	Oklahoma.....	14	1,682	105	17,911	1,623	11	2,854	30	10,081	10,071	65	...	12	1,480	138	14,520	2,611	...	...	...	42	12,771	318	160,917	35	35
36	Oregon.....	3	1,363	...	6,063	1,012	4	6,313	20	10,069	5,953	4	...	3	115	16	3,912	34	...	...	...	18	8,686	84	127,643	36	36
37	Pennsylvania.....	10	7,916	32	42,673	6,443	42	43,346	180	50,469	46,761	11	...	8	4,441	88	20,912	2,601	...	...	...	15	6,419	317	127,643	37	37
38	Rhode Island.....	2	917	23	23,367	378	4	3,623	12	1,943	4,065	...	...	1	265	...	3,356	131	...	...	...	7	6,817	53	34,043	38	38
39	South Carolina.....	5	2,133	20	23,367	378	4	3,623	12	1,943	4,065	...	...	1	265	...	3,356	131	...	...	...	29	11,321	406	100,438	39	39
40	South Dakota.....	9	1,337	45	25,113	3,770	12	1,771	...	10,635	1,759	...	...	3	74	23	2,983	37	...	...	...	35	16,361	76	11,624	40	40
41	Tennessee.....	7	4,482	13	51,160	8,478	19	19,929	24	33,493	19,318	818	...	14	1,675	144	31,165	896	...	...	...	35	16,361	76	11,624	41	41
42	Texas.....	23	11,257	153	91,160	8,478	19	19,929	24	33,493	19,318	818	...	14	1,675	144	31,165	896	...	...	...	104	33,674	914	247,041	42	42
43	Utah.....	2	234	6	3,478	174	3	1,916	...	640	1,572	4	...	4	307	51	6,022	184	...	...	...	13	2,365	98	14,315	43	43
44	Vermont.....	1	250	...	4,063	211	5	1,632	...	821	1,610	...	...	...	...	...	...	...	...	...	...	6	1,832	...	4,837	44	44
45	Virginia.....	14	6,063																								

The survey of 1948 shows a further decline in the number of general hospital beds, which now total 576,459 compared with 592,453 in 1947. Again the reduction is chiefly in the federal group, although small losses are also recorded in the municipal classification and in the hospitals operating under individual and partnership control. As a group, the general hospitals have 40.4 per cent of all registered hospital beds, while the psychiatric institutions have 48.7 per cent, the tuberculosis sanatoriums 5.8 per cent and the other hospitals 5.1 per cent. In relation to bed capacity, therefore, the psychiatric hospitals may be regarded as the largest group, with 691,499 beds compared with 680,913 in 1947. Increases occurred in all categories except in the church related hospitals

and the municipal group, the latter showing a reduction of approximately 4,000 beds due mainly to changes in classification. In the tuberculosis field the bed capacity increased from 81,328 to 81,993, a net gain of 665. There was a loss of 793 beds in the nongovernmental group, but the governmental hospitals reported an increase of 1,458.

It is of interest to note that 97 per cent of the beds in psychiatric hospitals and 87 per cent of the beds in tuberculosis sanatoriums are found in institutions operating under governmental control. Reference should be made to table E, which gives a condensed report on governmental and nongovernmental hospital services. Table G presents a comprehensive analysis of the number of registered hospitals, bed capacity,

TABLE 1.—HOSPITAL FACILITIES BY STATES AND BY CONTROL:
B. NONPROFIT ORGANIZATIONS

Marginal No.		Church Related (Nonprofit)					Nonprofit Associations					Total Nonprofit					Marginal No.
		Hospitals	Beds	Bassinetts	Patients Admitted	Average Census	Hospitals	Beds	Bassinetts	Patients Admitted	Average Census	Hospitals	Beds	Bassinetts	Patients Admitted	Average Census	
1	Alabama.....	10	1,113	211	45,082	832	14	1,453	185	34,081	1,060	24	2,566	396	79,763	1,892	1
2	Arizona.....	8	1,144	171	35,201	878	17	896	148	23,667	550	25	2,040	319	59,068	1,428	2
3	Arkansas.....	11	1,259	259	49,874	1,396	14	879	130	24,893	523	25	2,138	389	74,767	1,919	3
4	California.....	52	7,157	1,504	231,225	5,890	84	8,091	1,387	302,485	7,081	136	16,148	2,951	583,710	12,973	4
5	Colorado.....	29	2,928	647	110,201	2,505	26	2,225	133	26,749	1,428	57	5,153	680	136,950	3,933	5
6	Connecticut.....	6	1,819	335	54,777	1,405	41	6,411	909	104,456	4,693	47	8,230	1,304	219,233	6,298	6
7	Delaware.....	1	115	30	2,901	76	8	1,127	201	28,217	781	9	1,242	231	31,118	857	7
8	District of Columbia.....	5	1,221	222	42,042	894	9	1,857	323	42,428	1,324	14	3,078	545	84,470	2,218	8
9	Florida.....	9	1,215	287	40,036	864	41	2,093	469	66,078	1,832	50	3,908	756	106,774	2,696	9
10	Georgia.....	8	836	131	30,300	621	26	2,204	393	75,331	1,697	34	3,050	524	105,631	2,228	10
11	Idaho.....	12	913	231	35,206	719	7	215	40	3,745	146	19	1,128	271	38,951	865	11
12	Illinois.....	92	13,933	2,537	428,428	11,667	103	12,938	2,145	350,432	9,270	197	25,971	4,702	778,860	20,937	12
13	Indiana.....	29	5,351	1,027	184,713	3,968	21	1,702	338	58,001	1,279	50	7,053	1,365	241,714	5,187	13
14	Iowa.....	43	5,242	956	166,309	4,145	23	1,231	261	42,095	943	66	6,473	1,217	208,404	5,688	14
15	Kansas.....	38	3,803	780	119,957	3,102	23	1,038	209	30,390	733	61	4,841	989	150,377	3,835	15
16	Kentucky.....	21	2,588	506	91,803	2,033	32	2,019	339	63,433	1,325	53	4,607	845	154,738	3,578	16
17	Louisiana.....	11	1,681	369	74,446	1,467	23	1,763	255	58,685	1,143	34	3,644	624	133,131	2,610	17
18	Maine.....	7	590	100	16,455	433	31	1,935	425	58,173	1,440	38	2,485	525	74,628	1,893	18
19	Maryland.....	9	1,798	237	45,478	1,465	32	4,870	659	108,687	3,675	41	6,668	896	154,165	5,140	19
20	Massachusetts.....	17	2,804	627	75,553	2,427	112	12,136	2,147	316,353	8,996	129	15,000	2,674	392,308	11,423	20
21	Michigan.....	36	5,439	1,274	191,099	4,131	99	9,361	1,676	270,424	7,138	135	14,800	2,950	461,523	11,269	21
22	Minnesota.....	40	4,528	807	157,078	3,603	76	4,407	876	139,651	3,384	116	8,935	1,683	296,729	7,187	22
23	Mississippi.....	5	574	109	25,318	475	36	1,518	355	61,808	986	41	2,092	464	87,126	1,461	23
24	Missouri.....	41	6,435	1,126	182,307	5,408	37	3,692	529	94,026	3,691	78	10,127	1,655	276,333	8,490	24
25	Montana.....	23	2,132	403	64,300	1,557	9	370	92	12,676	283	34	2,502	495	76,955	1,420	25
26	Nebraska.....	30	2,605	568	91,368	2,245	12	715	151	24,143	540	42	3,580	719	115,511	2,785	26
27	Nevada.....	2	132	32	5,608	94	1	85	7	642	14	3	167	39	6,250	108	27
28	New Hampshire.....	4	436	79	16,024	354	24	1,618	349	48,194	1,146	28	2,054	428	64,218	1,500	28
29	New Jersey.....	17	3,629	567	97,557	2,779	78	9,403	1,822	254,753	6,809	95	13,032	2,400	352,310	9,588	29
30	New Mexico.....	14	946	179	26,189	685	8	390	48	8,014	209	22	1,336	227	34,203	894	30
31	New York.....	74	12,050	2,081	322,451	9,414	221	35,676	4,946	850,035	28,118	295	47,735	7,027	1,172,486	37,532	31
32	North Carolina.....	14	1,538	285	47,558	1,172	84	6,808	1,330	254,984	5,947	98	8,946	1,715	302,542	6,219	32
33	North Dakota.....	27	2,040	429	71,285	1,586	6	433	86	15,404	246	35	2,473	525	60,689	1,832	33
34	Ohio.....	46	8,221	1,445	293,106	7,112	95	10,128	1,865	351,151	8,252	141	18,349	3,310	644,257	15,364	34
35	Oklahoma.....	13	1,656	345	54,277	1,171	10	762	132	26,091	492	23	2,418	477	50,365	1,663	35
36	Oregon.....	19	2,564	635	99,265	2,065	15	884	155	28,955	642	34	3,448	690	128,220	2,707	36
37	Pennsylvania.....	38	5,993	1,033	150,412	4,727	200	30,053	4,901	809,663	25,259	238	36,046	5,954	990,675	29,986	37
38	Rhode Island.....	3	445	60	8,133	579	13	1,899	388	51,066	1,522	16	2,344	448	39,109	1,901	38
39	South Carolina.....	6	658	133	20,730	452	20	1,924	346	68,810	1,328	26	2,582	479	89,540	1,780	39
40	South Dakota.....	18	1,608	326	60,590	1,245	11	588	127	20,734	445	29	2,196	453	71,684	1,690	40
41	Tennessee.....	12	1,996	328	74,554	1,456	30	2,498	459	79,131	1,839	42	4,494	787	133,685	3,295	41
42	Texas.....	53	5,874	1,303	255,084	4,715	64	3,451	438	125,796	2,007	117	9,325	1,741	380,880	6,722	42
43	Utah.....	8	1,338	357	48,684	1,051	0	181	71	7,546	133	14	1,519	428	56,230	1,183	43
44	Vermont.....	3	231	48	7,508	213	19	1,879	255	35,838	1,553	22	2,110	303	43,346	1,768	44
45	Virginia.....	4	549	100	16,472	380	48	4,477	903	153,526	3,277	52	5,026	1,012	109,998	3,657	45
46	Washington.....	24	3,074	688	114,362	2,252	35	3,493	723	118,538	2,604	59	6,507	1,411	232,900	4,756	46
47	West Virginia.....	8	1,163	223	46,016	996	17	1,939	267	53,783	1,358	25	3,102	490	99,799	2,354	47
48	Wisconsin.....	63	8,133	1,523	249,078	6,506	45	2,478	509	84,445	1,895	108	10,611	2,032	334,423	8,401	48
49	Wyoming.....	3	60	23	2,104	35	4	133	28	4,912	76	7	193	51	7,016	111	49
Totals (1948).....		1,068	144,036	27,645	4,719,967	115,225	2,016	208,936	34,990	5,933,318	159,825	3,084	352,972	62,635	10,653,285	275,050	
(1947).....		1,051	141,920	27,145	4,524,850	118,780	1,965	202,601	34,110	5,652,649	158,835	3,016	344,581	61,255	10,177,508	277,615	
(1946).....		1,036	138,096	26,256	4,098,042	115,358	1,942	198,885	33,120	5,100,117	153,580	2,992	336,981	59,376	9,198,159	268,938	
(1945).....		1,036	135,481	25,465	3,887,100	110,537	1,954	195,805	32,497	4,745,712	147,694	2,990	331,286	57,962	8,632,812	258,251	
(1944).....		1,020	133,690	24,948	3,707,991	105,940	1,961	193,624	31,854	4,590,048	144,328	2,951	328,714	56,802	8,304,039	250,268	
(1943).....		1,004	130,488	24,007	3,503,396	101,150	1,952	192,619	30,731	4,456,274	140,095	2,956	322,707	54,738	7,959,670	241,245	
(1942).....		977	126,141	22,262	3,211,162	94,821	1,949	190,150	29,154	4,232,466	141,693	2,926	316,291	51,416	7,463,648	236,154	
(1941).....		993	123,331	20,145	2,961,594	90,195	1,917	182,140	26,422	3,931,141	132,472	2,910	305,471	46,567	6,892,735	222,667	
(1940).....		998	120,809	18,561	2,679,576	85,007	1,903	177,681	24,978	3,574,974	125,757	2,901	298,490	43,539	6,254,850	210,704	
(1939).....		1,001	120,740	18,044	2,682,762	81,984	1,899	172,765	23,371	3,503,485	119,345	2,876	289,501	41,415	6,166,250	201,326	
(1938).....		981	119,521	17,320	2,531,796	80,576	1,776	169,980	22,523	3,316,310	117,558	2,757	289,501	39,843	5,848,108	198,134	
(1937).....		975	115,823	16,851	2,455,114	79,113	1,742	162,474	21,511	3,201,042	114,508	2,693	277,737	38,362	5,696,156	193,621	
(1936).....		969	113,288	16,300	2,286,064	74,037	1,718	162,386	21,238	2,972,708	107,591	2,671	275,854	37,598	5,258,772	181,547	
(1935).....		970	113,203	16,033	1,950,309	69,192	1,670	153,300	20,119	2,527,807	98,988	2,640	268,568	36,152	4,477,515	167,680	
(1934).....		970	113,203	16,067	1,786,522	63,851	1,670	154,449	20,184	2,377,213	93,216	2,646	267,712	36,251	4,163,735	157,067	
(1933).....		984	115,840	16,199	1,753,565	63,621											
(1932).....		1,001	117,555	16,125	1,918,214	70,119											
(1931).....		1,011	116,935	15,861	2,013,352	73,911											
(1930).....		1,017	116,846	15,615	.....	75,162											
(1929).....		1,024															

TABLE 1.—HOSPITAL FACILITIES BY STATES AND BY CONTROL: A. GOVERNMENT HOSPITALS

Marginal No.	State	Federal				County				City				City-County				Total Governmental				Marginal No.
		Hospitals	Beds	Patients Admitted	Average Census	Hospitals	Beds	Patients Admitted	Average Census	Hospitals	Beds	Patients Admitted	Average Census	Hospitals	Beds	Patients Admitted	Average Census	Hospitals	Beds	Patients Admitted	Average Census	
1	Alabama.....	3,978	17,010	3,469	17,010	3,469	17,010	3,469	17,010	3,469	17,010	3,469	17,010	3,469	17,010	3,469	17,010	3,469	17,010	3,469	1	
2	Arizona.....	1,863	21,048	1,863	21,048	1,863	21,048	1,863	21,048	1,863	21,048	1,863	21,048	1,863	21,048	1,863	21,048	1,863	21,048	1,863	2	
3	Arkansas.....	1,421	1,421	1,421	1,421	1,421	1,421	1,421	1,421	1,421	1,421	1,421	1,421	1,421	1,421	1,421	1,421	1,421	1,421	1,421	3	
4	California.....	3,904	33,086	3,904	33,086	3,904	33,086	3,904	33,086	3,904	33,086	3,904	33,086	3,904	33,086	3,904	33,086	3,904	33,086	3,904	4	
5	Colorado.....	4,427	24,902	4,427	24,902	4,427	24,902	4,427	24,902	4,427	24,902	4,427	24,902	4,427	24,902	4,427	24,902	4,427	24,902	4,427	5	
6	Connecticut.....	3,420	3,420	3,420	3,420	3,420	3,420	3,420	3,420	3,420	3,420	3,420	3,420	3,420	3,420	3,420	3,420	3,420	3,420	3,420	6	
7	Delaware.....	1,320	1,320	1,320	1,320	1,320	1,320	1,320	1,320	1,320	1,320	1,320	1,320	1,320	1,320	1,320	1,320	1,320	1,320	1,320	7	
8	District of Columbia.....	1,320	1,320	1,320	1,320	1,320	1,320	1,320	1,320	1,320	1,320	1,320	1,320	1,320	1,320	1,320	1,320	1,320	1,320	1,320	8	
9	Florida.....	4,439	33,314	4,439	33,314	4,439	33,314	4,439	33,314	4,439	33,314	4,439	33,314	4,439	33,314	4,439	33,314	4,439	33,314	4,439	9	
10	Georgia.....	1,097	1,097	1,097	1,097	1,097	1,097	1,097	1,097	1,097	1,097	1,097	1,097	1,097	1,097	1,097	1,097	1,097	1,097	1,097	10	
11	Idaho.....	2,673	2,673	2,673	2,673	2,673	2,673	2,673	2,673	2,673	2,673	2,673	2,673	2,673	2,673	2,673	2,673	2,673	2,673	2,673	11	
12	Illinois.....	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	12	
13	Indiana.....	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	13	
14	Iowa.....	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	14	
15	Kansas.....	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	15	
16	Kentucky.....	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	16	
17	Louisiana.....	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	17	
18	Maine.....	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	18	
19	Maryland.....	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	19	
20	Massachusetts.....	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	20	
21	Michigan.....	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	21	
22	Minnesota.....	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	22	
23	Mississippi.....	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	23	
24	Missouri.....	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	24	
25	Montana.....	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	25	
26	Nebraska.....	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	26	
27	Nevada.....	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	27	
28	New Hampshire.....	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	28	
29	New Jersey.....	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	29	
30	New Mexico.....	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	30	
31	New York.....	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	31	
32	North Carolina.....	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	32	
33	North Dakota.....	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	33	
34	Ohio.....	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	34	
35	Oklahoma.....	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	35	
36	Oregon.....	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	36	
37	Rhode Island.....	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	37	
38	South Carolina.....	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	38	
39	South Dakota.....	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	39	
40	Tennessee.....	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	40	
41	Texas.....	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	41	
42	Vermont.....	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	42	
43	Virginia.....	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	43	
44	Washington.....	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	44	
45	West Virginia.....	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	45	
46	Wisconsin.....	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	46	
47	Wyoming.....	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	47	
48	Totals (1918).....	372	185,023	2,313	1,851,574	147,139	372	185,023	2,313	1,851,574	147,139	372	185,023	2,313	1,851,574	147,139	372	185,023	2,313	1,851,574	147,139	48
49	Totals (1917).....	401	218,201	2,444	1,255,422	165,131	401	218,201	2,444	1,255,422	165,131	401	218,201	2,444	1,255,422	165,131	401	218,201	2,444	1,255,422	165,131	49
50	Totals (1916).....	461	264,180	2,692	1,910,711	212,216	461	264,180	2,692	1,910,711	212,216	461	264,180	2,692	1,910,711	212,216	461	264,180	2,692	1,910,711	212,216	50
51	Totals (1915).....	705	516,351	3,621	4,017,919	331,023	705	516,351	3,621	4,017,919	331,023	705	516,351	3,621	4,017,919	331,023	705	516,351	3,621	4,017,919	331,023	51
52	Totals (1914).....	793	531,133	3,462	4,257,271	300,573	793	531,133	3,462	4,257,271	300,573	793	531,133	3,462	4,257,271	300,573	793	531,133	3,462	4,257,271	300,573	52
53	Totals (1913).....	827	470,073	3,366	4,022,007	295,710	827	470,073	3,366	4,022,007	295,710	827	470,073	3,366	4,022,007	295,710	827	470,073	3,366	4,022,007	295,710	53
54	Totals (1912).....	474	230,023	1,966	1,655,722																	

The survey of 1948 shows a further decline in the number of general hospital beds, which now total 576,459 compared with 592,453 in 1947. Again the reduction is chiefly in the federal group, although small losses are also recorded in the municipal classification and in the hospitals operating under individual and partnership control. As a group, the general hospitals have 40.4 per cent of all registered hospital beds, while the psychiatric institutions have 48.7 per cent, the tuberculosis sanatoriums 5.8 per cent and the other hospitals 5.1 per cent. In relation to bed capacity, therefore, the psychiatric hospitals may be regarded as the largest group, with 691,499 beds compared with 680,913 in 1947. Increases occurred in all categories except in the church related hospitals

and the municipal group, the latter showing a reduction of approximately 4,000 beds due mainly to changes in classification. In the tuberculosis field the bed capacity increased from 81,328 to 81,993, a net gain of 665. There was a loss of 793 beds in the nongovernmental group, but the governmental hospitals reported an increase of 1,458.

It is of interest to note that 97 per cent of the beds in psychiatric hospitals and 87 per cent of the beds in tuberculosis sanatoriums are found in institutions operating under governmental control. Reference should be made to table E, which gives a condensed report on governmental and nongovernmental hospital services. Table G presents a comprehensive analysis of the number of registered hospitals, bed capacity,

TABLE 1.—HOSPITAL FACILITIES BY STATES AND BY CONTROL:
B. NONPROFIT ORGANIZATIONS

Marginal No.		Church Related (Nonprofit)					Nonprofit Associations					Total Nonprofit					Marginal No.
		Hospitals	Beds	Bassnets	Patients Admitted	Average Census	Hospitals	Beds	Bassnets	Patients Admitted	Average Census	Hospitals	Beds	Bassnets	Patients Admitted	Average Census	
1	Alabama.....	10	1,113	211	45,682	832	14	1,453	185	34,081	1,060	24	2,566	396	79,763	1,892	1
2	Arizona.....	8	1,144	171	35,201	878	17	896	148	23,867	550	25	2,040	319	59,068	1,438	2
3	Arkansas.....	11	1,259	239	49,674	1,396	14	879	130	24,893	523	25	2,138	389	74,767	1,919	3
4	California.....	62	7,157	1,591	281,225	5,899	84	8,991	1,987	302,485	7,083	136	16,148	2,981	583,710	12,973	4
5	Colorado.....	20	2,928	547	110,201	2,505	28	2,225	133	26,749	1,428	57	5,153	680	130,950	3,933	5
6	Connecticut.....	6	1,619	335	54,777	1,405	41	6,411	909	104,436	4,693	47	8,330	1,304	219,233	6,298	6
7	Delaware.....	1	115	30	2,901	76	6	1,127	201	28,217	781	19	1,242	231	31,118	857	7
8	District of Columbia.....	5	1,221	222	42,042	894	9	1,837	323	42,428	1,324	14	2,078	545	84,470	2,218	8
9	Florida.....	9	1,215	287	40,036	894	41	2,693	400	66,078	1,833	50	3,908	756	106,774	2,696	9
10	Georgia.....	8	826	131	30,300	621	26	2,204	393	75,331	1,607	34	3,690	524	105,631	2,228	10
11	Idaho.....	12	913	231	35,266	719	7	215	40	3,745	146	19	1,128	271	39,951	865	11
12	Illinois.....	92	13,933	2,557	428,428	11,997	105	12,638	2,145	350,432	9,270	197	25,971	4,702	778,880	20,997	12
13	Indiana.....	29	5,551	1,027	183,713	3,968	21	1,702	338	58,001	1,279	50	7,033	1,365	241,714	5,187	13
14	Iowa.....	43	5,242	956	160,399	4,145	23	1,231	261	42,995	943	60	6,473	1,217	208,404	5,688	14
15	Kansas.....	38	3,918	780	119,957	3,102	23	1,038	209	30,390	733	61	4,841	989	150,377	3,835	15
16	Kentucky.....	21	2,688	506	91,305	2,033	32	2,019	339	63,433	1,325	53	4,607	845	154,738	3,578	16
17	Louisiana.....	11	1,681	369	74,440	1,467	23	1,793	255	68,685	1,453	34	3,644	621	133,131	2,610	17
18	Maine.....	7	630	100	16,455	143	31	1,935	435	58,173	1,440	38	2,485	555	74,628	1,893	18
19	Maryland.....	9	1,798	237	45,478	1,465	35	4,870	630	108,087	3,675	41	6,608	896	154,165	5,140	19
20	Massachusetts.....	17	2,694	527	75,653	2,427	112	12,136	2,147	316,353	8,908	129	15,000	2,674	392,308	11,123	20
21	Michigan.....	36	5,439	1,274	191,099	4,131	90	9,361	1,676	270,424	7,138	135	14,800	2,950	461,523	11,269	21
22	Minnesota.....	40	4,628	897	157,078	3,693	76	4,407	876	133,651	3,384	116	8,935	1,683	290,729	7,187	22
23	Mississippi.....	5	574	109	25,318	475	36	1,318	335	61,608	986	41	2,992	406	87,126	1,641	23
24	Missouri.....	41	6,495	1,126	182,307	5,405	37	3,692	529	94,026	3,091	78	10,127	1,635	276,333	8,490	24
25	.....	25	2,132	403	64,300	1,557	9	370	92	12,076	283	34	2,502	495	76,955	1,840	25
26	.....	30	2,665	568	91,308	2,245	12	715	151	24,143	540	42	3,580	719	115,511	2,785	26
27	New Hampshire.....	2	182	32	5,608	64	1	33	7	642	14	3	167	39	6,250	108	27
28	New Hampshire.....	4	436	79	10,024	354	24	1,018	349	48,194	1,146	28	2,054	428	64,218	1,500	28
29	New Jersey.....	17	3,029	587	97,557	2,770	78	9,463	1,822	254,733	6,599	95	13,692	2,409	352,310	9,588	29
30	New Mexico.....	14	916	179	20,189	653	6	590	48	8,014	209	22	1,336	227	34,203	894	30
31	New York.....	74	12,059	2,081	322,451	9,414	121	35,670	4,946	830,835	28,118	295	47,335	7,027	1,172,498	37,382	31
32	North Carolina.....	14	1,538	285	47,585	1,172	84	6,808	1,380	254,984	5,047	98	8,346	1,715	302,542	6,129	32
33	North Carolina.....	27	2,040	439	71,285	1,586	64	1,423	86	15,408	354	35	2,473	525	86,689	1,832	33
34	North Dakota.....	46	8,221	1,445	293,106	7,112	06	10,138	1,865	331,151	8,232	141	18,349	3,310	644,257	15,364	34
35	Ohio.....	12	1,656	345	54,277	1,171	10	763	132	26,091	812	23	2,418	477	80,365	1,663	35
36	Oklahoma.....	10	2,564	535	99,265	2,065	15	884	155	28,955	649	34	3,448	690	128,220	2,707	36
37	Oregon.....	3	1,063	133	150,412	4,727	200	30,053	4,901	899,683	25,259	238	36,046	5,954	930,675	29,986	37
38	Pennsylvania.....	3	445	60	8,133	279	3	1,839	388	51,066	1,322	16	2,344	448	39,199	1,901	38
39	Rhode Island.....	6	638	133	29,730	452	20	1,924	346	68,810	1,328	26	2,582	479	89,540	1,780	39
40	South Carolina.....	18	1,608	326	60,950	1,245	11	388	127	20,734	445	29	2,196	453	71,684	1,690	40
41	Tennessee.....	12	1,996	328	74,554	1,450	30	2,498	459	79,131	1,839	42	4,494	787	153,685	3,295	41
42	Texas.....	63	5,874	1,303	255,084	4,715	64	3,451	438	125,796	2,007	117	9,325	1,741	380,880	6,722	42
43	Utah.....	8	1,338	357	48,684	1,051	6	181	71	7,546	133	14	1,519	428	56,230	1,183	43
44	Vermont.....	3	231	48	7,508	213	10	1,870	255	35,838	1,553	22	2,110	303	43,346	1,768	44
45	Virginia.....	4	549	100	16,472	380	48	4,477	903	133,826	3,274	52	5,026	1,012	109,998	3,657	45
46	Washington.....	24	3,074	688	114,362	2,823	35	3,493	723	118,538	2,504	59	6,567	1,411	232,900	4,756	46
47	West Virginia.....	8	1,163	223	46,016	996	17	1,938	267	53,783	1,358	25	3,102	490	92,799	2,354	47
48	Wisconsin.....	63	8,133	1,523	249,978	6,506	45	2,478	509	84,445	1,895	108	10,611	2,032	334,423	8,401	48
49	Wyoming.....	3	60	23	2,104	35	4	133	28	4,912	70	7	193	51	7,016	111	49
Totals (1948).....		1,068	144,030	27,645	4,719,967	115,225	2,016	208,936	24,990	5,933,318	159,825	3,084	352,972	62,635	10,653,285	275,050	
(1947).....		1,051	141,920	27,145	4,524,859	118,780	1,965	202,661	24,410	5,632,040	155,835	3,016	344,581	61,235	10,177,508	277,615	
(1946).....		1,050	138,096	26,256	4,095,042	115,358	1,942	198,853	23,120	5,100,117	153,580	2,992	336,951	60,376	9,198,159	268,938	
(1945).....		1,036	135,481	25,465	3,887,100	110,557	1,954	195,803	23,497	4,745,712	147,694	2,990	331,286	57,902	8,632,812	258,251	
(1944).....		1,020	133,690	24,948	3,707,991	105,940	1,961	195,624	23,354	4,599,048	144,328	2,981	328,714	56,802	8,301,039	250,268	
(1943).....		1,004	130,488	24,007	3,508,396	101,150	1,932	192,219	23,721	4,456,274	140,065	2,956	327,707	54,738	7,939,670	241,245	
(1942).....		977	126,141	22,262	3,211,162	94,521	1,940	190,150	23,154	4,252,486	141,033	2,926	316,291	51,416	7,463,648	236,154	
(1941).....		933	123,331	20,145	2,961,594	90,195	1,917	182,140	22,429	3,931,151	132,472	2,910	305,471	46,567	6,892,735	222,667	
(1940).....		908	120,800	18,561	2,679,876	85,007	1,903	177,681	24,975	3,574,672	125,757	2,901	298,490	43,539	6,251,850	210,764	
(1939).....		1,001	120,740	18,014	2,682,762	81,984	1,839	172,765	23,271	3,503,458	119,349	2,840	293,505	41,415	6,186,250	201,326	
(1938).....		981	119,521	17,320	2,531,796	80,576	1,776	169,980	22,523	3,316,310	117,558	2,757	289,501	39,843	5,848,106	198,194	
(1937).....		975	115,283	16,851	2,495,114	79,113	1,718	162,474	21,511	3,201,042	114,508	2,693	277,757	38,362	5,696,156	193,621	
(1936).....		969	113,288	16,360	2,286,064	74,037	1,742	162,886	21,238	2,972,706	107,510	2,614	275,554	37,598	5,255,772	181,547	
(1935).....		970	113,263	16,033	1,950,308	69,592	1,676	155,300	20,119	2,527,807	98,088	2,640	268,568	36,152	4,477,513	167,680	
(1934).....		970	113,263	16,067	1,786,522	63,851	1,676	154,449	20,184	2,377,213	93,216	2,640	267,712	36,251	4,163,735	157,067	
(1933).....		984	115,840	16,190	1,753,565	63,621											
(1932).....		1,001	117,555	16,125	1,918,214	70,119											
(1931).....		1,011	116,935	15,861	2,013,352	73,911											
(1930).....		1,017	116,846	15,615	.....	75,162											
(1929).....		1,024	115,555	15,037	.....	75,770											
(1928).....		1,056	114,613	13,190	.....												
(1927).....		1,060	108,582	.....	.....	73,813											

number of bassinets and births and total hospital admissions, all classified by control and type of service.

Number of Patients Admitted

Comparative Totals
1947: 15,829,514
1948: 16,422,774

The number of patients admitted in the registered hospitals in 1948 was 16,422,774, or 1 admission every 1.9 seconds. This is a new high in the utilization of hospital service, as the previous record was 16,257,402 in 1945. Compared with 1947 there was a net increase of 593,260 admissions last year, 86,147 in the governmental hospitals and 507,113 in the non-

governmental group. It should be noted, however, that a reduction of approximately 100,000 admissions occurred in the federal hospitals, but this loss was offset by increases in all other governmental groups. In the nongovernmental classification, the church related hospitals showed an increase of 195,108 admissions, the other nonprofit associations 280,669 and the corporations unrestricted as to profit 64,642. There was a reduction, however, of 33,306 admissions in the hospitals operating under individual and partnership control. The nongovernmental hospitals with only 28.4 per cent of the hospital beds had 12,132,283 admissions, or 73.9 per cent of all patients admitted in 1948. The governmental hospitals with 71.6 per cent of the bed

TABLE 1.—HOSPITAL FACILITIES BY STATES AND BY CONTROL:
C. PROPRIETARY

Marginal No.	Individual and Partnership					Corporations (Profit Unrestricted)					Total Proprietary					Totals of Tables IB and IC					Marginal No.					
	Totals of Tables IB and IC					Totals of Tables IB and IC					Totals of Tables IB and IC					Totals of Tables IB and IC										
	Hospitals	Beds	Bassinets	Patients Admitted	Average Census	Hospitals	Beds	Bassinets	Patients Admitted	Average Census	Hospitals	Beds	Bassinets	Patients Admitted	Average Census	Hospitals	Beds	Bassinets	Patients Admitted	Average Census						
1	Alabama.....	33	1,191	217	37,160	667	12	788	108	20,601	487	45	1,982	385	63,761	1,151	63	4,548	781	143,527	3,016	1				
2	Arizona.....	2	33	12	801	25	1	30	12	192	20	3	61	12	991	45	28	2,103	331	60,061	1,473	2				
3	Arkansas.....	26	779	203	27,952	339	1	38	12	2,533	35	27	817	215	30,169	401	52	2,055	691	103,217	2,323	3				
4	California.....	81	2,921	418	75,352	2,136	44	2,218	351	70,507	1,689	125	6,139	772	145,829	3,825	261	21,287	3,753	729,569	16,798	4				
5	Colorado.....	14	468	58	7,148	376	3	158	18	2,310	98	17	626	76	9,158	474	71	5,779	756	146,408	4,497	5				
6	Connecticut.....	2	68	1	1,086	57	6	468	1	1,086	388	8	536	1	2,172	415	65	8,706	1,304	221,405	6,743	6				
7	Delaware.....	1	.....	.....	.....	1	1	15	6	320	7	1	15	6	320	7	10	1,257	237	31,428	891	7				
8	Dist. Columbia.....	2	15	8	378	27	1	210	61	8,820	208	3	285	69	9,217	235	17	3,223	614	93,687	2,453	8				
9	Florida.....	25	654	156	17,538	309	8	313	77	6,452	181	33	997	233	25,960	491	83	4,905	980	132,761	3,187	9				
10	Georgia.....	40	1,247	223	38,273	763	10	404	105	20,582	287	50	1,651	328	58,865	1,050	84	4,681	832	164,436	3,278	10				
11	Idaho.....	10	233	69	7,412	132	2	86	30	3,089	62	12	309	89	10,501	181	31	1,437	399	49,452	1,019	11				
12	Illinois.....	30	1,027	99	10,000	722	14	1,119	76	16,010	992	41	2,116	175	27,840	1,621	211	28,117	4,577	866,709	22,561	12				
13	Indiana.....	16	330	75	9,857	212	5	424	20	13,167	293	20	754	95	23,021	610	70	7,897	1,460	261,738	5,637	13				
14	Iowa.....	27	627	101	10,636	402	5	178	33	4,057	129	32	805	227	23,683	531	98	7,278	1,444	233,057	5,619	14				
15	Kansas.....	11	242	69	10,203	110	3	83	21	3,527	51	11	325	90	13,730	161	75	5,166	1,079	164,107	3,906	15				
16	Kentucky.....	9	268	50	6,139	156	9	438	93	20,162	284	18	706	143	26,491	410	71	5,813	988	181,329	4,018	16				
17	Louisiana.....	26	373	166	29,485	352	11	569	71	10,950	375	37	1,142	237	48,544	727	71	4,786	861	181,675	3,337	17				
18	Maine.....	5	129	33	2,241	77	4	121	24	2,892	91	9	214	57	5,133	168	47	2,729	582	70,761	2,061	18				
19	Maryland.....	11	426	9	2,516	320	3	123	29	2,818	69	14	519	38	5,361	38	55	7,217	911	159,529	5,529	19				
20	Massachusetts.....	6	175	20	2,322	117	10	736	126	23,091	577	22	911	116	25,416	691	151	15,911	2,820	417,721	12,117	20				
21	Michigan.....	19	378	106	8,608	348	8	511	1	3,678	423	27	889	106	12,246	771	162	15,680	3,056	478,806	12,010	21				
22	Minnesota.....	15	262	72	6,285	158	8	769	10	25,686	661	23	1,011	91	31,971	519	129	9,966	1,774	328,700	8,036	22				
23	Mississippi.....	23	803	113	25,580	429	3	150	26	4,695	74	26	953	189	30,175	608	67	3,015	633	117,304	1,964	23				
24	Missouri.....	19	580	149	18,092	373	9	391	132	6,753	307	28	971	281	24,845	620	106	11,098	1,926	301,178	9,179	24				
25	Montana.....	4	85	19	1,570	63	2	135	27	3,913	109	0	229	46	6,483	162	40	2,732	511	82,168	2,092	25				
26	Nebraska.....	33	583	189	20,510	317	5	232	37	3,552	176	38	815	226	21,062	493	69	4,395	945	139,573	3,278	26				
27	Nevada.....	2	75	16	2,551	32	.....	.....	.....	.....	.....	2	75	16	2,551	32	5	212	45	8,804	140	27				
28	New Hampshire.....	.....	.....	.....	.....	1	50	.....	90	37	1	50	.....	90	37	1	50	.....	41,308	1,537	28					
29	New Jersey.....	6	105	19	1,425	91	6	368	.....	937	271	12	593	19	2,362	265	107	13,655	2,128	354,672	9,933	29				
30	New Mexico.....	6	82	24	3,426	36	2	53	15	1,854	33	8	135	39	6,280	69	30	1,471	266	30,483	963	30				
31	New York.....	40	1,490	273	23,260	1,092	35	3,485	705	109,778	2,163	75	4,975	978	121,011	3,555	370	52,710	8,005	1,296,530	41,681	31				
32	North Carolina.....	18	568	92	14,932	313	4	305	18	4,690	213	22	813	110	19,642	526	120	9,159	1,825	322,184	6,745	32				
33	North Dakota.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....				
34	Ohio.....	11	450	28	7,095	327	7	510	4	2,567	456	16	660	32	11,662	783	159	10,318	3,342	639,919	16,147	33				
35	Oklahoma.....	44	1,288	321	52,510	769	8	332	59	10,436	217	62	1,620	380	62,916	1,016	75	4,038	857	143,314	2,679	34				
36	Oregon.....	9	282	63	11,152	186	11	851	122	27,262	638	20	1,133	187	38,414	824	64	4,581	877	106,621	3,331	35				
37	Pennsylvania.....	21	780	69	8,647	622	7	355	33	5,623	276	28	1,135	95	14,270	698	266	37,181	6,049	974,345	30,834	36				
38	Rhode Island.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....				
39	South Carolina.....	8	211	39	6,312	84	2	90	13	1,661	41	10	301	62	7,973	128	16	2,344	448	50,199	1,901	38				
40	South Dakota.....	5	70	23	1,833	41	.....	.....	.....	.....	.....	6	70	23	1,833	41	31	2,266	476	73,517	1,731	40				
41	Tennessee.....	39	1,101	219	38,743	609	10	355	75	14,653	331	49	1,426	291	53,996	900	331	15,686	3,276	624,800	10,762	41				
42	Texas.....	194	4,905	1,135	166,447	2,628	40	2,036	400	77,473	1,412	231	6,361	1,535	213,920	3,040	19	1,617	483	60,331	1,265	42				
43	Utah.....	5	128	55	4,101	83	.....	.....	.....	.....	.....	5	128	55	4,101	83	21	2,151	220	41,593	1,787	43				
44	Vermont.....	2	41	17	1,247	19	.....	.....	.....	.....	.....	2	41	17	1,247	19	69	7,030	1,313	210,367	5,129	44				
45	Virginia.....	18	600	136	23,669	377	19	1,401	195	49,700	1,095	37	2,001	331	70,369	1,472	89	7,030	1,313	210,367	5,129	45				
46	Washington.....	20	645	127	21,056	441	3	93	12	4,309	67	23	738	159	25,265	611	82	7,905	1,550	238,163	5,267	46				
47	West Virginia.....	13	739	126	20,713	601	7	1,650	286	62,101	1,208	34	2,389	412	88,804	1,700	69	5,491	902	188,703	4,763	47				
48	Wisconsin.....	17	331	100	8,414	174	7	450	26	4,269	306	24	790	126	12,683	670	132	11,401	2,158	347,106	8,971	48				
49	Wyoming.....	7	135	44	3,904	60	1	19	8	410	12	8	151	52	4,314	72	15	317	103	11,660	183	49				
Totals (1948).....																						1,435	403,753	71,839	12,132,283	309,585
(1947).....																						1,350	385,017	70,651	11,625,170	312,626
(1946).....																						1,318	385,950	68,417	10,555,289	301,622
(1945).....																						1,328	382,226	66,515	9,838,289	290,835
(1944).....																						1,319	377,667	65,592	9,911,881	283,891
(1943).....																						1,311	373,115	63,295	9,111,871	273,592
(1942).....																						1,311	373,115	63,295	9,111,871	273,592
(1941).....																						1,311	373,115	63,295	9,111,871	273,592
(1940).....																						1,311	373,115	63,295	9,111,871	273,592
(1939).....																						1,311	373,115	63,295	9,111,871	273,592
(1938).....																						1,311	373,115	63,295	9,111,871	273,592
(1937).....																						1,311	373,115	63,295	9,111,871	273,592
(1936).....																						1,311	373,115	63,295	9,111,871	273,592
(1935).....																						1,311	373,115	63,295	9,111,871	273,592
(1934).....																						1,311	373,115	63,295	9,111,871	273,592
(1933).....																						1,311	373,115	63,295	9,111,871	273,592
(1932).....																						1,311	373,115	63,295	9,111,871	273,592
(1931).....																						1,311	373,115	63,295	9,111,871	273,592
(1930).....																						1,311	373,115	63,295	9,111,871	273,592
(1929).....																						1,311	373,115	63,295	9,111,871	273,592
(1928).....																						1,311	373,115	63,295	9,111,871	273,592
(1927).....																						1,311	373,115	63,295	9,111,871	273,592

TABLE 2.—HOSPITAL FACILITIES BY STATES AND BY TYPE OF SERVICE (Continued on next page)

Marginal No.	General				Nervous and Mental				Tuberculosis				Maternity				Industrial				Eye, Ear, Nose and Throat					
	Hospitals	Beds	Patients Admitted	Average Census	Hospitals	Beds	Patients Admitted	Average Census	Hospitals	Beds	Patients Admitted	Average Census	Hospitals	Beds	Patients Admitted	Average Census	Hospitals	Beds	Patients Admitted	Average Census	Hospitals	Beds	Patients Admitted	Average Census		
1	Alabama.....	78	6,146	1,012	4,036	8	10,793	44	18,957	10,106	7	658	1,071	576	1,331	29	1,331	29	1,331	29	1,331	29	1,331	29	1,331	29
2	Arizona.....	46	3,659	492	3,470	1	1,433	0	610	1,300	10	1,331	4,283	1,047	1,331	29	1,331	29	1,331	29	1,331	29	1,331	29	1,331	29
3	Arkansas.....	57	3,821	711	3,024	1	6,913	3	6,013	6,852	2	1,331	4,283	1,047	1,331	29	1,331	29	1,331	29	1,331	29	1,331	29	1,331	29
4	California.....	204	48,514	4,689	71,307,474	33	42,111	30,007	29,835	28	5,712	6,590	5,101	3,012	11	261	272	7,975	24	618	12,211	204	31	3,952	31	
5	Colorado.....	67	8,728	837	32,643	23	47,108	4	4,706	6,853	12	1,085	931	822	2	85	27	321	12	46	905	15	1	56	1	
6	Connecticut.....	39	7,551	1,301	5,390	15	12,050	6	5,390	11,679	7	1,717	1,222	1,331	1	124	24	5,868	1	100	6,319	63	1	100	63	
7	Delaware.....	1	1,298	237	17,710	2	1,757	17	417	1,703	3	222	208	181	2	181	24	5,868	1	100	6,319	63	1	100	63	
8	District of Columbia.....	17	7,671	725	36	7	7,072	17	1,461	6,965	4	1,018	562	552	2	51	29	1,337	35	2	2,574	21	1	2,574	21	
9	Florida.....	106	10,153	1,662	6,691	5	7,908	5	4,691	6,063	4	1,184	1,275	900	6	12	61	1,337	35	2	2,574	21	1	2,574	21	
10	Georgia.....	101	9,868	1,344	73	6	11,432	6	5,550	11,375	3	2,170	1,979	1,406	1	8	14	1,337	35	2	2,574	21	1	2,574	21	
11	Idaho.....	26	1,864	430	298	31	61,419	24	22,405	48,917	30	4,078	1,425	3,465	6	391	225	6,639	35	2	2,574	21	1	2,574	21	
12	Illinois.....	215	34,855	5,235	51	14	16,057	41	10,106	15,561	10	1,311	1,425	1,331	1	8	14	1,337	35	2	2,574	21	1	2,574	21	
13	Indiana.....	97	11,160	2,017	60	23	10,555	8	4,074	10,374	5	680	581	562	2	130	26	216	70	1	50	1	50	1	50	
14	Iowa.....	103	8,514	1,648	73	7	8,237	1	7,509	7,738	3	461	612	493	2	130	26	216	70	1	50	1	50	1	50	
15	Kansas.....	97	8,007	1,344	23	10	11,019	1	7,509	7,738	3	461	612	493	2	130	26	216	70	1	50	1	50	1	50	
16	Kentucky.....	72	8,001	1,045	10	6	8,314	1	2,243	9,654	6	1,027	1,703	908	1	30	15	80	17	1	60	1	39	1	39	
17	Louisiana.....	72	10,701	1,245	10	6	8,314	1	2,243	9,654	6	1,027	1,703	908	1	30	15	80	17	1	60	1	39	1	39	
18	Maine.....	47	11,800	1,382	27	17	11,726	12	9,027	3,883	4	509	497	328	1	17	3	26	15	1	60	1	39	1	39	
19	Maryland.....	47	11,800	1,382	27	17	11,726	12	9,027	3,883	4	509	497	328	1	17	3	26	15	1	60	1	39	1	39	
20	Massachusetts.....	179	20,160	3,733	88	23	32,711	10	14,940	33,115	22	4,364	4,750	2,890	6	374	135	8,562	252	2	60	2	109	2	109	
21	Michigan.....	179	20,160	3,733	88	23	32,711	10	14,940	33,115	22	4,364	4,750	2,890	6	374	135	8,562	252	2	60	2	109	2	109	
22	Minnesota.....	160	12,944	2,144	111	13	16,342	10	4,785	15,071	15	1,090	1,638	1,539	2	86	54	1,650	30	1	186	1	186	1	186	
23	Mississippi.....	83	5,246	813	67	6	6,320	1	3,083	5,973	1	457	418	294	8	445	361	7,009	298	3	440	3	614	3	614	
24	Missouri.....	91	12,979	1,971	62	17	15,607	2	4,069	15,142	7	2,629	3,838	1,980	1	45	25	145	31	1	85	1	33	1	33	
25	Montana.....	46	3,723	570	62	1	1,856	1	1,856	1,856	1	225	251	215	1	45	25	145	31	1	85	1	33	1	33	
26	Nebraska.....	36	5,238	986	97	6	6,103	2	1,607	6,120	1	300	170	162	1	45	25	145	31	1	85	1	33	1	33	
27	Nevada.....	13	808	128	28	1	300	1	128	301	2	138	159	117	1	45	25	145	31	1	85	1	33	1	33	
28	New Hampshire.....	28	2,518	99	12,534	22	26,281	4	9,920	25,179	15	3,617	4,409	2,861	3	429	416	11,210	506	1	13	1	63	1	63	
29	New Jersey.....	84	2,518	99	12,534	22	26,281	4	9,920	25,179	15	3,617	4,409	2,861	3	429	416	11,210	506	1	13	1	63	1	63	
30	New Mexico.....	35	347	64	1,320	53	11,054	62	6,674	103,781	51	11,618	10,814	9,838	13	717	493	21,165	510	2	91	2	661	2	661	
31	New York.....	318	8,728	40	64,091	9	9,293	2	3,980	8,068	18	3,370	6,080	2,906	1	56	6	101	10	1	50	1	63	1	63	
32	North Carolina.....	125	2,133	300,280	7,991	9	9,293	2	3,980	8,068	18	3,370	6,080	2,906	1	56	6	101	10	1	50	1	63	1	63	
33	North Dakota.....	42	561	561	1,240	27	31,136	2	11,970	32,709	23	3,314	3,520	2,931	7	104	166	6,763	146	1	18	1	33	1	33	
34	Ohio.....	151	3,753	751,050	10,637	27	31,136	2	11,970	32,709	23	3,314	3,520	2,931	7	104	166	6,763	146	1	18	1	33	1	33	
35	Oklahoma.....	56	1,162	169,050	4,209	7	8,554	1	3,475	9,033	4	683	1,054	545	1	33	9	141	365	1	18	1	33	1	33	
36	Oregon.....	223	6,177	1,010,580	31,823	30	48,084	1	12,367	47,056	15	4,559	3,524	3,252	9	614	145	3,442	365	1	18	1	33	1	33	
37	Pennsylvania.....	322	81,139	2,781	9	3	4,264	4	1,197	9,057	6	884	921	656	1	175	175	7,726	146	1	18	1	33	1	33	
38	Rhode Island.....	13	925	188,271	4,563	3	4,264	4	1,197	9,057	6	884	921	656	1	175	175	7,726	146	1	18	1	33	1	33	
39	South Carolina.....	54	552	83,458	2,169	12	9,746	8	1,052	9,043	7	322	414	237	1	104	40	1,765	14	1	18	1	33	1	33	
40	South Dakota.....	89	1,374	274,200	7,561	12	9,746	8	1,052	9,043	7	322	414	237	1	104	40	1,765	14	1	18	1	33	1	33	
41	Tennessee.....	389	4,136	812,343	17,475	18	20,769	4	11,953	20,697	15	2,428	3,783	1,034	1	104	40	1,765	14	1	18	1	33	1	33	
42	Texas.....	42	72,974	1,621	1	1	1,820	1	717	2,222	3	156	1,511	1,444	1	104	40	1,765	14	1	18	1	33	1	33	
43	Utah.....	26	553	72,974	1,621	1	1,820	1	717	2,222	3	156	1,511	1,444	1	104	40	1,765	14	1	18	1	33	1	33	
44	Vermont.....	23	320	48,298	1,269	11	13,770	12	9,791	13,814	3	145	1,511	1,444	1	104	40	1,765	14	1	18	1	33	1	33	
45	Virginia.....	95	1,713	316,410	9,147	11	13,770	12	9,791	13,814	3	145	1,511	1,444	1	104	40	1,765	14	1	18	1	33	1	33	
46	Washington.....	64	1,730	310,757	8,404	7	9,988	4	9,001	9,100	12	318	1,472	1,842	1	104	40	1,765	14	1	18	1	33	1	33	
47	West Virginia.....	61	1,002	212,157	5,162	7	9,988	4	9,001	9,100	12	318	1,472	1,842	1	104	40	1,765	14	1	18	1	33	1	33	
48	Wisconsin.....	138	2,359	407,222	11,654	40	18,763	13	8,625	17,827	21	2,387	2,408	2,015	1	104	40	1,765	14	1	18	1	33	1	33	
49	Wyoming.....	24	231	39,002	1,845	3	1,938	1	1,224	1,700	2	34	42	20	1	104	40	1,765	14	1	18	1	33	1	33	

Totals (1918).....	4,589	576,159	81,407	15,100,002	437,500	586	691,499	279	305,000	664,300	438	81,093	21	105,588	60,484	100	5,220	3,310	98,114	3,398	33	2,910	46	2,631	13	118,355	1,524			
(1917).....	4,599	592,453	82,403	14,063,155	456,761	585	680,913	259	291,051	651,578	441	81,328	32	99,080	62,575	100	5,442	3,312	100,283	3,929	33	2,914	44	2,734	13	116,563	1,533			
(1916).....	4,623	611,331	79,534	14,031,588	456,761	575	671,900	252	271,200	635,769	450	81,387	36	99,741	63,031	101	5,392	3,426	82,191	3,777	34	2,950	44	2,740	16	111,417	1,710			
(1915).....	4,714	925,459	78,919	15,228,270	605,105	563	657,393	252	248,876	624,319	453	78,774	54	88,186	59,767	106	5,636	3,614	77,078	3,741	36	2,903	42	2,664	8	108,331	1,615			
(1914).....	4,833	925,418	76,570	15,000,403	576,331	563	618,745	266	256,393	618,051	455	79,800	58	88,291	63,025	107	5,762	3,708	81,064	3,741	36	2,903	42	2,695	6	102,898	1,489			
(1913).....	4,685	830,576	72,859	14,454,638	629,310	541	652,993	270	298,077	619,117	435	80,372	112	91,674	65,302	113	6,085	3,800	80,375	4,171	41	3,226	40	2,421	6	90,948	1,392			
(1912).....	4,557	591,290	67,732	13,646,917	463,611	586	616,118	210	214,117	600,773	403	82,372	116	101,620	70,005	116	5,617	3,573	80,574	4,172	39	2,960	40	2,562	4	97,043	1,342			
(1911).....	4,518	632,400	61,732	13,646,917	463,611	602	638,144	210	208,592	603,179	477	78,245	99	101,473	70,777	116	5,617	3,573	80,574	4,172	39	2,960	40	2,562	4	97,043	1,342			
(1910).....	4,432	662,300	58,073	12,490,325	460,160	602	621,284	161	190,770	500,772	479	78,246	44	90,938	67,007	116	5,617	3,573	80,574	4,172	39	2,960	40	2,562	4	97,043	1,342			
(1909).....	4,336	641,017	55,183	9,018,316	307,961	602	606,284	110	190,770	500,772	479	78,246	44	90,938	67,007	116	5,617	3,573	80,574	4,172	39	2,960	40	2,562	4	97,043	1,342			
(1908).....	4,256	425,321	52,934	8,645,390	292,870	592	601,822	137	198,703	582,337	480	75,972	38	90,001	64,429	118	5,533	3,361	66,145	3,523	40	3,215	45	2,455	1,692	91	1,329			
(1907).....	4,216	412,691	51,663	8,310,773	288,280	592	601,822	137	198,703	582,337	480	75,972	38	90,001	64,429	118	5,533	3,361	66,145	3,523	40	3,215	45	2,455	1,692	91	1,329			
(1906).....	4,207	402,065	49,604	7,755,818	271,658	584	548,952	100	184,930	594,903	508	76,751	33	101,839	64,800	125	5,163	3,487	59,019	3,490	39	2,885	44	2,108	1,483	89	1,115			
(1905).....	4,237	402,065	49,604	7,755,818	271,658	584	548,952	100	184,930	594,903	508	76,751	33	101,839	64,800	125	5,163	3,487	59,019	3,490	39	2,885	44	2,108	1,483	89	1,115			
(1904).....	4,168	393,425	47,537	6,975,182	261,904	592	539,311	132	173,015	590,260	496	70,773	38	99,231	60,708	130	7,023	4,131	73,980	4,047	49	3,191	41	2,108	1,483	89	1,115			
(1903).....	4,168	393,425	47,537	6,975,182	261,904	592	539,311	132	173,015	590,260	496	70,773	38	99,231	60,708	130	7,023	4,131	73,980	4,047	49	3,191	41	2,108	1,483	89	1,115			
(1902).....	4,207	385,518	46,008	6,071,512	249,092	631	498,955	81	173,015	488,181	497	70,682	..	89,455	60,689	134	7,976	4,460	82,520	4,557	118	5,379	343	69,749	2,423	53	2,793	19	103,729	1,265
(1901).....	4,207	385,518	46,008	6,071,512	249,092	631	498,955	81	173,015	488,181	497	70,682	..	89,455	60,689	134	7,976	4,460	82,520	4,557	118	5,379	343	69,749	2,423	53	2,793	19	103,729	1,265
(1900).....	4,207	385,518	46,008	6,071,512	249,092	631	498,955	81	173,015	488,181	497	70,682	..	89,455	60,689	134	7,976	4,460	82,520	4,557	118	5,379	343	69,749	2,423	53	2,793	19	103,729	1,265
(1899).....	4,207	385,518	46,008	6,071,512	249,092	631	498,955	81	173,015	488,181	497	70,682	..	89,455	60,689	134	7,976	4,460	82,520	4,557	118	5,379	343	69,749	2,423	53	2,793	19	103,729	1,265
(1898).....	4,207	385,518	46,008	6,071,512	249,092	631	498,955	81	173,015	488,181	497	70,682	..	89,455	60,689	134	7,976	4,460	82,520	4,557	118	5,379	343	69,749	2,423	53	2,793	19	103,729	1,265
(1897).....	4,207	385,518	46,008	6,071,512	249,092	631	498,955	81	173,015	488,181	497	70,682	..	89,455	60,689	134	7,976	4,460	82,520	4,557	118	5,379	343	69,749	2,423	53	2,793	19	103,729	1,265
(1896).....	4,207	385,518	46,008	6,071,512	249,092	631	498,955	81	173,015	488,181	497	70,682	..	89,455	60,689	134	7,976	4,460	82,520	4,557	118	5,379	343	69,749	2,423	53	2,793	19	103,729	1,265
(1895).....	4,207	385,518	46,008	6,071,512	249,092	631	498,955	81	173,015	488,181	497	70,682	..	89,455	60,689	134	7,976	4,460	82,520	4,557	118	5,379	343	69,749	2,423	53	2,793	19	103,729	1,265
(1894).....	4,207	385,518	46,008	6,071,512	249,092	631	498,955	81	173,015	488,181	497	70,682	..	89,455	60,689	134	7,976	4,460	82,520	4,557	118	5,379	343	69,749	2,423	53	2,793	19	103,729	1,265
(1893).....	4,207	385,518	46,008	6,071,512	249,092	631	498,955	81	173,015	488,181	497	70,682	..	89,455	60,689	134	7,976	4,460	82,520	4,557	118	5,379	343	69,749	2,423	53	2,793	19	103,729	1,265
(1892).....	4,207	385,518	46,008	6,071,512	249,092	631	498,955	81	173,015	488,181	497	70,682	..	89,455	60,689	134	7,976	4,460	82,520	4,557	118	5,379	343	69,749	2,423	53	2,793	19	103,729	1,265
(1891).....	4,207	385,518	46,008	6,071,512	249,092	631	498,955	81	173,015	488,181	497	70,682	..	89,455	60,689	134	7,976	4,460	82,520	4,557	118	5,379	343	69,749	2,423	53	2,793	19	103,729	1,265
(1890).....	4,207	385,518	46,008	6,071,512	249,092	631	498,955	81	173,015	488,181	497	70,682	..	89,455	60,689	134	7,976	4,460	82,520	4,557	118	5,379	343	69,749	2,423	53	2,793	19	103,729	1,265
(1889).....	4,207	385,518	46,008	6,071,512	249,092	631	498,955	81	173,015	488,181	497	70,682	..	89,455	60,689	134	7,976	4,460	82,520	4,557	118	5,379	343	69,749	2,423	53	2,793	19	103,729	1,265
(1888).....	4,207	385,518	46,008	6,071,512	249,092	631	498,955	81	173,015	488,181	497	70,682	..	89,455	60,689	134	7,976	4,460	82,520	4,557	118	5,379	343	69,749	2,423	53	2,793	19	103,729	1,265
(1887).....	4,207	385,518	46,008	6,071,512	249,092	631	498,955	81	173,015	488,181	497	70,682	..	89,455	60,689	134	7,976	4,460	82,520	4,557	118	5,379	343	69,749	2,423	53	2,793	19	103,729	1,265
(1886).....	4,207	385,518	46,008	6,071,512	249,092	631	498,955	81	173,015	488,181	497	70,682	..	89,455	60,689	134	7,976	4,460	82,520	4,557	118	5,379	343	69,749	2,423	53	2,793	19	103,729	1,265
(1885).....	4,207	385,518	46,008	6,071,512	249,092	631	498,955	81	173,015	488,181	497	70,682	..	89,455	60,689	134	7,976	4,460	82,520	4,557	118	5,379	343	69,749	2,423	53	2,793	19	103,729	1,265
(1884).....	4,207	385,518	46,008	6,071,512	249,092	631	498,955	81	173,015	488,181	497	70,682	..	89,455	60,689	134	7,976	4,460	82,520	4,557	118	5,379	343	69,749	2,423	53	2,793	19	103,729	1,265
(1883).....	4,207	385,518	46,008	6,071,512	249,092	631	498,955	81	173,015	488,181	497	70,682	..	89,455	60,689	134	7,976	4,460	82,520	4,557	118	5,379	343	69,749	2,423	53	2,793	19	103,729	1,265
(1882).....	4,207	385,518	46,008	6,071,512	249,092	631	498,955	81	173,015	488,181	497	70,682	..	89,455	60,689	134	7,976	4,460	82,520	4,557	118	5,379	343	69,749	2,423	53	2,793	19	103,729	1,265
(1881).....	4,207	385,518	46,008	6,071,512	249,092	631	498,955	81	173,015	488,181	497	70,682	..	89,455	60,689	134	7,976	4,460	82,520	4,557	118	5,379	343	69,749	2,423	53	2,793	19	103,729	1,265
(1880).....	4,207	385,518	46,008	6,071,512	249,092	631	498,955	81	173,015	488,181	497	70,682	..	89,455	60,689	134	7,976	4,460	82,520	4,557	118	5,379	343	69,749	2,423	53	2,793	19	103,729	1,265
(1879).....	4,207	385,518	46,008	6,071,512	249,092	631	498,955	81	173,015	488,181	497	70,682	..	89,455	60,689	134	7,976	4,460	82,520	4,557	118	5,379	343	69,749	2,423	53	2,793	19	103,729	1,265
(1878).....	4,207	385,518	46,008	6,071,512	249,092	631	498,955	81	173,015	488,181	497	70,682	..	89,455	60,689	134	7,976	4,460	82,520	4,557	118	5,379	343	69,749	2,423	53				

TABLE 2.—HOSPITAL FACILITIES BY STATES AND BY TYPE OF SERVICE—(Continued)

Marginal No.	Children's				Orthopedic				Isolation				Convalescent and Rest				Hospital Departments of Institutions				All Other Hospitals				Totals				Marginal No.		
	Hospitals	Bedrooms	Patients	Average	Hospitals	Bedrooms	Patients	Average	Hospitals	Bedrooms	Patients	Average	Hospitals	Bedrooms	Patients	Average	Hospitals	Bedrooms	Patients	Average	Hospitals	Bedrooms	Patients	Average	Hospitals	Bedrooms	Patients	Average			
1	Alabama.....	1	62	1,897	45	181	30	1,010	10,979	437	1	16	274	8	3	111	2,333	25	102	1,441	253,558	1,441	1,441	253,558	1,441	1,441	253,558	1,441	1		
2	Arizona.....	1	63	877	56	303	30	1,010	10,979	437	1	16	274	8	3	111	2,333	25	102	1,441	253,558	1,441	1,441	253,558	1,441	1,441	253,558	1,441	2		
3	Arkansas.....	1	63	877	56	303	30	1,010	10,979	437	1	16	274	8	3	111	2,333	25	102	1,441	253,558	1,441	1,441	253,558	1,441	1,441	253,558	1,441	3		
4	California.....	1	331	10,740	267	2,010	129	1,511	15,240	30	6	218	1,601	161	9	1,705	11,801	1,385	371	4,985	157,373	718	4,985	157,373	718	4,985	157,373	718	4		
5	Colorado.....	1	195	13,034	133	971	113	1,113	11,113	113	1	110	84	75	9	948	15	5,001	69	939	239,869	1,321	939	239,869	1,321	939	239,869	1,321	5		
6	Connecticut.....	1	173	184	60	184	60	184	60	184	60	1	110	84	75	9	948	15	5,001	69	939	239,869	1,321	939	239,869	1,321	939	239,869	1,321	6	
7	Delaware.....	1	222	7,760	154	910	124	1,300	20,000	238	3	132	97	81	3	378	7	374	374	244	34,470	7	244	34,470	7	244	34,470	7	7		
8	District of Columbia.....	1	40	1,180	32	307	1650	270	1,300	239	3	132	97	81	3	378	7	374	374	244	34,470	7	244	34,470	7	244	34,470	7	8		
9	Florida.....	1	397	4,974	506	1,172	297	1,541	6,866	202	13	621	4,995	440	9	2,759	11,130	1,555	123	1,370	314,170	1,370	1,370	314,170	1,370	1,370	314,170	1,370	9		
10	Georgia.....	1	40	1,180	32	307	1650	270	1,300	239	3	132	97	81	3	378	7	374	374	244	34,470	7	244	34,470	7	244	34,470	7	10		
11	Idaho.....	1	397	4,974	506	1,172	297	1,541	6,866	202	13	621	4,995	440	9	2,759	11,130	1,555	123	1,370	314,170	1,370	1,370	314,170	1,370	1,370	314,170	1,370	11		
12	Illinois.....	1	397	4,974	506	1,172	297	1,541	6,866	202	13	621	4,995	440	9	2,759	11,130	1,555	123	1,370	314,170	1,370	1,370	314,170	1,370	1,370	314,170	1,370	12		
13	Indiana.....	1	397	4,974	506	1,172	297	1,541	6,866	202	13	621	4,995	440	9	2,759	11,130	1,555	123	1,370	314,170	1,370	1,370	314,170	1,370	1,370	314,170	1,370	13		
14	Iowa.....	1	397	4,974	506	1,172	297	1,541	6,866	202	13	621	4,995	440	9	2,759	11,130	1,555	123	1,370	314,170	1,370	1,370	314,170	1,370	1,370	314,170	1,370	14		
15	Kansas.....	1	70	1,487	46	1,330	118	1,130	31,702	91	1	33	115	11	1	110	1,167	47	102	1,441	253,558	1,441	1,441	253,558	1,441	1,441	253,558	1,441	15		
16	Kentucky.....	1	2	135	105	48	105	48	105	48	105	48	1	33	115	11	1	110	1,167	47	102	1,441	253,558	1,441	1,441	253,558	1,441	1,441	253,558	1,441	16
17	Louisiana.....	1	60	105	48	105	48	105	48	105	48	1	33	115	11	1	110	1,167	47	102	1,441	253,558	1,441	1,441	253,558	1,441	1,441	253,558	1,441	17	
18	Maine.....	1	265	624	151	1	110	6	982	44	3	311	497	165	4	219	1,219	209	1	164	235	138	84	1	293	237	138	84	18		
19	Maryland.....	1	326	11,270	294	535	734	165	25	415	13	1	25	42	10	7	421	6	1,081	256	4	415	1	1,239	295	221	4	19			
20	Massachusetts.....	1	200	5,812	165	2,146	623	1,063	22,947	163	8	332	1,030	213	7	823	1,433	130	13	1,637	277,928	1,637	1,637	277,928	1,637	1,637	277,928	1,637	20		
21	Michigan.....	1	80	2,751	63	1,412	343	1,151	17,840	414	3	121	338	110	7	3,081	4,396	238	297	2,217	470,306	2,217	2,217	470,306	2,217	2,217	470,306	2,217	21		
22	Minnesota.....	1	271	5,330	220	1,330	115	1,174	9,381	88	2	121	338	110	7	3,081	4,396	238	297	2,217	470,306	2,217	2,217	470,306	2,217	2,217	470,306	2,217	22		
23	Mississippi.....	1	94	1,987	36	1,110	8,50	54	1,110	8,50	54	1	54	33	3	50	1,110	16	101	1,389	1,037	1,389	1,037	1,389	1,037	1,389	1,037	1,389	1,037	23	
24	Missouri.....	1	397	4,974	506	1,172	297	1,541	6,866	202	13	621	4,995	440	9	2,759	11,130	1,555	123	1,370	314,170	1,370	1,370	314,170	1,370	1,370	314,170	1,370	24		
25	Montana.....	1	397	4,974	506	1,172	297	1,541	6,866	202	13	621	4,995	440	9	2,759	11,130	1,555	123	1,370	314,170	1,370	1,370	314,170	1,370	1,370	314,170	1,370	25		
26	Nebraska.....	1	397	4,974	506	1,172	297	1,541	6,866	202	13	621	4,995	440	9	2,759	11,130	1,555	123	1,370	314,170	1,370	1,370	314,170	1,370	1,370	314,170	1,370	26		
27	Nevada.....	1	397	4,974	506	1,172	297	1,541	6,866	202	13	621	4,995	440	9	2,759	11,130	1,555	123	1,370	314,170	1,370	1,370	314,170	1,370	1,370	314,170	1,370	27		
28	New Hampshire.....	1	397	4,974	506	1,172	297	1,541	6,866	202	13	621	4,995	440	9	2,759	11,130	1,555	123	1,370	314,170	1,370	1,370	314,170	1,370	1,370	314,170	1,370	28		
29	New Jersey.....	1	397	4,974	506	1,172	297	1,541	6,866	202	13	621	4,995	440	9	2,759	11,130	1,555	123	1,370	314,170	1,370	1,370	314,170	1,370	1,370	314,170	1,370	29		
30	New Mexico.....	1	397	4,974	506	1,172	297	1,541	6,866	202	13	621	4,995	440	9	2,759	11,130	1,555	123	1,370	314,170	1,370	1,370	314,170	1,370	1,370	314,170	1,370	30		
31	New York.....	1	40	1,180	32	307	1650	270	1,300	239	3	132	97	81	3	378	7	374	374	244	34,470	7	244	34,470	7	244	34,470	7	31		
32	North Carolina.....	1	40	1,180	32	307	1650	270	1,300	239	3	132	97	81	3	378	7	374	374	244	34,470	7	244	34,470	7	244	34,470	7	32		
33	North Dakota.....	1	397	4,974	506	1,172	297	1,541	6,866	202	13	621	4,995	440	9	2,759	11,130	1,555	123	1,370	314,170	1,370	1,370	314,170	1,370	1,370	314,170	1,370	33		
34	Ohio.....	1	397	4,974	506	1,172	297	1,541	6,866	202	13	621	4,995	440	9	2,759	11,130	1,555	123	1,370	314,170	1,370	1,370	314,170	1,370	1,370	314,170	1,370	34		
35	Oklahoma.....	1	397	4,974	506	1,172	297	1,541	6,866	202	13	621	4,995	440	9	2,759	11,130	1,555	123	1,370	314,170	1,370	1,370	314,170	1,370	1,370	314,170	1,370	35		
36	Oregon.....	1	397	4,974	506	1,172	297	1,541	6,866	202	13	621	4,995	440	9	2,759	11,130	1,555	123	1,370	314,170	1,370	1,370	314,170	1,370	1,370	314,170	1,370	36		
37	Pennsylvania.....	1	451	13,556	359	4,493	581	2,961	1,491	15,467	291	11	535	20	2,860	425	17	1,089	7,52												

capacity received 4,290,491 admissions, or 26.1 per cent. The corresponding admission ratios for these two groups were 73.5 and 26.5 in 1947 and 67 and 33 in 1946. In the federal group, as shown in table F, the largest number of admissions, 428,942, occurred in the hospitals operated by the Veterans Administration.

The greatest volume of service was reported in the general hospital group, which had 15,160,062 admissions, an increase of 494,867 in comparison with the previous year. The principal gain was in the church and other nonprofit general hospitals, which admitted 446,000 more patients in 1948. The state hospitals also showed an increase of approximately 14,000, the county hospitals 69,000, municipal 21,000, city-county 23,000 and corporations 61,000. A reduction of 104,000 admissions occurred in the federal general hospitals, however, and 36,000 in the individual and partnership group. The general hospitals received 92 per cent of all patients admitted in 1948. The governmental general hospitals had 3,604,333 admissions or 22 per cent; the nongovernmental general hospitals 11,555,729 or 70 per cent.

The psychiatric hospitals, which have 48.7 per cent of all beds, received only 1.8 per cent of the patients admitted in 1948. The total admissions were 305,000, an increase of 13,046 over the previous year. Gains were recorded both in the governmental and nongovernmental groups, although fewer psychiatric patients were admitted in the federal and municipal classifications and in the hospitals operating under individual and partnership control. The admissions alone do not represent the full volume of service carried out in the psychiatric hospital field. It is necessary to take into consideration also that the psychiatric hospitals maintain an average daily census of 664,399, a total which exceeds the daily patient load in all other registered hospitals.

An increase in tuberculosis hospitalization is shown in the present survey, which reported 105,588 admissions as compared with 99,080 in 1947. Increases occurred in all classifications except the municipal, church, corporation and individual and partnership groups. The tuberculosis hospitals in the governmental group admitted 90,007 patients, while the nongovernmental hospitals reported 15,581. Comparative data for previous years will be found in tables 1 and 2 and other summary tables showing control and service classifications. The admission totals in the present report do not include outpatients and hospital births.

Average Daily Census

Comparative Totals
1947: 1,217,229
1948: 1,217,154

In 1948 the registered hospitals maintained an average daily census of 1,217,154, which is practically identical with the report of the previous year. This average, which does not include newborn infants, represents a total of 445,478,364 patient days. The governmental hospitals with 71.6 per cent of the bed capacity and 26.1 per cent of the total admissions had an average census of 907,569, or 74.6 per cent of the average daily patient load in all registered hospitals. Included in this group are the state psychiatric hospitals, which alone maintain a daily census of 566,220. In the nongovernmental classification, the church and other nonprofit hospitals reported an average of 275,050 or 22.6 per cent, while the proprietary group with a census of 34,535 had 2.8 per cent. In comparison with 1947 there were only minor changes in the nongovern-

mental hospitals and the county, municipal and city-county groups. The federal hospitals, however, showed a reduction of 20,974, while the state hospitals increased their daily census by 25,663.

The general hospitals as a group maintained an average daily census of 437,590, including 176,880 in the governmental division and 260,710 in the nongovernmental hospitals. This is a reduction of 19,171 in relation to the previous report and includes losses of 14,000 in the federal general hospitals, 933 in the county, municipal and city-county groups and 4,375

TABLE H.—Percentage of Beds Occupied

	1946	1947	1948
According to Ownership or Control:			
Federal.....	80.6	78.9	79.5
State.....	92.3	93.5	94.3
County.....	78.1	81.4	81.4
City.....	74.8	77.4	78.7
City-county.....	69.7	71.1	75.9
Total governmental.....	86.6	87.8	89.0
Church.....	83.5	83.7	80.0
Nonprofit associations.....	77.2	78.4	76.5
Total nonprofit.....	79.8	80.6	77.9
Individual and partnership.....	69.9	64.6	63.3
Corporations (profit unrestricted).....	74.1	75.6	73.6
Total proprietary.....	66.5	69.4	68.0
Total nongovernmental.....	78.1	79.1	76.7
According to Type of Service:			
General.....	77.4	77.1	75.9
Nervous and mental.....	94.2	95.7	96.1
Tuberculosis.....	74.4	76.9	81.1
Maternity.....	70.0	72.2	65.0
Industrial.....	61.7	64.1	69.9
Eye, ear, nose and throat.....	63.2	61.3	60.2
Children's.....	72.5	70.8	69.5
	72.1	72.7	72.7
	45.7	43.6	47.1
	55.5	72.0	72.0
	63.8	65.5	64.4
All other hospitals.....	93.2	86.1	85.6
Total all hospitals.....	84.4	85.4	85.5

TABLE J.—Average Length of Stay per Patient in General Hospitals, 1946, 1947 and 1948

	1946	1947	1948
According to Ownership or Control:			
Federal.....	30.3 days	29.8 days	27.9 days
State.....	17.6 days	16.0 days	15.5 days
County.....	17.3 days	16.6 days	14.9 days
City.....	13.6 days	13.2 days	12.9 days
City-county.....	12.1 days	11.7 days	10.0 days
All governmental general.....	22.1 days	19.5 days	17.9 days
Church.....	9.6 days	9.0 days	8.4 days
Other nonprofit associations.....	9.7 days	9.1 days	8.6 days
All nonprofit general.....	9.6 days	9.0 days	8.5 days
Individual and partnership.....	5.7 days	6.0 days	5.8 days
Corporations (profit unrestricted).....	7.4 days	7.3 days	6.4 days
All proprietary general.....	6.3 days	6.5 days	6.1 days
All nongovernmental general.....	9.2 days	8.7 days	8.2 days
All general hospitals.....	12.9 days	11.4 days	10.5 days

in the nongovernmental classification. The only gain was in the general hospitals operating under state control, in which a slight increase of 137 was recorded. The general hospitals, with 40.4 per cent of the beds and 92 per cent of all admissions, have 36 per cent of the average daily hospital census.

The average daily census in the psychiatric hospitals was 664,399 as compared with 651,578 in 1947. This is an increase of 12,821, with net gains of 12,151 in the governmental section and 670 in the nongovernmental hospitals. The state psychiatric hospitals increased their average by 23,596, and there were minor gains in the county, nonprofit and corporation groups. Slight decreases occurred in the church and individual

and partnership classifications, while the federal division lost 7,979 and the city hospitals 3,802. As a group the psychiatric hospitals have 48.7 per cent of the bed capacity, 1.8 per cent of the admissions in all registered hospitals and 54.6 per cent of the daily patient load. The nongovernmental psychiatric hospitals reported an average daily census of 16,546, whereas the governmental group had 647,853.

The tuberculosis hospitals reported an average daily census of 66,484, or 5.4 per cent of the total hospital load. This represents an increase of 3,909 in comparison with 1947, but the nongovernmental group with a census of 8,656 showed a loss of 817, whereas the governmental classification added 4,726 and attained the average of 57,828. No significant changes occurred in the other classifications, whose combined census equals approximately 4 per cent of the daily patient load in all registered hospitals.

Percentage of Beds Occupied

Comparative Totals
1947: 85.4
1948: 85.5

In the accompanying table on percentage bed occupancy it will be found that while the over-all rate showed little change in comparison with 1947 the government hospitals as a group reported an increase of 1.2 per cent. Increases occurred in all governmental classifications except in the county hospitals, which maintained the same occupancy level of 81.4 per cent.

In the nongovernmental group, however, there has been a decline in the percentage occupancy in the past two years from 79.1 to 76.7. Lower rates were recorded both in the proprietary and the nonprofit

TABLE K.—Births in Hospitals According to Ownership or Control and According to Type of Service

	1929	1916	1917	1918
According to Ownership or Control:				
Federal.....	2,206	42,674	46,081	49,536
State.....	9,125	38,877	51,700	54,117
County.....	17,527	88,702	119,620	188,567
City.....	45,787	139,753	191,576	129,145
City-county.....	8,806	21,910	32,605	36,116
Total governmental.....	83,541	331,916	411,582	457,511
Church.....	209,726	727,092	969,633	912,497
Fraternal.....	1,730	.....	.....	.....
Nonprofit associations.....	.....	867,560	1,153,863	1,135,425
Industrial.....	1,327	.....	.....	.....
Independent.....	283,136	.....	.....	.....
Total nonprofit.....	.....	1,591,652	2,123,516	2,077,922
Individual and partnership.....	39,136	130,762	166,363	148,116
Corporations (profit unrestricted).....	.....	76,013	105,678	110,702
Total proprietary.....	.....	206,775	272,041	258,818
Total nongovernmental.....	538,355	1,801,427	2,395,557	2,336,740
According to Type of Service:				
General.....	569,177	2,070,318	2,750,950	2,715,645
Maternity.....	53,019	60,298	70,670	75,930
Children's.....	802	.....	.....	.....
Hospital departments of institutions..	277	126	163	174
All other hospitals.....	1,591	5,631	3,338	2,523
Total births in all hospitals.....	621,896	2,136,373	2,837,139	2,794,281

hospitals, the former showing a reduction from 69.4 to 68.0 and the latter from 80.6 to 77.9.

When the hospitals are viewed in relation to type of service a greater variation in bed occupancy rates will be noted. The highest rate, 96.1 per cent as compared with 95.7 in 1947, occurred in the psychiatric group, where long periods of hospitalization are required and many institutions operate well beyond their rated capacity. The general hospitals, with an average occupancy of 75.9 per cent, showed a reduction of 1.2 in relation to the previous year. Within this

group, the governmental hospitals reported a rate of 75.0 per cent, the nongovernmental general hospitals 76.5. It may be noted, in this connection, that an average occupancy of 85 per cent is generally regarded as the maximum limit of operating efficiency in general hospitals.

TABLE L.—Hospital Births Classified by States

Births	Births
Alabama.....	39,184
Arizona.....	15,137
Arkansas.....	21,691
California.....	196,516
Colorado.....	28,199
Connecticut.....	42,033
Delaware.....	6,657
District of Columbia.....	27,885
Florida.....	41,113
Georgia.....	51,623
Idaho.....	12,000
Illinois.....	170,098
Indiana.....	80,868
Iowa.....	48,285
Kansas.....	35,490
Kentucky.....	40,233
Louisiana.....	46,897
Maine.....	16,928
Maryland.....	40,523
Massachusetts.....	95,001
Michigan.....	131,539
Minnesota.....	67,790
Missouri.....	23,718
Montana.....	63,681
Nebraska.....	27,400
Nevada.....	2,618
New Hampshire.....	13,051
New Mexico.....	90,406
New York.....	9,152
North Carolina.....	258,127
North Dakota.....	68,895
Ohio.....	14,517
Oklahoma.....	169,329
Oregon.....	34,043
Pennsylvania.....	31,548
Rhode Island.....	207,416
South Carolina.....	16,191
South Dakota.....	28,911
Tennessee.....	12,762
Texas.....	47,975
Utah.....	135,583
Vermont.....	17,781
Virginia.....	7,943
Washington.....	51,236
West Virginia.....	52,603
Wisconsin.....	29,618
Wyoming.....	75,212
Total.....	2,794,281

In the tuberculosis hospitals the bed occupancy increased from 76.9 to 81.1 per cent. Here the governmental group reported 80.8 per cent, the nongovernmental hospitals 82.5. Increased occupancy was also noted in the industrial classification and in the isolation hospitals, the latter responding chiefly to seasonal demands as evidenced by their low average of 47.1 per cent. Reduced rates were noted in the maternity, children's, eye, ear, nose and throat hospitals and institutional departments, whereas no change occurred in the percentage occupancy of the orthopedic and convalescent hospitals.

Average Length of Stay

Comparative Totals
1947: 11.4 days
1948: 10.5 days

The average length of stay in general hospitals is shown in the accompanying table, classified according to ownership or control. From this study it is apparent that in comparison with 1947 the length of hospitalization has decreased in all governmental and nongovernmental groups. In the governmental general hospitals, which declined from 19.5 to 17.9 days, the length of stay varies from 10.0 in the city-county hospitals to 27.9 days in the federal classification. In the nongovernmental hospitals the length of stay is much lower, as evidenced by the reported average of 8.2 days compared with 8.7 in the previous year. Here the church and other nonprofit general hospitals showed a reduction from 9.0 to 8.5 days, while the proprietary group reported a change from 6.5 to 6.1. As a group the general hospitals showed an average length of stay per patient of 10.5 days, while the corresponding report was 11.4 in 1947 and 12.9 in 1946. If the present average is compared with the report of 15.9 days in 1945 we find that the period of hospitalization has been reduced by 5.4 days in the last three years. This reduction applied to the present total of 15,160,062 admissions in the general hospital group would represent a saving of 81,864,335 days of hospital care.

Births in Hospitals

Comparative Totals
1947: 2,837,139
1948: 2,794,281

The tremendous increase in the utilization of hospital facilities for maternity care is clearly illustrated in table K, which shows a total of 2,794,281 hospital births in 1948 as compared with 621,896 in 1929. The number of births in the registered hospitals reached the two million mark for the first time in 1946 but the following year set an all time record of 2,837,139. In comparison with 1947, therefore, the number of births reported in the present survey shows a decrease of 42,858. The

survey it will be seen that the general hospitals had 97 per cent of all births reported in the hospitals registered by the American Medical Association.

Nursing Education and Service

Comparative Totals
Graduate Nurses
1947: 167,354
1948: 196,120

Student Nurses
1947: 94,133
1948: 100,174

In 1948 three major studies were completed in relation to the nursing field, one by the Committee on Nursing of the American Medical Association, whose report appeared in *THE JOURNAL*, July 3, 1948, pages

NURSING PERSONNEL AND SCHOOLS OF NURSING EDUCATION

State	Student Nurses	Accredited Schools of Nursing	Schools Offering Affiliating Courses Only		Administrative Nursing Personnel	Full Time Instructors	Supervisors and Asst. Supervisors	Head Nurses and Asst. Head Nurses	General Duty Nurses		Nurses Not Classified	Total Grad- uate Nurses	Private Duty Nurses	Practical Nurses and Attendants	Volunteer Nurses Aides	Orderlies	Ward Maids
			Schools	Stu- dents					Full Time	Part Time							
Alabama.....	936	15	2	15	137	40	222	279	1,119	78	78	1,933	332	1,948	86	804	438
Arizona.....	319	5	..	...	53	19	83	149	653	32	16	1,005	153	553	9	318	241
Arkansas.....	571	8	1	30	71	22	106	151	457	12	42	861	143	1,212	9	754	265
California.....	3,857	41	9	294	503	224	1,191	2,123	10,992	1,157	1,213	17,493	2,299	11,203	1,665	3,268	2,034
Colorado.....	925	18	4	26	120	69	198	344	1,298	160	118	2,316	285	1,566	368	303	403
Connecticut.....	1,882	18	6	271	143	120	333	585	2,182	544	157	4,064	785	2,062	80	423	605
Delaware.....	363	7	1	46	32	20	67	87	216	34	15	471	115	390	20	47	49
District of Columbia.....	1,776	9	1	86	75	57	206	455	1,485	183	41	2,502	453	1,124	195	561	226
Florida.....	891	14	2	32	161	41	294	498	1,505	91	577	3,167	552	1,712	1,053	619	626
Georgia.....	2,194	13	..	...	198	102	354	487	1,267	77	42	2,527	776	2,546	132	915	552
Idaho.....	380	8	1	4	48	20	62	98	250	45	23	545	74	356	27	66	69
Illinois.....	6,768	90	10	1,184	600	415	1,600	1,896	6,587	1,351	405	12,854	2,000	7,755	911	2,574	1,842
Indiana.....	2,159	26	3	22	164	103	382	524	1,950	281	67	3,571	594	2,676	180	563	924
Iowa.....	1,694	28	2	183	174	79	435	379	1,569	350	76	3,092	363	1,971	123	673	742
Kansas.....	1,314	30	1	31	157	64	405	388	1,125	246	62	2,467	280	2,500	85	478	283
Kentucky.....	1,006	13	4	49	120	47	234	283	1,108	70	39	1,901	356	2,353	117	432	488
Louisiana.....	2,118	15	1	129	139	98	349	434	1,306	69	62	2,457	329	1,721	102	903	833
Maine.....	703	11	1	22	84	30	149	161	670	89	64	1,247	233	679	44	46	172
Maryland.....	1,589	21	4	186	160	102	326	520	1,329	174	186	2,797	632	3,101	68	714	973
Massachusetts.....	5,110	59	17	755	407	265	1,086	1,634	4,619	1,017	1,109	10,137	1,817	5,568	562	929	1,349
Michigan.....	4,675	33	10	315	445	193	711	1,150	4,543	1,371	278	8,691	1,285	7,066	260	1,690	2,061
Minnesota.....	4,442	30	11	260	307	209	571	876	2,663	823	180	5,829	608	3,097	159	706	906
Mississippi.....	724	20	..	...	103	25	156	143	464	22	41	954	233	1,389	48	182	225
Missouri.....	2,097	26	10	349	228	97	516	612	1,819	353	167	3,812	735	4,375	155	547	1,161
Montana.....	563	11	2	65	67	35	126	141	401	87	35	892	103	443	10	32	189
Nebraska.....	1,661	13	4	262	120	83	260	286	1,143	282	40	2,224	263	1,513	93	361	277
Nevada.....	...	..	..	...	14	1	21	20	159	9	12	236	66	137	2	57	25
New Hampshire.....	570	13	...	...	65	31	105	171	495	79	18	964	163	187	6	147	274
New Jersey.....	2,832	42	6	262	253	155	578	942	3,228	676	99	5,931	1,189	3,471	238	1,048	1,034
New Mexico.....	51	2	...	...	43	7	65	57	363	28	7	570	49	564	29	105	140
New York.....	9,490	100	21	2,091	1,006	604	2,419	4,799	14,717	2,333	1,996	27,874	5,514	24,069	1,279	4,070	4,137
North Carolina.....	2,914	40	4	14	230	152	460	491	2,204	102	95	3,737	732	1,956	108	1,214	860
North Dakota.....	775	12	...	...	55	23	144	127	395	62	31	837	52	474	32	71	165
Ohio.....	5,397	61	9	373	389	310	937	1,456	4,718	1,333	172	9,315	1,678	7,596	1,193	1,324	2,491
Oklahoma.....	798	12	..	...	136	31	202	184	697	53	50	1,353	263	1,893	49	359	352
Oregon.....	806	11	2	63	103	48	195	230	1,146	220	132	2,074	260	1,526	25	189	280
Pennsylvania.....	12,289	96	17	932	572	550	1,693	2,217	9,108	938	443	15,521	3,988	7,062	480	1,997	2,116
Rhode Island.....	435	5	3	140	46	35	139	206	449	254	39	1,168	118	639	50	58	205
South Carolina.....	849	16	..	...	90	41	212	232	695	52	56	1,378	324	810	89	429	366
South Dakota.....	620	10	..	...	69	22	117	107	346	53	39	743	66	299	36	336	153
Tennessee.....	1,438	15	2	13	154	79	257	461	1,224	129	84	2,388	417	3,229	124	714	537
Texas.....	2,551	34	1	199	494	169	821	955	2,900	276	380	5,995	1,159	5,868	358	1,725	1,422
Utah.....	401	6	..	...	37	24	68	101	393	169	8	800	57	631	45	62	106
Vermont.....	329	9	...	...	42	14	84	71	343	63	40	657	133	376	15	20	100
Virginia.....	1,865	30	3	65	202	93	372	599	1,564	233	110	3,173	824	3,232	73	969	640
Washington.....	1,475	20	7	123	195	92	350	577	2,333	370	122	4,039	311	1,886	45	986	843
West Virginia.....	1,203	23	..	...	119	62	241	260	944	67	917	2,610	341	949	540	514	585
Wisconsin.....	2,064	24	8	357	226	83	492	532	2,452	612	140	4,537	395	3,712	125	471	989
Wyoming.....	...	..	..	...	22	2	52	38	239	29	9	391	22	498	5	15	19
Totals.....	100,174	1,163	190	9,268	9,468	5,207	20,436	29,516	104,041	17,277	10,175	196,120	33,939	141,634	11,512	35,788	35,867

governmental hospitals as a group reported an increase of 15,959, although the municipal hospitals had 62,431 fewer births in 1948. In the church and other nonprofit hospitals there was a reduction of 45,594, while the proprietary classification showed also a loss of 13,223. It may be noted that the governmental institutions report 16.4 per cent of the births, the nongovernmental hospitals 83.6 per cent.

The general hospitals reported a total of 2,715,645 births, including 447,630 in the governmental classification and 2,268,015 in the nongovernmental general hospitals. In comparison with the previous year there was an increase of 17,972 in the governmental division, while the nongovernmental classification showed a reduction of 59,286, indicating a net loss of 41,314 for the general hospitals as a group. From the present

878-879, one under the sponsorship of the National Nursing Council entitled "Nursing for the Future" and one by the Committee on the Function of Nursing which described its study as "A Program for the Nursing Profession." All of these studies make valuable contributions to future planning and will be potent factors in the creation of new patterns of nursing organization, nursing education and nursing service in accordance with total needs.

The present annual survey conducted by the Council on Medical Education and Hospitals shows an appreciable increase in nursing personnel in hospitals as compared with 1947. While gains occurred in all professional and auxiliary nursing groups, the expansion was most pronounced in relation to the total graduate nursing personnel, the full time general duty

nurses and the practical nurses and attendants. The number of graduate nurses exclusive of private duty nurses employed in hospitals increased from 167,354 to 196,120, the full time general duty nurses from 86,218 to 104,041 and the practical nurses and attendants from 119,746 to 141,834. Reference should be made to the tables on professional and auxiliary nursing personnel as well as the accompanying data on schools of nursing education.

While the number of accredited schools of nursing decreased from 1,212 to 1,163, the enrolment increased from 94,133 in 1947 to 100,174 in 1948. The recruitment of student nurses has been a major effort in recent years through the American Hospital Association's Student Nurse Recruitment Committee. Cooperating in this activity were representatives of nursing organizations, the Advertising Council, the American Red Cross, the American College of Surgeons, the American Medical Association, the American Protestant Hospital Association, the Catholic Hospital Association and the United States Public Health Service. The nurse recruitment program will in the future be carried on through the National Committee on Careers in Nursing sponsored by the national nursing organizations.

that projection apparatus is readily available. Of the general hospitals 1,381 have their own sound equipment, 556 have silent projectors and 948 report that facilities are readily available. The data obtained in this survey will be referred to the American Medical Association Committee on Medical Motion Pictures for further analysis and study.

Certification in Relation to Staff Appointments

The standards of the Council on Medical Education and Hospitals governing the registration of hospitals by the American Medical Association specify that the medical staff shall be composed of physicians who have satisfactory qualifications as to training, licensure and ethical standing. While this indicates that staff physicians should be proficient in the fields of practice to which they devote themselves, it was never intended that hospital staffs should be limited to physicians certified by the specialty boards. The Council has stated that "Hospital staff appointments should depend on the qualifications of physicians to render proper care to hospitalized patients, as judged by the professional staff of the hospital, and not on certification or special society memberships."

PROFESSIONAL AND AUXILIARY NURSING PERSONNEL

	Federal Hospitals	Nonfederal Hospitals					Totals All Hospitals
		General	Nervous and Mental	Tuberculosis	Others	Totals	
Number of hospitals.....	372	4,399	652	414	628	6,393	6,765
Number of beds.....	185,093	461,011	631,383	72,415	69,783	1,359,685	1,435,230
Number of admissions.....	1,185,874	14,083,037	235,229	80,567	815,077	15,299,600	16,422,774
Average daily census.....	147,159	335,396	699,710	38,210	46,749	1,089,225	1,217,151
Professional Nursing Personnel							
Administrative nursing personnel.....	566	7,095	576	502	729	8,992	9,468
Full time instructors.....	248	4,493	265	48	115	4,930	5,207
Supervisors and assistant supervisors.....	1,149	16,187	1,420	701	979	19,287	20,426
Head nurses and assistant head nurses.....	3,747	21,416	2,231	922	1,170	25,760	29,516
General duty nurses:							
Full time.....	15,295	81,213	2,492	2,659	4,382	99,746	101,041
Part time.....	89	16,083	177	305	618	17,188	17,277
Nurses not classified.....	427	7,403	938	158	1,244	9,745	10,175
Total graduate nurses employed.....	19,521	153,665	8,099	6,295	9,270	176,590	190,120
Private duty nurses.....	61	32,829	332	128	576	33,875	33,939
Auxiliary Nursing Personnel							
Practical nurses and attendants.....	18,434	61,185	50,390	6,288	5,697	122,400	141,834
Volunteer nurses' aides.....	723	8,254	231	182	2,132	10,739	11,512
Orderlies.....	11,092	17,420	3,720	1,369	2,187	21,696	23,788
Ward Maids.....	1,859	27,591	2,707	1,676	2,124	31,605	33,867

Medical Motion Pictures

At the request of the American Medical Association's Committee on Medical Motion Pictures, a study was made in connection with the present Annual Census to ascertain the extent to which motion picture films are being utilized in hospital educational programs. Included in this study were the following questions: 1. Are motion pictures used in the hospital's educational program? 2. Does the hospital own a sound projector? 3. A silent projector? 4. What is the chief source of the films used?

In relation to the first question a total of 2,696 hospitals, or 42.5 per cent of all registered hospitals, reported the use of motion picture films, whereas 2,841 gave a negative answer and 789 did not reply. As might be expected, the use of films is relatively greater in the larger institutions, the report showing that motion pictures are employed in 76 per cent of the hospitals over 200 beds, in 70 per cent of hospitals of 101 to 200 beds and in 25 per cent of those with 100 beds or less. In the general hospital group 1,985 out of 4,589 include films in their staff programs. A total of 2,157 hospitals own sound equipment, while 723 own silent projectors. In 1,138 hospitals which do not provide their own facilities it was indicated, however,

In recent years it has been reported, however, that certification has to an increasing degree become the principal factor in the selection of staff physicians, with the result that other well qualified applicants have in many instances found difficulty in obtaining hospital appointments. An effort has been made, therefore, in the present survey to ascertain whether this trend has become a major factor in relation to staff appointments and promotions. In regard to the question, "Is specialty board certification a requirement for appointment to the regular staff?" 270 general hospitals answered yes, 2,135 said no and 2,184 did not reply. This would indicate that in the 4,589 general hospitals registered by the American Medical Association approximately 6 per cent have adopted specialty certification as a requirement for staff appointment. In the other hospitals, totaling 1,746, the ratio was 5 per cent, as 88 hospitals answered yes, 698 gave a negative reply and 960 did not respond. There was some variation, however, according to size, with the higher percentage occurring in hospitals over 100 beds. The replies were rather similar in regard to the question, "Is specialty board certification a requirement for staff promotion?" In this connection 258 general hospitals and 94 other institutions gave an affirmative answer,

and again the higher percentage level appeared in the larger institutions.

In the 1947 survey the Council requested information on the percentage of regular and courtesy staff physicians certified by the specialty boards, and received replies from 1,837 of the 4,539 general hospitals registered at that time. While the information is not complete, it may be of interest to note that in this group of 1,837 hospitals, 307 did not list board certified physicians on their regular staff, 824 reported 1 to 29 per cent of their physicians certified, 371 had 30 to 49 per cent and 335 had 50 per cent or more. From the reports of 1,228 general hospitals the corresponding figures in relation to the courtesy staff are 389, 527, 113 and 199 respectively. On a percentage basis it will be found that in relation to the regular staff 18 per cent of the reporting hospitals had certification ratios of 50 per cent or more whereas 20 per cent of the hospitals had 30 to 49 per cent of their physicians certified, 45 per cent reported ratios of 1 to 29 per cent and 17 per cent had no certified physicians. For the courtesy staff the corresponding hospital percentages were 16, 9, 43 and 32. In general, the same patterns were observed in both the governmental and nongovernmental hospital groups.

General Practice Sections in Hospitals

The development of the certifying boards with the subsequent emphasis on specialization has also focused attention on the general practitioner and his relationship to hospital practice. There is growing concern that the general practitioner is frequently excluded from staff privileges and is thus unable to give to his patients the full advantages of modern hospital care. One of the factors that have limited his opportunities is the tendency in many hospitals to organize their service on a departmental basis that recognizes primarily the specialty fields. Then, too, there has been reluctance on the part of hospitals to create corresponding sections in general practice because of the problems involved in the definition of service and the overlapping of assignments that might often be necessary to utilize fully the skill and ability of individual practitioners.

The establishment of a Section on the General Practice of Medicine by the House of Delegates of the American Medical Association in 1945 has done much to clarify the status of the general practitioner. Further action occurred in 1946, when the House of Delegates adopted the following resolution with reference to the establishment of general practice sections in hospitals:

WHEREAS, Many hospitals have not established general practice sections in their visiting active staffs and their governing heads are doubtful whether such action has the approval of the bodies which set up the rules and regulations for the approval of their hospitals for interns and residents; therefore be it

Resolved, That hospitals should be encouraged to establish general practitioner services. Appointments to a general practice section shall be made by the hospital authorities on the merits and training of the physician. Such a general practice section shall not per se prevent approval of a hospital for the training of interns and for residencies. The criterion of whether a physician may be a member of a hospital staff should not be dependent on certification by the various specialty boards or membership in special societies.

It should also be noted that the American Medical Association's standards for hospital registration were revised in 1947 so as to give specific reference to the inclusion of general practice sections in the organization of hospital services.

In recent years there have been reports of an increasing number of general practice sections in hospitals.

To ascertain the extent of this development, the Council in its Annual Census of 1947 requested the registered hospitals to supply information on the following question: "In the organization of the medical staff, has the hospital established a general practice section?" Of the 4,539 general hospitals registered at that time, 837 answered yes, 2,521 said no and 1,181 did not reply. In the general hospitals which gave an affirmative answer the following groups are represented: federal 56, state 8, county 35, city 50, city-county 8, church 231, nonprofit association 278, individual and partnership 125 and corporation 46. On the basis of bed capacity the hospitals which reported general practice sections may be divided as follows: hospitals with 15 beds or less, 40; 16 to 25 beds, 101; 26 to 50 beds, 171; 51 to 100 beds, 198; 101 to 200 beds, 190; 201 to 300 beds, 85; over 300 beds, 52; total, 837. Further studies are being made regarding the organization of general practice sections in these hospitals.

ESSENTIALS OF A REGISTERED HOSPITAL

Prepared by the
Council on Medical Education and Hospitals
of the
American Medical Association

(Revised to December 1948; originally published
J. A. M. A. 92: 1058 [March 30] 1929)

Introduction

Hospitals should be organized and conducted primarily for the purpose of providing facilities where the sick and the injured of the community may be given scientific and ethical medical care.

Registration distinguishes between recognized hospitals and those failing to meet the standards for recognition. It is a prerequisite to the consideration of a hospital for approval for intern training or for residencies in specialties.

The registration of hospitals, the approval of hospitals for intern training, approval for residencies and fellowships in specialties, and all other services of the American Medical Association pertaining to hospitals are carried on by the Council on Medical Education and Hospitals. Separate essentials have been adopted for each of these types of approval.

It is the desire of the Council to cooperate in every way for the improvement of hospital service, whereby the sick and injured may be provided with scientific and ethical medical care.

The Council does not have nor does it assume legal authority over any hospital. It recognizes clearly that the officers in charge of such institutions have the unquestioned right to conduct the hospitals in any way they may deem wise. If a hospital desires to have its name appear on the American Medical Association Hospital Register and thus have the recognition of that Association, it should be willing to comply with the principles which the Council on Medical Education and Hospitals considers necessary.

I. Organization

1. The organization should consist of a governing body qualified to administer a hospital. This may be a board of trustees or directors, a partnership or an individual. Such a board, partnership or individual must assume final authority and responsibility for administration.

2. There must be a well qualified executive officer designated as administrator, superintendent, director or by some other title. This person should be responsible to the governing body for carrying out its policies. The executive officer should be assisted by competent personnel adequate to the needs of the institution.

II. Physical Plant

1. The hospital plant should consist of modern, safe buildings maintained in a sanitary condition, provided with fire protection, preferably fireproofed, and adequately equipped and furnished for the comfort of patients. Equipment for diagnosis and treatment should be reasonably complete for all types of work the staff purports to carry on in the hospital.

2. Institutions accepting surgical and obstetric patients should provide a modernly equipped operating room, a delivery room and a nursery, with suitable safeguards against infection. Hospitals that are strictly limited in the type of service they offer are not expected to have the complete organization and equipment of a general hospital.

III. Medical Staff

1. Since the medical staff is the most important factor in the delivery of medical service to patients, too great care cannot be exercised in the selection of staff members. The staff should be limited to physicians holding the degree of doctor of medicine from medical colleges acceptable to the Council on Medical Education and Hospitals, having satisfactory qualifications as to training, licensure and ethical standing, and to dentists who are graduates of recognized dental colleges and whose professional ability and standing are known to the medical staff.

2. Osteopaths, chiropractors and other nonmedical practitioners may not be permitted to use the facilities of hospitals desiring to conform to these standards. They may not enter data on the records, carry out diagnostic procedures or treatments, or in any way assist in this work.

3. The form of organization of the staff is determined by the size and the activity of the hospital in accordance with its needs.

4. Even in small hospitals where there are few physicians and where an elaborate organization is not practicable, there should be some authority competent to pass on the qualifications of those who seek to use the hospital's facilities. Special care should be exercised in the assignment of surgical privileges since it is essential for the safety of patients that both the surgeon and his assistant be properly qualified.

5. Where further organization is needed it should include officers (such as president, secretary and others) and committees (such as executive, medical records and credentials), elected or appointed according to regularly adopted constitution and by-laws.

6. Departmental sections, such as in medicine, obstetrics, surgery, general practice, etc., should be organized as may be indicated.

7. Staff meetings should be held primarily for the purpose of reviewing the professional work of the hospital, including reports of autopsy and pathologic studies. Staff meetings might also include the presentation of medical and scientific papers.

8. Minutes of all staff meetings and attendance records should be kept by the secretary of the staff.

IV. Pathology and Laboratory Diagnosis

1. Laboratory services adequate to meet the needs of the hospital should be provided.

2. The pathologist should hold the degree of doctor of medicine from an acceptable medical school and should have qualifications in pathology acceptable to the Council. Where it is not possible to employ the services of a pathologist directly, arrangements should be made for a consulting service for tissue and postmortem examinations and for the interpretation of tests and examinations in clinical pathology. All surgically removed tissues should be examined, described and diagnosed by a pathologist.

3. The laboratory should be equipped for all routine procedures and for whatever additional tests and examinations are frequently called for by the staff.

4. At least one adequately trained clinical laboratory technician should be employed.

5. A system of records should be maintained for all work performed in the laboratory.

6. Autopsies.—Every effort should be made to secure consent for the performance of autopsies. They should be conducted by a qualified pathologist or under his supervision, and protocols, including clinical summaries, should be prepared.

7. The department of pathology should be operated primarily for the benefit of the patient and not to make profits for the hospital.

V. Radiology

The responsibility for all radiologic examinations must rest on the radiologist who is head of the department. His findings and conclusions for all examinations should be placed in the

patient's chart. Nothing in this provision should preclude additional study and interpretations by qualified attending physicians on the staff.

2. The radiologist should hold the degree of doctor of medicine from an acceptable medical school and should have qualifications in radiology acceptable to the Council.

3. The department of radiology should be operated primarily for the benefit of the patient and not to make profits for the hospital.

VI. Anesthesia

The anesthesia service should be under the direction of competent medical personnel. The anesthesiologist should hold the degree of doctor of medicine from an acceptable medical school and should have qualifications in anesthesiology acceptable to the Council. If an anesthesiologist is not available, supervision of the service may be assigned to a staff physician who has had special training in this field. Nurse anesthetists, when properly qualified, may participate in the administration of anesthesia.

VII. Nursing Service

1. A competent nursing service should be provided, adequate for complete patient care during the day and at night, and for operation of the surgical and obstetric departments. All nursing should be supervised by registered graduates. Hospitals that do general surgery should have a trained operating room nurse.

2. Dietetics.—The services of one or more graduate dietitians, as may be required, should be available for supervision of regular and special food services. Where graduate dietitians cannot be employed, these functions should be assumed by some other competent person.

VIII. Pharmacy

The handling of drugs should be properly supervised and should comply with all legal regulations. Accurate records should be maintained. A qualified person, preferably a graduate pharmacist, should be in charge; in any case, all prescriptions should be filled by a graduate pharmacist.

IX. Medical Records

1. An adequate record system should be maintained. No specified forms are recommended since requirements vary greatly according to the size and type of the hospital.

2. The case history and physical examination should be recorded as soon as practicable after the patient's admission; in no case should this be delayed for more than twenty-four hours after admission. Except in emergencies the history, physical examination, laboratory work and provisional diagnosis should be recorded prior to operation. The attending physician is directly responsible for the accuracy and completeness of case records, even though he may not himself have prepared them.

3. An acceptable case record should include a) identification data, chief complaint, past medical history, family history, history of present illness, physical examination and provisional diagnosis; b) consultations and other special reports; c) clinical laboratory, pathology and x-ray findings; d) medical or surgical treatment, progress notes, final diagnosis, condition on discharge and follow-up records, and e) report of autopsy if performed.

4. No case record should be considered complete until it has been reviewed and signed by the attending physician.

5. Monthly and annual analyses of services to patients should be made to assist the staff in the evaluation and improvement of the professional work in the hospital.

X. Ethics

In order that a hospital may be eligible for registration it is expected that the staff and administration conform to the Principles of Medical Ethics of the American Medical Association regarding advertising, commissions, division of fees, secret remedies, extravagant claims, overcommercialization and other requirements.

XI. Admission to the Register

Hospitals desiring registration should apply to the Council on Medical Education and Hospitals, 535 North Dearborn Street, Chicago 10, Illinois. Application forms in duplicate will be furnished on request. These should be carefully completed by the superintendent or the medical director and one copy returned to the Council.

HOSPITALS REGISTERED BY THE AMERICAN MEDICAL ASSOCIATION

The following list contains the names of 6,335 hospitals, sanatoriums and related institutions that are located in the United States and 125 in Alaska, Canal Zone, Guam, Hawaii, Puerto Rico and Virgin Islands. The list for each state is presented in two groups: (1) hospitals and sanatoriums, and (2) related institutions. The related institutions include infirmaries, nursing homes and other institutions designed to give certain medical and nursing care in an ethical and acceptable manner, without giving a full hospital service.

Registration is a basic recognition extended to all hospitals and related institutions in accordance with the requirements outlined in the Essentials of a Registered Hospital officially adopted by the House of Delegates of the American Medical Association in 1928 and revised in 1948. Approval, on the other hand, is a designation extended by the Council on Medical Education and Hospitals to certain registered hospitals which meet the requirements for internship, residency or fellowship training; approval is also extended by the American College of Surgeons to those hospitals which unconditionally meet its minimum requirements for general standardization.

KEY TO SYMBOLS AND ABBREVIATIONS

- * Approved by the Council on Medical Education and Hospitals for the training of interns. Reference should be made to the list of Approved Internships which will be published in the next issue of The Journal, May 14.
- + Approved by the Council on Medical Education and Hospitals for the training of resident physicians. Reference should be made to the list of Approved Residencies and Fellowships which will be published in the next issue of The Journal, May 14.

- ▲ Approved by American College of Surgeons as meeting unconditionally its minimum requirements for general standardization.

- School of nursing accredited by state board of nurse examiners.
- ◎ Affiliated for nurse training on state accredited basis.
- † Figures for "average census" and "admissions" are exclusive of newborn infants.

The column headed "Type of Service" indicates the general categories of patients treated:

Card	Cardiac	ENT	Eye, ear, nose and throat	Iso	Isolation	N&M	Nervous and mental
Chil	Children	Gen	General	Mat	Maternity	Orth	Orthopedic
Chr	Chronic	Ineur	Incurable	MatCh	Maternity and children	SkCa	Skin and cancer
Conv	Convalescent and rest	Indus	Industrial	McDe	Mentally deficient	TB	Tuberculosis
Drug	Drug and alcoholic	Inst	Institutional	Ment	Mental	Ven	Venereal
Epil	Epileptic						

The column headed "Control" indicates control, or auspices under which the institution is conducted:

GOVERNMENTAL				NONPROFIT ORGANIZATIONS		PROPRIETARY	
Fed	Federal	State		Church		Indiv	Individual
IA	Indian Affairs	City		NPAssn	Nonprofit Association	Part	Partnership
Army	United States Army	County				Corp	Corporation (unrestricted as to profit)
USAF	United States Air Force	City-County					
Navy	United States Navy	CyCo					
USPHS	United States Public Health Service						
Vet	Veterans Administration						

Corrections were made in the list to the time of going to press. Totals of the list, therefore, may vary from totals in Tables 1 and 2 which were necessarily compiled earlier.

ALABAMA

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Bassinets	Number of Births	Admissions †
Albertville, 3,651—Marshall	Gen	Part	24	8	10	162	784
Sand Mountain Infirmary....	Gen	Part	24	8	10	162	784
Alexander City, 6,640—Tallapoosa	Gen	Corp	60	26	15	455	1,587
Russell Hospital	Gen	Corp	60	26	15	455	1,587
Altoona, 935—Etowah	Gen	Indiv	27	22	3	49	810
Klein Hospital	Gen	Indiv	27	22	3	49	810
Andalusia, 6,886—Covington	Gen	Part	59	17	10	314	1,578
Covington Memorial Hosp....	Gen	Corp	86	43	14	202	1,746
Hillcrest Infirmary	Gen	Corp	86	43	14	202	1,746
Anniston, 25,523—Calhoun	Gen	City	105	65	24	1,280	4,586
Anniston Memorial Hosp.▲	Gen	City	105	65	24	1,280	4,586
Atmore, 3,500—Escambia	Gen	Indiv	22	7	7	57	580
Atmore General Hospital....	Gen	Indiv	22	7	7	57	580
Auburn, 4,652—Lee	Gen	State	65	23	10	198	1,804
John Hodges Drake Hospital	Gen	State	65	23	10	198	1,804
Battles Wharf, 50—Baldwin	Gen	Indiv	24	15	6	142	966
Bayview Infirmary	Gen	Indiv	24	15	6	142	966
Bellamy, 450—Sumter	Gen	NPAssn	16	4	2	31	164
Bellamy Hospital	Gen	NPAssn	16	4	2	31	164
Bessemer, 22,826—Jefferson	Gen	Corp	72	39	13	470	2,083
Bessemer General Hospital▲	Gen	Corp	72	39	13	470	2,083
Birmingham, 207,553—Jefferson	Gen	Church	190	170	26	1,137	8,434
Baptist Hospital▲	Gen	Church	190	170	26	1,137	8,434
Carraway Methodist Hos-	Gen	Church	225	150	33	1,427	7,751
pital▲	Gen	Church	225	150	33	1,427	7,751
Children's Hospital▲	Chil	NPAssn	62	45	...	...	1,897
East End Memorial Hospital, Gen	Corp	Corp	76	37	20	449	2,730
Hargis Clinic Hospital.....	Gen	Indiv	23	14	4	78	783
Hill Crest Sanitarium.....	N&M	Indiv	50	41	...	...	843
Jefferson-Hillman Hosp.▲	Gen	State	366	423	80	3,455	21,818
Jefferson Tuberculosis Sanat. TB	NPAssn	NPAssn	225	204	...	...	305
Mid-South Medical Center.....	Yen	State	1,010	437	...	...	19,979
Miss Quinn's Nursing Home...	Conv	Part	16	8	...	...	274
St. Vincent's Hospital▲	Gen	Church	135	110	15	614	5,524
▲	Gen	Corp	146	137	27	1,201	5,558
ital Unit of Jefferson-Hillman Hospital							
Orth	NPAssn	NPAssn	50	39	...	...	181
Brewton, 3,323—Escambia	Gen	CyCo	30	17	8	185	1,601
Escambia County Hospital..	Gen	CyCo	30	17	8	185	1,601
Cullman, 5,074—Cullman	Gen	CyCo	60	37	18	1,145	3,420
Cullman Hospital	Gen	CyCo	60	37	18	1,145	3,420

ALABAMA—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Bassinets	Number of Births	Admissions †
Decatur, 16,604—Morgan	Gen	CyCo	76	33	13	350	1,690
Decatur General Hospital....	Gen	CyCo	76	33	13	350	1,690
Hamill Clinic Hospital	Gen	Part	23	10	7	84	488
Morgan County Tuberculosis	TB	County	151	148	...	...	363
Sanatorium	TB	County	151	148	...	...	363
Dothan, 17,194—Houston	Gen	NPAssn	57	47	9	111	1,635
Fraser-Ellis Hospital▲	Gen	NPAssn	57	47	9	111	1,635
Moody Hospital▲	Gen	Indiv	75	52	18	917	2,722
East Tallapoosa, 3,000—Tallapoosa	Gen	NPAssn	30	15	12	302	1,523
Community Hospital	Gen	NPAssn	30	15	12	302	1,523
Enterprise, 4,333—Coffee	Gen	NPAssn	58	35	7	264	2,285
Gibson Hospital	Gen	NPAssn	58	35	7	264	2,285
Eufaula, 6,269—Barbour	Gen	Indiv	54	32	9	255	1,883
Salter Hospital.....	Gen	Indiv	54	32	9	255	1,883
Fairfield, 11,703—Jefferson	Gen	NPAssn	285	212	42	1,610	8,675
Employees' Hospital of Ten-	Gen	NPAssn	285	212	42	1,610	8,675
nessee Coal, Iron and Rail-	Gen	NPAssn	285	212	42	1,610	8,675
road Company▲	Gen	NPAssn	285	212	42	1,610	8,675
Fayette, 2,663—Fayette	Gen	Part	20	14	8	288	930
McNease and Robertson	Gen	Part	20	14	8	288	930
Hospital▲	Gen	Part	20	14	8	288	930
Floral, 2,990—Covington	Gen	Indiv	30	8	5	108	355
Lakeview Hospital	Gen	Indiv	30	8	5	108	355
Florence, 15,043—Lauderdale	Gen	CyCo	65	55	13	1,119	3,926
Eliza Coffee Memorial Hosp. Gen	Gen	CyCo	65	55	13	1,119	3,926
Gadsden, 36,975—Etowah	Gen	Church	80	54	14	737	3,574
Baptist Memorial Hospital... Gen	Gen	Church	80	54	14	737	3,574
Etowah County Tuberculosis	TB	StateCo	22	15	...	...	39
Sanatorium	TB	StateCo	22	15	...	...	39
Holy Name of Jesus Hosp.▲	Gen	Church	120	105	20	1,014	7,159
Greensboro, 2,034—Hale	Gen	Indiv	22	5	3	76	524
Greensboro Hospital	Gen	Indiv	22	5	3	76	524
Greenville, 5,075—Butler	Gen	Indiv	46	12	6	156	768
Speil Hospital	Gen	Indiv	46	12	6	156	768
Stabler Infirmary	Gen	Corp	61	34	12	360	1,881
Grove Hill, 730—Clarke	Gen	Indiv	32	20	8	135	897
South Alabama Infirmary....	Gen	Indiv	32	20	8	135	897
Guntersville, 4,398—Marshall	Gen	City	60	25	12	350	2,173
Guntersville City Hospital... Gen	Gen	City	60	25	12	350	2,173
Haleyville, 2,427—Winston	Gen	Indiv	44	20	8	223	989
Haleyville Hospital	Gen	Indiv	44	20	8	223	989
Huntsville, 13,050—Madison	Gen	NPAssn	86	52	16	736	3,454
Huntsville Hospital	Gen	NPAssn	86	52	16	736	3,454

Key to symbols and abbreviations is on this page, preceding the tabulation

ALABAMA—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Bassnets	Number of Births	Admissions †
Jasper, 6,847—Walker							
Peoples Hospital	Gen	County	80	52	26	481	3,095
Walker County Hospital	Gen	Corp	55	51	12	302	2,248
Lafayette, 2,138—Chambers							
Batson Memorial Sanatorium TB	Counties		75	60	..	..	111
Wheeler Hospital	Gen	Indiv	32	28	7	161	1,250
Laverne, 2,243—Crenshaw							
Marvin M. Kendrick Memorial Hospital	Gen	Part	16	13	10	81	576
Mobile, 78,720—Mobile							
Allen Memorial Home	Mat		25	19	30	881	1,061
City Hospital*+*+*	Gen	CyCo	300	217	45	1,312	7,446
Mobile County Tuberculosis Sanatorium	TB	NPAasn	65	30	..	..	45
Mobile Infirmary*	Gen	NPAasn	185	165	47	1,030	8,232
Providence Hospital*	Gen	Church	119	95	22	889	5,065
Station Hospital	Gen	USAF	50	22	7	42	785
U. S. Marine Hospital*	Gen	USPHS	200	137	..	..	3,480
Montgomery, 78,084—Montgomery							
Fitts Hill Hospital	Gen	Indiv	20	17	6	210	1,075
Prattville Hospital	Gen	Indiv	37	24	10	109	1,760
Hubbard Hospital	Gen	Indiv	40	26	..	1	1,157
Kilby Prison Hospital	Inst	State	50	18	..	..	723
Montgomery Tuberculosis Sanatorium	TB	NPAasn	165	91	..	..	765
Professional Center Hospital	Gen	Indiv	25	30	16	500	1,618
St. Margaret's Hospital*+*	Gen	Church	156	118	25	1,060	6,328
Station Hospital*	Gen	USAF	175	72	17	517	2,850
Veterans Admin. Hospital*	Gen	Vet	300	263	..	..	3,323
Mount Vernon, 610—Mobile							
Searey Hospital	Ment	State	1,811	1,751	..	..	573
Opelika, 8,487—Lee							
Opelika Hospital	Gen	CyCo	33	17	14	352	1,382
Pell City, 900—St. Clair							
Pell City Infirmary	Gen	Indiv	46	22	7	221	1,378
Prattville, 2,661—Autauga							
Prattville General Hospital	Gen	Part	22	17	4	228	1,604
Roanoke, 4,168—Randolph							
Knight Sanatorium	Gen	Indiv	50	19	11	114	691
Russellville, 3,510—Franklin							
Betty Wilson Hospital	Gen	Indiv	23	15	3	124	1,113
Franklin County Hospital	Gen	Part	35	22	7	191	1,801
Scottsboro, 2,834—Jackson							
Hodges Hospital	Gen	Indiv	20	5	2	185	458
Tri-Counties Tuberculosis Sanatorium	TB	Counties	25	22	..	..	58
Selma, 19,834—Dallas							
Goldsky King Memorial Hospital*	Gen	Indiv	65	49	7	44	1,596
Selma Baptist Hospital*	Gen	Corp	75	59	12	425	3,937
Station Hospital	Gen	USAF	25	6	..	..	548
Vaughan Memorial Hospital*	Gen	Part	41	31	8	176	2,112
Sheffield, 7,033—Colbert							
Colbert County Hospital	Gen	CyCo	61	52	18	703	..
Sylacauga, 6,269—Talladega							
Drummond-Fraser Hosp.*	Gen	Corp	26	25	12	190	1,712
Sylacauga Hospital*	Gen	City	78	40	18	377	3,067
Talladega, 9,208—Talladega							
Citizens' Hospital*	Gen	NPAasn	88	41	26	559	2,850
Troy, 7,055—Pike							
Beard Memorial Hospital	Gen	Corp	45	24	9	210	1,750
Edge Hospital	Gen	Indiv	60	30	10	947	1,471
Tuscaloosa, 27,493—Tuscaloosa							
Bryce Hospital	Ment	State	4,234	4,150	..	..	2,130
Druid City Hospital*	Gen	CyCo	177	111	30	1,655	8,155
Veterans Admin. Hospital*	Ment	Vet	1,020	837	..	..	3,191
Tuskegee, 3,037—Macon							
Veterans Admin. Hosp.*+*	Ment	Vet	2,208	2,072	..	..	3,394
Tuskegee Institute, 375—Macon							
John Abibon Andrew Memorial Hospital*	Gen	NPAasn	141	77	24	588	2,691
Wetumpka, 3,089—Ehlers							
Wetumpka General Hospital	Gen	Corp	40	20	8	101	751
York, 1,783—Sumter							
Hill Hospital	Gen	Indiv	30	11	6	83	1,460
Related Institutions							
Birmingham, 267,583—Jefferson							
Alabama Boys' Industrial School	Inst	State	25	2	..	..	257
Highland General Hospital	Gen	Corp	36	12	11	150	565
Salvation Army Home and Hospital	Mat	Church	45	10	25	90	170
Montevallo, 1,490—Shelby							
Peterson Hall	Inst	State	36	5	..	..	1,468
Montgomery, 78,084—Montgomery							
Pineview Manor	MeDe	Indiv	60	..	..	Estab.	1948
Phenix City, 15,351—Russell							
Phenix City Memorial Hosp. Gen	City		78	38	12	455	2,781
Talladega, 9,208—Talladega							
Goodnow Hospital	Gen	Church	18	1	1	..	76
Tuscaloosa, 27,493—Tuscaloosa							
Partlow State School	MeDe	State	1,125	1,027	..	..	150

ARIZONA

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Bassnets	Number of Births	Admissions †
Ajo, 1,100—Pima							
Phelps-Dodge Hospital	Gen	NPAasn	35	10	7	132	811
Bisbee, 5,853—Cochise							
Copper Queen Hospital	Gen	NPAasn	42	21	8	280	1,503
Chandler, 1,229—Maricopa							
Station Hospital*	Gen	USAF	50	25	..	..	1,256
Cottonwood, 1,710—Yavapai							
Marquis J. Lawrence Memorial Hospital	Gen	NPAasn	38	22	5	92	1,013
Douglas, 8,623—Cochise							
Cochise County Hospital	Gen	County	52	51	7	52	480
Flagstaff, 5,660—Coconino							
Flagstaff Hospital*	Gen	NPAasn	20	18	8	265	1,695
Station Hospital	Gen	Army	25	4	6	61	600
Florence, 1,383—Pinal							
Pinal General Hospital	Gen	County	50	33	11	250	1,509
Fort Defiance, 600—Apache							
Navajo Medical Center	GenTh	IA	250	189	14	210	2,371
Ganado, 150—Apache							
Snake Memorial Hospital*	Gen	Church	150	82	15	190	2,046
Globe, 6,141—Gila							
Gila County Hospital	Gen	County	50	42	7	261	1,272
Jerome, 2,205—Yavapai							
United Verde Hospital	Gen	NPAasn	51	21	6	102	996
Keams Canyon, 150—Navajo							
Hopi General Hospital	Gen	IA	38	20	3	57	913
Kingman, 2,200—Mohave							
Mohave General Hospital	Gen	County	47	25	10	240	1,277
McNary, 55—Apache							
McNary Hospital	Gen	NPAasn	8	4	2	90	420
Mesa, 7,221—Maricopa							
South Side District Hospital	Gen	NPAasn	100	66	18	865	4,165
Miami, 4,722—Gila							
Miami-Inspiration Hospital*	Gen	NPAasn	45	23	6	206	1,140
Morenci, 1,500—Greenlee							
Morenci Hospital*	Gen	NPAasn	51	32	8	449	2,185
Nogales, 5,135—Santa Cruz							
St. Joseph's Hospital	Gen	Church	25	12	10	133	601
Parker, 200—Yuma							
Colorado River Indian Hosp. Gen	IA		42	14	4	62	518
Phoenix, 65,414—Maricopa							
Arizona State Hospital	Ment	State	1,453	1,299	..	..	610
Conyalescent Home for Crippled Children	Orth	State	50	50	..	..	365
Good Samaritan Hospital*+*	Gen	Church	212	181	42	1,892	10,101
Maricopa County Hospital	GenTh	County	278	155	..	..	2,072
Phoenix Indian Hospital*	Gen	IA	50	51	10	145	925
Phoenix Indian Sanatorium	TB	IA	80	82	..	..	246
St. Joseph's Hospital*+*	Gen	Church	190	185	45	3,662	8,320
St. Luke's Sanatorium	TB	Church	82	76	..	..	168
St. Monica's Hospital and Health Center*+*	Gen	Church	210	156	23	1,072	6,921
Veterans Admin. Hospital*	Gen	Vet	141	150	..	..	2,575
Prescott, 6,018—Yavapai							
Prescott Community Hosp.	Gen	NPAasn	42	22	14	241	1,281
Yavapai County Hospital	Gen	County	70	49	8	116	654
Ray, 1,100—Pinal							
Kennecott Copper Corporation Hospital	Gen	NPAasn	20	12	10	108	940
Sacaton, 315—Pinal							
Pima Indian Hospital	Gen	IA	42	19	7	176	1,033
Safford, 2,206—Graham							
Morris Squibb Hospital	Gen	NPAasn	37	9	13	202	657
San Carlos, 100—Gila							
San Carlos Indian Hospital	Gen	IA	45	15	6	90	672
Tempe, 2,606—Maricopa							
Arizona State Tuberculosis Sanatorium	TB	State	90	86	..	..	98
Tempe Clinic Hospital	Gen	Indiv	20	14	12	265	777
Tuba City, 150—Coconino							
Western Navajo Hospital*	Gen	IA	44	32	6	108	1,376
Tucson, 36,818—Pima							
Barfield Sanatorium	Corp		50	20	..	..	192
Comstock Children's Hosp.	TB	NPAasn	35	31	..	..	70
Pima County General Hosp.*+*	GenTh	County	150	138	4	58	2,209
St. Luke's in the Desert Sanitarium	TB	Church	32	24	..	..	57
St. Mary's Hospital and Sanatorium*+*	GenTh	Church	221	179	36	1,459	6,981
San Xavier Hospital*	Gen	IA	46	18	6	61	516
Southern Pacific Sanatorium and Hospital	TB	NPAasn	91	69	..	..	1,008
Station Hospital*	Gen	USAF	100	59	12	258	2,633
Tucson Medical Center*+*	Gen	NPAasn	192	142	32	1,097	5,001
Veterans Admin. Hospital*	TB	Vet	414	383	..	..	1,753
Whipple, 400—Yavapai							
Veterans Admin. Center*	TB	Vet	385	303	..	..	1,502
Whiteriver, 200—Navajo							
Fort Apache Agency Hospital	Gen	IA	50	24	4	60	1,183
Winslow, 4,577—Navajo							
Winslow Indian Sanatorium and Hospital	Gen	IA	30	27	5	97	1,072
Yuma, 5,325—Yuma							
Fort Yuma Indian Hospital*	Gen	IA	28	7	8	23	290
Yuma County General Hosp. Gen	County		100	51	19	596	2,193

ARIZONA—Continued

Related Institutions	Type of Service	Ownership or Control	Beds	Average Census †	Basinsets	Number of Births	Adm.-sions †
Phoenix, 65,414—Maricopa							
Castas del Sol Sanatorium.. TB	Indiv	Part	13	11	..	...	24
El Sereno Lodge Sanitarium N&M	Part		13	4	..	...	249
Tucson, 36,818—Pima							
Arizona State Elks Hospital TB	NPAasn		35	19	..	...	42
Wickenburg, 995—Maricopa							
Community Hospital	Gen	NPAasn	21	11	7	73	683

ARKANSAS

Hospitals and Sanatoriums

Alexander, 134—Pulaski							
Thomas C. McRae Memorial Sanatorium	TB	State	106	186	..	...	257
Batesville, 5,247—Independence							
Allen Hospital	Gen	Part	34	20	14	453	1,674
Craig Hospital	Gen	Indiv	12	9	6	103	725
Dr. Gray's Hospital	Gen	Indiv	56	23	8	119	1,713
Beebe, 1,189—White							
Sloan Hospital	Gen	Indiv	12	8	6	106	412
Benton, 3,502—Saline							
State Hospital	Unit of State Hospital, Little Rock						
Blytheville, 10,632—Mississippi							
Blytheville Hospital	Gen	Indiv	35	20	6	300	1,011
Walls Hospital	Gen	Indiv	30	25	12	673	3,182
Camden, 8,975—Ouachita							
Camden Hospital	Gen	NPAasn	30	30	8	466	2,638
Charleston, 958—Franklin							
Bollinger Hospital	Gen	Indiv	8	3	4	119	354
Clarksville, 3,118—Johnson							
St. Hildegard's Municipal Hospital	Gen	Church	27	14	10	286	1,081
Conway, 3,782—Faulkner							
Conway Memorial Hospital.. Gen	NPAasn		30	17	10	206	1,271
Crossett, 4,891—Ashley							
Crossett Health Center..... Gen	NPAasn		39	22	11	199	1,152
De Queen, 3,055—Sevier							
De Queen General Hospital... Gen	NPAasn		30	18	10	237	1,327
Dermott, 3,683—Chicot							
St. Mary's Hospital	Gen	Church	30	21	8	241	1,375
Dumas, 3,323—Desha							
Dumas Hospital	Gen	NPAasn	26	12	10	216	804
El Dorado, 15,858—Union							
Fincher Clinic and Hospital.. Gen	Indiv		25	9	10	123	687
Warner Brown Hospital... Gen	Church		75	56	18	665	3,628
Fayetteville, 8,212—Washington							
Fayetteville City Hospital... Gen	City		63	46	20	917	3,672
Veterans Admin. Hospital... Gen	Vet		302	236	..	...	3,959
Forrest City, 5,692—St. Francis							
Roy Hospital	Gen	Part	40	15	10	125	850
Fort Smith, 36,584—Sebastian							
Arkansas Tuberculosis Sanat. Unit of Arkansas Tuberculosis Sanatorium, State Sanatorium, Ark.							
St. Edward's Mercy Hosp. AO Gen	Church		145	112	36	1,223	6,817
Sparks' Memorial Hospital AO Gen	NPAasn		96	69	18	430	3,621
Haskell, 171—Saline							
State Hosp., Benton Division Unit of State Hospital, Little Rock							
Heber Springs, 1,656—Cleburne							
Estelle Hospital	Gen	Indiv	17	8	6	170	630
Helena, 8,546—Phillips							
Helena Hospital	Gen	NPAasn	71	38	15	447	2,607
Hope, 7,475—Hempstead							
Branch General Hospital..... Gen	Indiv		20	5	6	41	382
Josephine Hospital	Gen	Indiv	26	9	5	189	826
Julia Chester Hospital..... Gen	NPAasn		20	13	9	101	773
Hot Springs National Park, 21,370—Garland							
Army and Navy General Hospital... Gen	Army		410	357	7	120	4,383
Leo N. Levi Memorial Hospital... Gen	NPAasn		112	80	13	234	1,461
Methodist Hospital	Gen	Church	53	43	12	238	1,799
St. Joseph's Infirmary... Gen	Church		167	127	30	724	5,200
U. S. Public Health Service Medical Center	Ven	USPHS	900	390	..	...	19,369
Jonesboro, 11,729—Craighead							
St. Bernard's Hospital... Gen	Church		100	87	15	1,028	4,842
Lake Village, 2,045—Chicot							
Lake Village Infirmary..... Gen	Part		40	19	8	196	1,271
Little Rock, 88,063—Pulaski							
Arkansas Baptist Hosp. ... Gen	Church		271	241	41	1,365	10,132
Arkansas Children's Home and Hospital... Chil	NPAasn		68	56	3	...	877
Granite Mountain Hospital.. Gen	Indiv		20	4	2	20	344
Missouri Pacific Hospital... Indus	NPAasn		125	77	..	...	2,987
Pulaski County Hospital... ChrTh	County		215	195	..	...	399
St. Vincent Infirmary... Gen	Church		210	196	50	2,079	9,918
State Hospital	Ment	State	4,818	4,734	..	...	1,918
Trinity Hospital... Gen	Part		40	17	10	120	1,391
United Friends of America Hospital	Gen	NPAasn	25	18	5	64	1,765
University Hospital... Gen	State		200	188	31	1,359	4,392
Magnolia, 4,326—Columbia							
City Hospital	Gen	City	44	20	14	404	1,903
Monticello, 3,650—Drew							
Mack Wilson Hospital..... Gen	Part		30	14	7	298	1,343
Morrilton, 4,608—Conway							
St. Anthony's Hospital... Gen	Church		31	30	9	356	1,482
Newport, 4,321—Jackson							
Dr. Gray's Hospital..... Gen	Indiv		35	11	6	154	658
Newport Hospital	Part		35	22	12	201	1,665
North Little Rock, 21,137—Pulaski							
Veterans Admin. Hospital... Ment	Vet		2,095	1,789	..	...	4,095

ARKANSAS—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Basinsets	Number of Births	Adm.-sions †
Paragould, 7,079—Greene							
Dickson Memorial Hospital.. Gen	Corp		38	35	12	491	2,535
Pine Bluff, 21,290—Jefferson							
Davis Hospital... Gen	City		120	66	20	967	4,567
Prescott, 3,177—Nevada							
Corra Donnell Hospital..... Gen	Indiv		25	11	7	132	918
Russellville, 5,927—Pope							
St. Mary's Hospital..... Gen	Indiv		48	25	8	409	1,905
Searcy, 3,670—White							
Hawkins Clinic Hospital..... Gen	Indiv		26	12	7	157	909
Porter Rodgers Hospital..... Gen	Indiv		63	56	18	527	3,971
Siloam Springs, 2,764—Benton							
City Hospital	Gen	City	22	6	6	229	697
State Sanatorium, 300—Logan							
Arkansas Tuberculosis Sanatorium... TB	State		1,156	1,116	..	...	1,890
Texarkana, 11,821—Miller							
St. Michael's Hospital... Gen	Church		150	49	30	847	3,600
St. Louis Southwestern Hospital... Indus	NPAasn		150	59	..	...	2,641
Warren, 2,516—Bradley							
Hunt Hospital	Gen	Indiv	26	8	6	135	339

Related Institutions

Bentonville, 2,350—Benton							
Bates Memorial Hospital.... Gen	City		50	19	12	162	906
Booneville, 2,324—Logan							
McConnell Hospital	Gen	Indiv	18	3	8	125	302
Hot Springs National Park, 21,370—Garland							
Alamo Hospital	Gen	Indiv	16	6	5	23	103
Texarkana, 11,821—Miller							
Jamison Sanitarium	Gen	Indiv	20	7	6	69	360

CALIFORNIA

Hospitals and Sanatoriums

Agnew, 300—Santa Clara							
Agnew's State Hospital..... Ment	State		3,522	3,452	..	...	3,672
Ahwahnee, 50—Madera							
Ahwahnee Sanatorium	TB	Counties	105	93	..	...	110
Alameda, 36,256—Alameda							
Alameda Hospital... Gen	NPAasn		97	72	22	1,239	5,396
Albany, 11,493—Alameda							
Albany Hospital	Gen	NPAasn	27	23	12	639	1,869
Alcatraz, San Francisco							
U. S. Penitentiary Hospital... Inst	USPHS		64	6	..	...	250
Alhambra, 38,935—Los Angeles							
Alhambra Hospital... Gen	Corp		60	40	18	958	2,665
Antioch, 5,100—Contra Costa							
Antioch General Hospital.... Gen	Corp		24	13	8	259	964
Arata, 1,855—Humboldt							
Trinity Hospital	Gen	Church	44	26	7	193	1,515
Arlington, 3,440—Riverside							
Riverside County Hospital.. See Riverside							
Artesia, 3,891—Los Angeles							
Artesia Hospital	Gen	Indiv	25	17	14	776	1,477
Atwater, 1,235—Merced							
Bloss Memorial Hospital.... Unit of Merced General Hospital, Merced							
Auberry, 300—Fresno							
Wish-I-ah Sanatorium..... TB	County		116	99	..	...	124
Auburn, 4,013—Placer							
DeWitt State Hospital..... Ment	State		2,710	2,356	..	...	714
Highland General Hospital.. Gen	Part		26	24	6	348	1,051
Placer County Hospital..... Gen	County		200	140	5	55	600
Bakersfield, 29,252—Kern							
Bakersfield Hospital..... Gen	Indiv		30	29	..	...	1,806
Kern General Hospital... Gen	County		607	529	99	2,226	11,282
Merced Hospital	Gen	Church	90	80	30	1,417	4,836
Banning, 3,874—Riverside							
Southern Sierras Sanatorium TB	Indiv		25	15	..	...	40
Bell, 11,264—Los Angeles							
Bell Mission Hospital..... Gen	Corp		28	21	11	456	1,375
Belmont, 1,229—San Mateo							
Alexander Sanitarium	N&M	Corp	85	74	..	...	577
California Sanatorium	TB	Corp	110	106	..	...	155
Twin Pines Sanitarium..... N&M	Corp		45	46	..	...	381
Berkeley, 85,547—Alameda							
Alta Bates Hospital... Gen	NPAasn		112	86	40	2,069	6,207
Ernest V. Cowell Memorial Hospital... Inst	State		172	46	..	...	3,048
Herrick Memorial Hosp. ... Gen	NPAasn		185	117	40	1,623	7,241
Brawley, 11,718—Imperial							
Brawley Community Hospital Gen	Indiv		25	18	10	479	1,329
Burbank, 31,337—Los Angeles							
St. Joseph's Hospital... Gen	Church		130	107	35	1,563	5,589
Camarillo, 300—Ventura							
Camarillo State Hospital... Ment	State		5,087	4,553	..	...	2,917
Camp Stoneman, Contra Costa							
Station Hospital	Gen	Army	200	154	12	246	5,330
Carmel, 2,837—Monterey							
Peninsula Community Hosp. Gen	NPAasn		53	38	13	462	2,102
Chula Vista, 5,138—San Diego							
Chula Vista Hospital..... Gen	Indiv		27	21	10	406	1,787
Clovis, 1,626—Fresno							
Clovis Sanitarium	Gen	Part	15	10	4	167	728
Coalinga, 5,026—Fresno							
Coalinga District Hospital... Gen	NPAasn		21	19	8	221	1,022
Colfax, 791—Placer							
Colfax Hospital for the Tuberculous	TB	Indiv	34	28	..	...	42

Key to symbols and abbreviations is on page 37

CALIFORNIA—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Basins	Number of Births	Admissions †
Compton, 16,193—Los Angeles							
Compton Sanitarium+AO	N&M	Corp	123	88	...	545	
Las Campanas Hospital	Gen	Corp	46	32	16	2,257	
Women's and Children's Hospital	Gen	Indiv	17	12	7	119	780
Concord, 1,373—Contra Costa							
Concord Community Hosp...	Gen	Corp	34	21	8	330	1,335
Corcoran, 2,002—Kings							
Corcoran Municipal Hospital	Gen	City	21	...	6	Estab.	1949
Corona, 8,761—Riverside							
Corona Hospital	Gen	Indiv	31	11	9	243	836
U. S. Naval Hospital+AO	Gen	Navy	650	510	...	...	3,012
Coronado, 6,932—San Diego							
Coronado Hospital	Gen	NPAasn	30	16	8	102	950
Covina, 3,049—Los Angeles							
Covina Hospital	Gen	NPAasn	60	46	13	456	2,328
Crescent City, 1,363—Del Norte							
Seaside Hospital	Gen	County	29	26	7	181	719
Culver City, 8,976—Los Angeles							
Community Hospital	Gen	Indiv	13	7	...	...	477
Culver City Hospital	Gen	Corp	52	40	14	817	2,369
Delano, 4,573—Kern							
Delano Hospital	Gen	Indiv	23	14	7	297	1,098
Dinuba, 3,790—Tulare							
Alta District Hospital	Gen	Indiv	19	10	6	169	950
Dos Palos, 978—Merced							
Dos Palos Hospital	Gen	Part	15	4	5	131	475
Downey, 15,000—Los Angeles							
Downey Community Hospital	Gen	Corp	46	21	10	503	1,733
Duarte, 2,000—Los Angeles							
Los Angeles Sanatorium+AO	TB	NPAasn	263	251	...	...	181
El Centro, 10,017—Imperial							
Imperial County Charity Hospital	Gen	County	106	70	5	113	1,009
Eldridge, 16—Sonoma							
Sonoma State Home	McDe	State	3,160	3,124	...	...	707
El Monte, 4,740—Los Angeles							
Ruth Home	VenMat	NPAasn	125	26	15	21	129
El Toro, 200—Orange							
U. S. Marine Corps Air Station Dispensary	Gen	Navy	140	4	...	...	1,402
Escalon, 785—San Joaquin							
Pioneer Memorial Hospital	Gen	Indiv	15	8	3	107	443
Eureka, 17,055—Humboldt							
General Hospital	Gen	NPAasn	58	57	8	333	3,105
Humboldt County Commu-							
nity Hospital	Gen	County	204	144	6	43	1,213
Humboldt County Sanitarium	TB	County	63	31	...	...	100
St. Joseph Hospital	Gen	Church	65	52	18	686	2,796
Fairfield, 1,312—Solano							
Solano County Hospital	InstGen	County	120	103	6	140	910
Station Hospital	Gen	USAF	125	57	...	...	5,202
Fort Bragg, 3,235—Mendocino							
Redwood Coast Hospital+AO	Gen	Corp	27	16	8	145	733
Fort Ord, Monterey							
Station Hospital+AO	Gen	Army	400	297	21	418	7,144
Fowler, 1,531—Fresno							
Fowler Municipal Hospital	Gen	City	12	7	5	206	541
French Camp, 600—San Joaquin							
San Joaquin General Hos-							
pital+AO	Gen	County	570	517	38	1,158	12,340
Fresno, 60,685—Fresno							
Fresno Community Hospital	Gen	NPAasn	155	117	21	1,649	7,304
General Hospital of Fresno							
County+AO	Gen	County	517	480	31	1,307	8,898
St. Agnes Hospital	Gen	Church	67	52	24	1,432	4,750
Fullerton, 10,442—Orange							
Fullerton Hospital	Gen	Church	45	37	11	685	2,238
Garden Grove, 2,500—Orange							
Garden Grove Sanitarium	N&M	Corp	145	130	...	...	115
Gilroy, 3,615—Santa Clara							
Wheeler Hospital	Gen	NPAasn	26	17	10	297	1,094
Glendale, 82,582—Los Angeles							
Behrens Memorial Hospital	Gen	NPAasn	77	55	19	551	2,938
Glendale Sanitarium and							
Hospital+AO	Gen	Church	225	180	40	1,797	7,506
Physicians and Surgeons							
Hospital	Gen	NPAasn	110	97	35	1,857	6,339
Grass Valley, 5,701—Nevada							
Community Hospital	Gen	Indiv	19	16	6	191	912
W. C. Jones Memorial Hosp.	Gen	Indiv	18	8	3	62	438
Hamilton Field, Marin							
Station Hospital	Gen	USAF	171	91	13	425	2,899
Hanford, 8,234—Kings							
General Hospital of Kings	Gen	County	225	156	16	417	3,140
Hanford Sanitarium	Gen	Corp	30	28	8	340	1,115
Sacred Heart Hospital	Gen	Church	30	19	10	516	1,482
Hayward, 6,736—Alameda							
Hawthorne Hospital	Gen	Corp	43	31	10	729	2,307
Hayward, 6,736—Alameda							
Hayward Hospital	Gen	Indiv	30	24	14	1,095	2,171
Healdsburg, 2,507—Sonoma							
Healdsburg General Hospital	Gen	Corp	25	13	6	230	829
Herlong, Lassen							
Station Hospital	Gen	Army	26	10	6	125	850
Hollister, 3,881—San Benito							
Hazel Hawkins Memorial							
Hospital	Gen	NPAasn	24	19	8	190	896
San Benito County Hospital	Gen	County	10	4	3	24	139
Hondo, 3,150—Los Angeles							
Rancho Los Amigos	Ment	County	2,637	2,557	...	...	3,720
Hoopa, 140—Humboldt							
Hoopa Valley Indian Hosp...	Gen	IA	29	15	5	22	496

CALIFORNIA—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Basins	Number of Births	Admissions †
Huntington Park, 23,648—Los Angeles							
Mission Hospital	Gen	Corp	33	32	16	787	1,698
Imola, 20—Napa							
Napa State Hospital+AO	Ment	State	4,225	3,025	...	...	1,478
Indio, 2,290—Riverside							
Casta Hospital	Gen	Indiv	21	14	9	162	910
Couchella Valley Hospital	Gen	Corp	30	21	6	270	1,461
Inglewood, 30,114—Los Angeles							
Centinela Hospital	Gen	NPAasn	62	58	22	1,472	4,039
St. Ernie Sanitarium	N&M	Indiv	290	191	...	...	175
Stork Nest Women's Hosp...	Mat	Part	20	10	15	455	458
Keene, 161—Kern							
Stony Brook Retreat	TB	County	150	120	...	...	140
King City, 1,765—Monterey							
King City Hospital	Gen	Corp	22	17	4	161	1,010
Kingsburg, 1,504—Fresno							
Kingsburg Sanitarium	Gen	Indiv	21	16	9	163	677
La Crescenta, 3,000—Los Angeles							
Hillcrest Sanitarium	Unit of Olive View Sanatorium, Olive View						
La Jolla, San Diego							
Scripps Memorial Hospital+AO	Gen	NPAasn	56	42	9	581	2,142
Scripps Metabolic Clinic							
Hospital	Metab	NPAasn	26	31	...	...	1,506
Lake Port, 1,490—Lake							
Lakeside Hospital	Gen	Part	39	22	6	192	1,103
La Vina, 25—Los Angeles							
La Vina Sanitarium	TB	NPAasn	50	48	...	...	61
Lindsay, 4,397—Tulare							
Lindsay Municipal Hospital	Gen	Corp	27	No data supplied			
Livermore, 2,855—Alameda							
Arroyo-Dei Valle Sanitarium	See Oakland						
Livermore Sanitarium	N&M	Corp	120	112	...	...	716
St. Paul's Hospital	Gen	Indiv	23	16	6	206	1,127
Veterans Admin. Hosp.+AO	TB	Vet	458	423	...	...	638
Loell, 11,070—San Joaquin							
Ruchanan Hospital	Gen	Indiv	31	18	9	347	1,298
Mason Hospital	Gen	Indiv	25	15	4	210	1,562
Loma Linda, 2,500—San Bernardino							
Loma Linda Sanitarium and							
Hospital+AO	Gen	Church	133	116	20	833	5,000
Lompoc, 3,370—Santa Barbara							
Lompoc Hospital	Gen	NPAasn	26	19	14	162	665
Lone Pine, 900—Inyo							
Mount Whitney Hospital	Gen	Indiv	19	8	4	62	512
Long Beach, 161,271—Los Angeles							
Bixby Knolls Hospital	Mat	Corp	22	13	24	723	868
Harriman Jones Clinic and							
Hospital	Gen	Part	45	33	16	422	1,638
Long Beach Community							
Hospital	Gen	NPAasn	150	138	30	1,612	8,095
St. Mary's Long Beach							
Hospital	Gen	Church	100	83	23	1,742	5,664
Seaside Memorial Hosp.+AO	Gen	NPAasn	370	280	55	1,818	12,656
U. S. Naval Hospital+AO	Gen	Navy	1,350	998	51	1,454	21,186
Los Angeles, 1,504,277—Los Angeles							
Alvarado Hospital	Gen	NPAasn	26	20	...	...	815
Barlow Sanitarium+AO	TB	NPAasn	100	98	...	...	87
California Babies' and Chil-							
dren's Hospital	Chil	NPAasn	30	7	...	...	407
California Hospital+AO	Gen	Church	317	276	48	3,691	14,418
Cedars of Lebanon Hosp.+AO	Gen	NPAasn	310	284	50	2,248	11,224
Children's Hospital+AO	Chil	NPAasn	203	156	...	...	6,650
Eye and Ear Hospital	ENT	Corp	21	12	...	...	2,694
French Hospital	Gen	NPAasn	76	52	16	450	2,583
Hollywood-Leland Hospital	Gen	Part	31	24	...	...	191
Hospital of the Good							
Sanitarium+AO	Gen	Church	466	359	55	1,952	12,219
Hygeia Sanitarium	Alcoh	Indiv	11	7	...	...	283
Lincoln Hospital	Gen	NPAasn	32	22	11	708	1,222
Los Angeles County Hospital							
(Medicine Unit)+AO	Gen	County	3,394	2,799	230	5,749	62,163
Los Angeles County Jail							
Hospital	Inst	County	71	57	...	...	2,907
Los Angeles County Psycho-							
pathic Hospital	Unit of Los Angeles County Hospital						
Los Angeles Neurological							
Institute	N&M	Corp	34	20	...	...	380
Los Angeles Sanitarium	ChrConv	Indiv	37	20	...	...	732
Methodist Hospital of Southern							
California+AO	Gen	Church	265	137	48	1,981	7,009
Midway Hospital	Gen	Corp	28	20	...	...	...
Orthopedic Hospital+AO	Orth	NPAasn	78	72	...	...	2,357
Paul Hospital	Gen	Indiv	15	5	3	105	314
Presbyterian Hospital-Olmsted							
Memorial+AO	Gen	Church	390	247	65	2,470	11,039
Queen of Angels Hosp.+AO	Gen	Church	502	425	113	4,511	17,665
St. Vincent's Hospital+AO	Gen	Church	238	215	50	1,821	17,586
Santa Fe Coast Lines							
Hospital+AO	Indus	NPAasn	198	158	...	...	4,825
Veterans Admin. Center+AO	MentGen	Vet	3,220	3,100	...	...	14,030
White Memorial Hosp.+AO	Gen	Church	297	170	23	1,551	9,174
Los Banos, 2,214—Merced							
City Clinic and Emergency							
Hospital	Gen	Church	14	7	3	136	512
Lynwood, 10,982—Los Angeles							
St. Francis Hospital	Gen	Church	160	131	48	2,289	7,946
Madera, 6,457—Madera							
Dearborn Hospital	Gen	Corp	29	22	4	424	1,835
Madera County Hospital	GenTB	County	135	91	8	296	1,599
Madera Sanitarium	Gen	Indiv	21	13	5	230	1,282
Manor, Marlin							
Arequipa Sanitarium	TB	NPAasn	54	53	...	...	78

CALIFORNIA—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Basinsets	Number of Births	Admissions †
March Field, —Riverside							
Station Hospital†	Gen	USAF	150	60	12	488	2,228
Mare Island, —Solano							
U. S. Naval Hospital†	Gen	Navy	650	490	28	496	5,740
Martinez, 7,381—Contra Costa							
Contra Costa County Hosp.	Gen	County	230	108	11	475	3,402
Martinez Community Hosp.	Gen	Corp	48	30	8	377	2,072
Marysville, 6,616—Yuba							
Rideout Memorial Hospital..	Gen	Indiv	68	38	12	636	2,631
Yuba County Hospital.....	Gen	County	90	89	12	305	1,738
McCloud, 2,000—Siskiyou							
McCloud Hospital	Gen	NPAssen	26	15	6	90	556
Merced, 10,135—Merced							
Merced General Hospital.....	GenTb	County	242	120	18	663	3,950
Mercy Hospital	Gen	Indiv	50	23	22	638	1,072
Modesto, 16,370—Stanislaus							
McPheeters Hospital	Gen	Indiv	42	34	7	320	2,012
Modesto State Hospital.....	Ment	State	2,825	2,725	..	..	2,197
Robertson Hospital	Gen	Part	38	33	11	668	1,854
St. Mary's Hospital.....	Gen	Church	22	16	8	516	953
Stanislaus County Hosp.....	GenChr	County	360	235	18	730	3,993
Moffett Field, —Santa Clara							
U. S. Naval Air Station							
Dispensary	Gen	Navy	58	10	..	..	850
Monrovia, 12,807—Los Angeles							
Norumbega Sanatorium	TB	Indiv	20	15	..	..	33
Pottenger Sanatorium and Clinic†	TB	Indiv	141	104	..	..	164
Montebello, 8,016—Los Angeles							
Beverly Hospital	Gen	NPAssen	56	41	18	798	2,514
Monterey, 10,054—Monterey							
Monterey Hospital	Gen	Corp	55	30	13	345	2,063
Monterey Park, 5,331—Los Angeles							
Garfield Hospital†	Gen	Corp	49	38	12	627	2,175
Murphys, 600—Calaveras							
Bret Harte Sanatorium†	TB	Counties	220	143	..	..	324
Napa, 7,740—Napa							
Parks Victory Memorial Hospital†	Gen	NPAssen	58	25	10	514	1,871
National City, 10,344—San Diego							
Paradise Valley Sanitarium and Hospital†	Gen	Church	115	76	35	712	3,076
Nevada City, 2,445—Nevada							
Miners Hospital	Gen	NPAssen	21	13	6	114	609
Nevada County Hospital.....	InstGen	County	100	71	3	21	786
Newhall, 1,600—Los Angeles							
Wildwood Sanatorium	Unit of	Olive View Sanatorium, Olive View					
Newman, 1,214—Stanislaus							
West Side Hospital.....	Gen	Corp	16	14	3	266	1,866
Norwalk, 3,000—Los Angeles							
Norwalk State Hospital.....	Ment	State	2,506	2,450	..	..	1,025
Oakdale, 2,502—Stanislaus							
Oakdale Municipal Hospital..	Gen	Indiv	32	20	8	317	1,545
Oakland, 302,163—Alameda							
Alameda County Hospitals							
Arroyo Del Valle Sanat.†	TB	County	270	251	..	..	265
Fairmont Hospital of Alameda County†	ChrTb	County	763	743	..	..	1,005
Highland-Alameda County Hospital†	Gen	County	455	370	36	1,557	11,433
Children's Hospital of the East Bay†	Chil	NPAssen	78	56	..	..	4,171
East Oakland Hospital†	Gen	Corp	80	56	20	1,887	4,951
Peralta Hospital†	Gen	NPAssen	150	128	25	1,749	8,160
Permanent Foundation Hospital†	Gen	NPAssen	315	217	58	1,751	11,572
Providence Hospital†	Gen	Church	219	167	47	2,421	9,067
Samuel Merritt Hospital†	Gen	NPAssen	185	158	36	2,326	9,104
U. S. Naval Hospital†	Gen	Navy	1,450	1,179	42	1,329	12,694
Veterans Admin. Hospital†	Gen	Vet	712	573	..	..	13,116
Oceanside, 4,651—San Diego							
U. S. Naval Hospital†	Gen	Navy	250	157	14	370	2,307
Olive View, —Los Angeles							
Olive View Sanatorium†	TB	County	1,075	1,007	..	..	921
Orange, 7,901—Orange							
Orange County General Hospital†	Gen	County	370	353	15	284	3,424
St. Joseph Hospital†	Gen	Church	115	97	36	1,015	5,254
Oxnard, 8,519—Ventura							
St. John's Hospital†	Gen	Church	45	38	15	591	1,843
Palo Alto, 16,774—Santa Clara							
Palo Alto Hospital†	Gen	NPAssen	100	162	40	1,936	9,802
Veterans Admin. Hospital†	Ment	Vet	1,473	1,433	..	..	928
Pasadena, 81,604—Los Angeles							
Alta Vista Hospital.....	Gen	Church	55	45	12	521	1,817
Collis P. and Howard Huntington Memorial Hosp.†	Gen	NPAssen	238	217	35	800	9,482
Las Encinas Sanitarium.....	N&M	Corp	125	113	..	..	300
McCormack General Hospital†	Gen	Army	550	384	12	487	5,714
St. Luke Hospital†	Gen	Church	160	133	60	3,152	7,353
Southern California Sanitarium for Nervous and General Diseases	See	Las Encinas Sanitarium					
Woman's Hospital	Mat	NPAssen	19	9	19	351	420
Patton, 4,100—San Bernardino							
Patton State Hospital†	Ment	State	4,233	4,125	..	..	1,930
Pittsburg, 9,520—Contra Costa							
Pittsburg Community Hosp.	Gen	City	70	41	16	755	3,010
Placerville, 3,664—El Dorado							
El Dorado County Hosp.....	InstGen	County	66	55	4	..	73
Placerville Sanatorium	Gen	Part	26	17	4	192	1,083
Pomona, 23,539—Los Angeles							
Pomona Valley Community Hospital†	Gen	NPAssen	82	62	16	862	3,476

CALIFORNIA—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Basinsets	Number of Births	Admissions †
Porterville, 6,270—Tulare							
New Porterville Hospital.....	Gen	Part	22	17	8	600	1,489
Portola, 2,000—Plumas							
Western Pacific Railroad Hospital	Gen	NPAssen	28	15	5	80	716
Quincy, 1,800—Plumas							
Plumas County Hospital.....	Gen	County	44	29	5	21	380
Red Bluff, 3,824—Tehama							
St. Elizabeth's Mercy Hosp...	Gen	Church	50	40	10	289	1,300
Redding, 8,109—Shasta							
Shasta County Hospital.....	GenTb	County	83	73	8	41	456
Redlands, 11,321—San Bernardino							
Redlands Community Hosp.	Gen	NPAssen	75	53	20	521	3,025
Redwood City, 12,453—San Mateo							
Canyon Sanatorium	TB	County	73	66	..	..	61
Hassler Health Home.....	TB	CyCo	262	257	..	..	285
Reedley, 3,170—Fresno							
Reedley Hospital	Gen	NPAssen	30	17	7	385	1,312
Represa, 250—Sacramento							
Folsom Prison Hospital†	Inst	State	120	82	..	..	948
Richmond, 23,612—Contra Costa							
Richmond Hospital†	Gen	Indiv	70	57	22	1,806	5,096
Riverside, 34,696—Riverside							
Riverside Community Hosp.†	Gen	NPAssen	186	90	42	1,156	5,744
Riverside County Hospital†	GenTb	County	320	275	14	321	3,624
Sherman Institute Hospital..	Inst	LA	58	16	..	..	353
Rosemead, 5,500—Los Angeles							
Alhambra Sanatorium	N&M	Indiv	26	18	..	..	315
Ross, 1,751—Marin							
Ross General Hospital.....	GenTb	Corp	95	85	12	562	3,216
Sacramento, 105,958—Sacramento							
Mercy Hospital†	Gen	Church	155	142	35	2,111	6,830
Sacramento County Hosp.†	Gen	County	475	415	25	870	9,828
Station Hospital†	Gen	USAF	70	34	12	341	1,795
Sutter General Hospital†	Gen	NPAssen	225	191	..	..	7,968
Sutter Maternity Hospital†	Mat	NPAssen	72	64	89	3,824	4,426
Salinas, 11,586—Monterey							
El Sausal Sanitarium	Unit of	Monterey County Hospital					
Monterey County Hospital†	GenTb	County	258	206	10	491	2,910
Park Lane Hospital.....	Gen	Corp	58	60	18	649	2,484
Salinas Valley Hospital.....	Gen	Indiv	30	23	7	109	..
San Andreas, 1,082—Calaveras							
San Andreas Hospital.....	Gen	Indiv	12	3	3	16	74
San Bernardino, 43,646—San Bernardino							
St. Bernardine's Hospital†	Gen	Church	125	112	34	1,401	5,632
San Bernardino County Charity Hospital†	Gen	County	343	317	18	617	4,922
San Diego, 203,341—San Diego							
Collier Park Hospital.....	Mat	Church	19	18	11	86	98
Family Hospital†	Gen	Navy	48	15	30	680	1,192
Mercy Hospital†	Gen	Church	325	253	100	4,411	13,316
Quintard Hospital	Gen	NPAssen	91	68	30	1,161	4,153
San Diego County General Hospital†	GenTb	County	1,187	651	13	624	8,754
U. S. Naval Hospital†	Gen	Navy	1,600	1,300	51	1,599	21,354
Vaughan Home	Unit of	San Diego County General Hosp.					
San Fernando, 9,694—Los Angeles							
San Fernando Hospital.....	Gen	Indiv	30	21	8	666	1,625
Veterans Admin. Hospital†	TB	Vet	355	342	..	..	342
San Francisco, 634,536—San Francisco							
Children's Hospital†	Gen	NPAssen	250	185	60	2,276	7,792
Chinese Hospital	Gen	NPAssen	64	56	9	763	2,047
Doctors Hospital	Gen	Corp	60	42	2	7	3,124
Franklin Hospital†	Gen	NPAssen	250	217	16	499	7,077
French Hospital†	Gen	NPAssen	225	182	18	586	6,764
Greens' Eye Hospital†	ENT	Part	35	18	..	..	953
Hahnemann Hospital†	Gen	NPAssen	79	67	..	..	2,998
Laguna Honda Home.....	InstGen	CyCo	905	872	..	..	935
Langley Porter Clinic Hosp.†	Ment	State	79	62	..	..	245
Letterman General Hosp.†	Gen	Army	2,185	1,419	26	787	10,828
Mary's Help Hospital†	Gen	Church	172	155	55	1,671	8,135
Mount Zion Hospital†	Gen	NPAssen	163	133	30	999	5,725
Napa Sanitarium	N&M	Corp	34	23	..	..	1,327
St. Elizabeth's Infant Hosp.	MatCh	Church	86	32	10	136	180
St. Francis Hospital†	Gen	NPAssen	300	238	49	1,779	12,280
St. Joseph's Hospital†	Gen	Church	238	185	45	1,659	7,573
St. Luke's Hospital†	Gen	Church	229	176	25	800	7,688
St. Mary's Hospital†	Gen	Church	371	306	60	2,905	11,153
San Francisco Hospital†	Gen	CyCo	1,366	1,003	50	1,431	20,762
San Francisco Polyclinic.....	Gen	NPAssen	21	16	..	..	634
San Francisco Psychopathic Hospital	Unit of	San Francisco Hospital					
Shriners Hospital for Crippled Children†	Orth	NPAssen	60	57	..	..	262
Southern Pacific General Hospital†	Indus	NPAssen	450	436	..	..	7,406
Stanford University Hospital†	Gen	NPAssen	358	301	52	2,322	11,508
U. S. Marine Hospital†	GenTb	USPHS	548	418	..	..	5,661
University of California Hospital†	Gen	State	256	212	30	859	7,891
Veterans Admin. Hospital†	Gen	Vet	396	311	..	..	3,512
Sanger, 4,017—Fresno							
Sanger Hospital	Gen	Corp	17	11	6	152	476
Sanitarium, 600—Napa							
St. Helena Sanitarium and Hospital†	Gen	Church	135	105	8	252	3,575
San Jose, 68,457—Santa Clara							
Alum Rock Sanatorium	TB	NPAssen	67	60	..	..	275
O'Conner Hospital†	Gen	Church	125	165	38	1,502	6,442
San Jose Hospital†	Gen	NPAssen	185	143	50	2,479	8,449
Santa Clara County Hospital†	GenTb	County	435	365	30	646	5,803
Santa Clara County Sanat.†	Unit of	Santa Clara County Hospital					

CALIFORNIA—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Basinets	Number of Births	Admissions †
San Leandro, 14,601—Alameda							
Fairmont Hospital of Alameda County		See Oakland					
San Luis Obispo, 8,881—San Luis Obispo							
Casa Loma Sanatorium	Unit of San Luis Obispo General Hospital						
French Clinic and Hospital	Gen	Indiv	38	20	...	1,016	
Mountain View Hospital	Gen	Indiv	28	24	8	545	1,719
San Luis Obispo General Hospital	Gen	Tb County	125	46	12	182	1,677
San Mateo, 19,403—San Mateo							
Community Hospital of San Mateo County	Gen	County	154	112	13	196	2,788
Mills Memorial Hospital	Gen	Church	160	132	31	2,003	8,469
San Pedro, Los Angeles							
San Pedro Community Hosp.	Gen	NPAasn	110	...	26	Reorganized	
San Quentin, 328—Marin							
Charles L. Neumiller Hosp.	Inst	State	160	113	...	...	1,634
San Rafael, 8,573—Marin							
Marin County Hospital	Chr	County	45	No data supplied			
San Rafael General Hospital	Gen	Indiv	50	33	17	619	2,516
Santa Barbara, 31,938—Santa Barbara							
St. Francis Hospital	Gen	Church	91	69	10	597	3,306
Santa Barbara Cottage Hospital	Gen	NPAasn	210	156	28	703	6,581
Santa Barbara General Hospital	Gen	County	261	230	...	...	1,708
Santa Cruz, 16,890—Santa Cruz							
Santa Cruz County Hospital	Gen	County	173	137	7	72	1,267
Santa Cruz Hospital	Gen	Corp	49	30	17	373	2,138
Sisters Hospital	Gen	Church	28	25	7	369	1,380
Santa Maria, 8,322—Santa Barbara							
Our Lady of Perpetual Help Hospital	Gen	Church	48	38	14	694	2,100
Santa Monica, 53,500—Los Angeles							
St. John's Hospital	Gen	Church	108	102	40	2,300	5,934
Santa Monica Hospital	Gen	Church	178	145	28	1,788	9,214
Santa Rosa, 12,605—Sonoma							
Eliza Tanner Hospital	Gen	Part	20	15	...	...	1,121
Sonoma County Hospital	Gen	Tb County	477	404	20	546	3,283
Scotia, 2,200—Humboldt							
Scotia Hospital	Gen	NPAasn	45	23	5	363	1,814
Sebastopol, 1,856—Sonoma							
Palm Drive Hospital	Gen	Part	50	15	10	218	1,023
Selma, 3,607—Fresno							
Selma Sanatorium	Gen	Corp	33	30	10	384	2,724
Sonoma, 1,158—Sonoma							
Sonoma Valley Hospital	Gen	NPAasn	23	13	4	124	612
Sonoma District							
Sonoma, 2,257—Tulume							
Sonoma Hospital	Gen	Indiv	20	15	5	154	776
Tulume County Hospital	Inst	Gen	41	27	3	26	496
South Pasadena, 14,356—Los Angeles							
Pasadena Sanatorium	N&M	Indiv	76	57	...	...	481
South San Francisco, 6,629—San Mateo							
South San Francisco Hosp.	Gen	Corp	36	17	10	176	895
Spadra, 275—Los Angeles							
Pacific Colony	MeDe	State	1,950	1,800	...	...	559
Springville, 605—Tulare							
Tulare-Kings Counties Joint Tuberculosis Hospital	TB	Counties	127	118	...	...	130
Stockton, 54,714—San Joaquin							
Dameron Hospital	Gen	NPAasn	82	55	16	98	1,460
St. Joseph's Hospital	Gen	Church	125	109	22	1,610	5,582
Stockton State Hospital	Meat	State	4,011	4,232	...	...	2,635
Susanyville, 1,575—Lassen							
Riverside Hospital	Gen	Part	18	12	4	120	985
Tahoe, 350—Mendocino							
Mendocino State Hospital	Meat	State	3,003	2,814	...	...	744
Tehachapi, 1,294—Kern							
Tehachapi Valley Hospital	Gen	Indiv	10	12	7	97	562
Torrance, 9,950—Los Angeles							
Harbor General Hospital	Gen	County	577	453	14	775	5,743
Jared Sidney Torrance Memorial Hospital	Gen	NPAasn	42	39	20	914	2,380
Tracy, 4,056—San Joaquin							
Tracy Community Memorial Hospital	Gen	NPAasn	42	...	12	Estab.	1948
Troy, 773—San Bernardino							
Troy Hospital	Gen	NPAasn	24	14	4	90	663
Tulare, 8,250—Tulare							
East Tulare Hospital	Mat	Indiv	12	8	12	651	717
Tulare County General Hosp.	Gen	County	103	61	10	475	3,629
Tulare Hospital	Gen	Indiv	21	14	2	12	1,513
Turlock, 4,830—Stanislaus							
Emanuel Hospital	Gen	Church	50	42	14	591	2,292
Lillian Collins Hospital	Gen	Indiv	40	23	12	233	1,121
Ukiah, 3,731—Mendocino							
Ukiah General Hospital	Gen	Part	20	12	6	287	1,003
Upland, 6,316—San Bernardino							
San Antonio Community Hospital	Gen	NPAasn	74	53	20	948	3,783
Vallejo, 20,072—Solano							
U. S. Naval Hospital	See Mare Island						
Vallejo General Hospital	Gen	Corp	60	47	15	1,146	3,740
Van Nuys, Los Angeles							
Valley Hospital	Gen	Corp	40	31	10	461	2,175
Veterans Admin. Hospital	Gen	Vet	1,489	1,276	...	...	7,061
Ventura, 13,261—Ventura							
Bard Memorial Hospital	Unit of Ventura County Hospital						
Foster Memorial Hospital	Gen	NPAasn	51	43	12	508	2,521
Ventura County Hospital	Gen	Tb County	314	215	14	369	5,400

CALIFORNIA—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Basinets	Number of Births	Admissions †
Veterans Home, 1,866—Napa							
Veterans Home Hospital	Inst	State	263	226	...	...	1,210
Visalia, 8,001—Tulare							
Visalia Municipal Hospital	Gen	City	46	39	15	717	2,471
Watsonville, 8,937—Santa Cruz							
Watsonville Hospital	Gen	Corp	73	41	18	620	2,667
Weimar, 125—Placer							
Weimar John Sanatorium	TB	County	569	312	...	...	596
West Los Angeles, Los Angeles							
Veterans Admin. Center	See Los Angeles						
Westwood, 5,000—Lassen							
Westwood Hospital	Gen	NPAasn	49	11	5	145	1,021
Willits, 1,025—Mendocino							
Frank R. Howard Memorial Hospital	Gen	NPAasn	25	15	5	213	1,105
Woodlake, 1,146—Tulare							
Sequoia Hospital	Gen	Part	9	2	4	137	430
Woodland, 6,637—Yolo							
Woodland Clinic Hospital	Gen	Part	74	55	12	511	2,770
Yolo General Hospital	Gen	County	72	69	5	259	1,749
Yosemite National Park, 590—Mariposa							
Lewis Memorial Hospital	Gen	Indiv	12	5	3	25	467
Yreka, 2,455—Siskiyou							
Siskiyou County General Hospital	Gen	County	140	101	14	278	1,837
Yuba City, 4,96—Sutter							
Sutter County Hospital	Gen	County	41	26	4	131	1,141
Yuba City General Hospital	Gen	Indiv	25	8	3	195	922
Related Institutions							
Artesia, 3,891—Los Angeles							
Pioneer Sanatorium	MeDe	Indiv	53	50	...	...	43
Avalon, 1,637—Los Angeles							
Santa Catalina Hospital	Gen	Indiv	9	5	3	54	274
Baldwin Park, 16,000—Los Angeles							
Sierra Lodge Sanatorium	N&M	Indiv	62	56	...	...	120
Belmont, 1,220—San Mateo							
Charles S. Howard Foundation	Card	Corp	26	15	...	...	61
Chino, 4,294—San Bernardino							
Hospital of the California Institution for Men	Inst	State	22	15	...	...	609
Chula Vista, 5,138—San Diego							
Guest House	N&M	Indiv	42	21	...	...	492
Vista Hill Sanatorium	N&M	Indiv	16	10	...	...	374
Claremont, 3,057—Los Angeles							
Claremont Colleges Infirmary	Inst	NPAasn	24	1	...	...	308
Duarte, 2,000—Los Angeles							
Santa Teresa Sanatorium	TB	Church	126	112	...	...	244
Eureka, 17,055—Humboldt							
Humboldt County Isolation Hospital	Iso	County	16	5	...	...	189
La Crescenta, 3,000—Los Angeles							
Kimball Sanatorium	N&M	Part	35	28	...	...	184
Lakeport, 1,000—Lake							
Lake County General Hosp.	Inst	Gen	23	18	6	120	540
Long Beach, 164,271—Los Angeles							
California Sanatorium	Conv	Indiv	50	42	...	...	100
Los Angeles, 1,501,277—Los Angeles							
Booth Memorial Hospital	Mat	Church	15	10	28	195	240
Chase Diet Sanatorium	Conv	Part	23	21	...	...	52
Florence Crittenton Home	Mat	NPAasn	44	23	6	65	78
Mont St. John of God Sault	Conv	Church	33	31	...	...	62
Resthaven	N&M	NPAasn	45	39	...	...	272
St. Anne's Maternity Hosp.	Mat	Church	40	8	20	181	227
Twentieth Century Sanatorium	N&M	Indiv	51	51	...	...	36
Monrovia, 12,897—Los Angeles							
Murphyknoll Sanatorium	TB	Church	45	13	...	...	57
National City, 10,344—San Diego							
Hillcrest Manor Sanatorium	N&M	Indiv	50	45	...	...	38
Oakland, 302,163—Alameda							
Booth Memorial Hospital	Mat	Church	15	8	38	208	263
Pacifica, Los Angeles							
Independent Order of Foresters Tuberculosis Sanatorium	TB	NPAasn	50	35	...	...	59
Rosemead, 5,500—Los Angeles							
Rosemead Lodge Sanatorium	N&M	Indiv	50	23	...	...	234
Ross, 1,751—Marin							
Cedars Development School	MeDe	Corp	75	67	...	...	14
San Diego, 203,341—San Diego							
Children's Convalescent Hosp.	Conv	NPAasn	45	...	...	Estab.	1948
Fraser Hall Hospital	Conv	Indiv	25	22	...	...	297
San Francisco, 634,530—San Francisco							
Garden Hospital	Chr	NPAasn	97	96	...	...	44
San Gabriel, 11,867—Los Angeles							
Mission Lodge Sanatorium	N&M	Part	68	68	...	...	28
Monterey Sanatorium	N&M	Part	61	61	...	...	180
San Marino Sanatorium	N&M	Part	75	59	...	...	105
San Mateo, 19,403—San Mateo							
San Mateo Preventorium	TB	NPAasn	28	18	...	...	20
Santa Monica, 53,500—Los Angeles							
Loomis Convalescent Hospital and Rest Home	Unit of Santa Monica Hospital						
Sonoma, 2,257—Tulume							
Columbia Way Hospital	Gen	Indiv	24	3	10	117	1,094
Stanford University, 720—Santa Clara							
Stanford Convalescent Home	Chil	NPAasn	80	68	...	...	112
Sunland, Los Angeles							
Sunland Sanatorium	Conv	Corp	50	25	...	...	228

COLORADO

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Basinsets	Number of Births	Admissions †
Akron, 1,417—Washington Victory Hospital	Gen	County	15	9	5	119	954
Alamosa, 5,013—Alamosa Alamosa Community Hosp...	Gen	Church	51	39	21	510	3,880
Boulder, 12,953—Boulder Boulder-Colorado Sanitarium and Hospital*AO	Gen	Church	101	62	10	536	2,520
Community Hospital*A	Gen	NPAasn	50	39	14	391	2,217
County of Boulder General Hospital	Gen	County	44	32	4	16	483
Brush, 2,451—Morgan Eben-Ezer Hospital	Gen	Church	33	25	12	309	1,701
Burlington, 1,280—Kit Carson Kit Carson County Public Hospital	Gen	County	25	10	5	33	374
Camp Carson, —El Paso Station Hospital	Gen	Army	100	37	7	223	1,419
Canon City, 6,600—Freimont Colorado Hospital	Gen	Indiv	28	16	4	51	653
Colorado State Penitentiary Hospital	Just	State	40	No data supplied			
St. Thomas More Hospital	Gen	Church	44	31	6	150	1,311
Cheyenne Wells, 695—Cheyenne St. Joseph Hospital	Gen	Church	29	12	6	66	521
Climax, 500—Lake Climax Molybdenum Company Hospital	Indus	NPAasn	10	3	..	..	360
Collbran, 501—Mesa Platteau Valley Congregational Hospital	Gen	Church	13	6	4	44	300
Colorado Springs, 36,789—El Paso Colorado Springs Psychopathic Hospital	N&M	Part	150	149	..	..	415
Glockner-Penrose Hosp.*+AO	GenTb	Church	210	173	25	635	4,655
Moncklin Hospital*AO	Gen	Islo City	127	73	21	498	3,718
St. Francis Hospital and Sanatorium*AO	GenTb	Church	175	150	16	403	3,625
Union Printers Home and Tuberculosis Sanatorium	GenTb	NPAasn	455	195	..	..	178
Cortez, 1,778—Montezuma Southwest Memorial Hospital Gen	NPAasn		35	..	11	Estab.	1948
Cripple Creek, 2,335—Teller Cripple Creek Hospital	Gen	NPAasn	25	4	6	36	316
Del Norte, 1,923—Rio Grande St. Joseph's Hospital	Gen	Church	45	35	11	204	1,683
Delta, 3,717—Delta Delta Memorial Hospital	Gen	NPAasn	16	11	3	99	490
Denver, 322,412—Denver Bethesda Sanatorium	TB	Church	48	30	..	..	34
Beth Israel Hospital*AO	Gen	NPAasn	55	48	10	212	2,394
Childrens Hospital*AO	Chil	NPAasn	195	153	15	..	10,394
Colorado General Hosp.*+AO	Gen	State	270	201	20	822	4,913
Colorado Psychopathic Hospital*AO	Ment	State	78	89	..	..	1,032
Denver General Hospital*+AO	GenTb	CyCo	580	410	36	494	10,585
Ex-Patients' Tubercular Home	TB	NPAasn	50	40	..	..	25
Fitzsimons General Hosp.*+A	Gen	Army	2,095	1,835	25	734	15,510
Mercy Hospital*AO	Gen	Church	266	242	47	1,660	15,303
Mount Airy Sanitarium*AO	N&M	Part	70	64	..	..	1,409
National Jewish Hospital*AO	TB	NPAasn	235	233	..	..	283
Porter Sanitarium and Hospital*AO	Gen	Church	130	129	25	968	5,430
Presbyterian Hospital*+AO	Gen	Church	160	175	30	1,745	7,339
Robert W. Speer Memorial Hospital for Children	Unit of	Denver General Hospital					
St. Anthony Hospital*AO	Gen	Church	220	209	40	1,823	9,351
St. Joseph's Hospital*+AO	Gen	Church	270	237	60	2,616	10,817
St. Luke's Hospital*+AO	Gen	Church	271	259	50	2,154	11,144
Station Hospital	Gen	USAF	368	99	..	..	3,303
Steele Memorial Hospital	Unit of	Denver General Hospital					
University of Denver Hosp.	Inst	NPAasn	25	9	..	..	458
Durango, 5,887—La Plata La Plata County Hospital	Gen	County	24	20	6	59	839
Mercy Hospital*AO	Gen	Church	63	55	12	395	4,609
Edgewater (Denver P.O.), 1,648—Jefferson Sands House	TB	NPAasn	44	10	..	..	56
Englewood, 9,680—Arapahoe Federal Correctional Inst.	Inst	USPHS	25	2	..	..	75
Swedish National Sanatorium	TB	NPAasn	72	63	..	..	105
Estes Park, 994—Larimer Estes Park Hospital	Gen	Indiv	8	1	3	42	167
Flagler, 506—Kit Carson Flagler Hospital	Gen	Indiv	12	6	6	82	357
Fort Collins, 12,251—Larimer Larimer County Hospital*AO	Gen	County	76	63	21	915	3,950
Fort Logan, Arapahoe Veterans Admin. Hospital*+A. ..	Gen	Vet	300	272	..	..	3,417
Fort Lyon, 1,180—Bent Veterans Admin. Hospital*+A. ..	Ment	Vet	918	806	..	..	437
Fort Morgan, 4,884—Morgan Fort Morgan Hospital	Gen	Indiv	25	17	8	153	735
Fruita, 1,466—Mesa Fruita Community Hospital Gen	NPAasn		14	7	5	76	458
Glenwood Springs, 2,233—Garfield Dr. Porter's Hospital	Gen	Part	19	12	7	133	679
Grand Junction, 12,479—Mesa St. Mary's Hospital*AO	Gen	Church	77	82	15	691	3,128
Greeley, 15,995—Weld Weld County Public Hosp.*A. ..	Gen	County	107	81	25	956	4,573
Hayden, 640—Routt Solandt Memorial Hospital	Gen	NPAasn	16	13	7	147	537
Holyoke, 1,150—Phillips Holyoke Hospital	Gen	Indiv	11	5	5	76	355

COLORADO—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Basinsets	Number of Births	Admissions †
Ignacio, 555—La Plata Edward T. Taylor Indian Hospital	Gen	IA	21	10	4	23	251
Julesburg, 1,619—Sedgwick Community Hospital	Gen	NPAasn	12	8	6	102	396
La Junta, 7,040—Otero Atchison, Topeka and Santa Fe Railroad Hospital*AO	Indus	NPAasn	36	12	..	..	445
Mennonite Hospital and Sanitarium*AO	Gen	Church	103	83	22	650	3,032
Lakewood (Denver P.O.), 2,000—Jefferson Craig Colony	TB	NPAasn	42	34	..	..	40
Lamar, 4,445—Prowers Sacred Heart Hospital	Gen	Church	34	25	12	545	1,633
Leadville, 4,774—Lake St. Vincent's Hospital	Gen	Church	40	20	10	205	815
Longmont, 7,406—Boulder	Gen	Corp	40	23	10	251	1,267
M ..	Gen	NPAasn	26	14	7	64	612
Hospital	Gen	Church	30	23	10	271	1,464
Montrose, 4,764—Montrose St. Luke's Hospital	Gen	Indiv	24	18	10	234	851
Oak Creek, 1,769—Routt Oak Creek Hospital	Gen	Indiv	13	5	3	77	319
Ouray, 951—Ouray San Juan Miners Hospital	Gen	NPAasn	16	6	5	54	235
Pueblo, 52,162—Pueblo Colorado State Hospital*+AO ..	Ment	State	5,035	4,798	..	..	1,089
Corwin Hospital*+AO	Gen	Church	206	170	22	936	6,176
Parkview Episcopal Hosp.*A. ..	Gen	NPAasn	100	67	22	550	2,478
St. Mary Hospital*AO	Gen	Church	146	110	28	667	4,198
Woodcroft Hospital*AO	N&M	Corp	102	73	..	..	288
Rocky Ford, 3,494—Otero Physicians Hospital	Gen	NPAasn	10	9	5	135	480
Salida, 4,969—Chaffee Denver and Rio Grande Western Hospital*AO	Gen	NPAasn	85	60	8	181	2,400
Spivak, 350—Jefferson Sanatorium of the Jewish Consumptives' Relief Society*+A ..	TB	NPAasn	250	201	..	..	118
Sterling, 7,411—Logan Good Samaritan Hospital	Gen	Church	32	25	9	187	1,494
St. Benedict Hospital	Gen	Church	32	25	14	323	1,804
Trinidad, 13,223—Las Animas Mount San Rafael Hosp.*AO ..	Gen	Church	70	41	12	486	1,976
Walsenburg, 5,855—Huerfano Lamme Hospital	Gen	Indiv	20	11	5	104	561
Whent Ridge, 3,500—Jefferson Lutheran Sanatorium*AO	TB	NPAasn	110	87	..	..	62
Wray, 2,061—Yuma Wray Community Hospital	Gen	Corp	16	2	8	161	755

Related Institutions

Aspen, 777—Pitkin Pitkin County Public Hosp...	Gen	County	16	4	4	22	143
Boulder, 12,958—Boulder Mesa Vista Sanatorium	TB	Part	49	36	..	...	53
Colorado Springs, 36,789—El Paso Cragmor Sanatorium	TB	NPAasn	150	65	..	...	102
Denver, 322,412—Denver Booth Memorial Hospital	Mat	Church	8	4	18	107	129
Florence Crittenton Home and Hospital	Mat	NPAasn	77	8	9	177	195
St. Francis Sanatorium	TB	Church	21	19	..	...	49
Englewood, 9,680—Arapahoe Costello Home	TB	NPAasn	14	6	..	...	11
Temple Rest Home	Conv	Indiv	23	23	..	...	48
Golden, 3,175—Jefferson Hospital—State Industrial School for Boys	Inst	State	25	4	..	...	183
Grand Junction, 12,479—Mesa State Home and Training School for Mental Defectives	MeDe	State	500	473	..	...	85
Gunnison, 2,177—Gunnison Gunnison Community Hosp.	Gen	Part	18	9	6	170	500
Homelake, 225—Rio Grande Colorado State Soldiers and Sailors Home	Inst	State	35	10	..	...	30
Ridge, 100—Jefferson State Home and Training School for Mental Defectives	MeDe	State	345	340	..	...	11

CONNECTICUT

Hospitals and Sanatoriums

Bridgeport, 147,121—Fairfield Bridgeport Hospital*+AO	Gen	NPAasn	409	319	74	2,634	12,025
Englewood Hospital	City	150	23	..	..	..	246
Park City Hospital	Gen	NPAasn	55	3	..	..	1,115
St. Vincent's Hospital*AO	Gen	Church	245	258	75	2,655	11,587
Bristol, 30,167—Hartford Bristol Hospital	Gen	NPAasn	120	106	30	958	5,012
Canaan, 555—Litchfield Robert C. Geer Memorial Hospital	Gen	NPAasn	32	21	7	99	862
Cromwell, 3,251—Middlesex Cromwell Hall	Nerv	Corp	33	17	..	..	60

Key to symbols and abbreviations is on page 37

CONNECTICUT—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Basinets	Number of Births	Admissions †
Danbury, 22,339—Fairfield							
Danbury Hospital*AO	Gen	NPAasn	180	132	24	930	5,300
Federal Correctional Institution	Inst	USPHS	33	22	..	...	501
Derby, 10,287—New Haven							
Griffin Hospital*	Gen	NPAasn	92	70	20	1,031	3,622
Greens Farms, 275—Fairfield							
Hall-Brooke Sanitarium	N&M	Corp	60	52	..	...	108
Greenwich, 6,000—Fairfield							
Blythewood	N&M	Corp	70	55	..	...	224
Greenwich Hospital*AO	Gen	NPAasn	128	110	23	614	4,077
St. Luke's Convalescent Hospital	Conv	NPAasn	110	75	..	...	842
Hartford, 166,267—Hartford							
Avery Convalescent Hospital	Unit of Hartford Hospital						
Cedarcrest Sanatorium*	TH	State	243	239	..	...	198
Hartford Hospital*AO	Gen	NPAasn	604	559	150	5,580	25,110
Institute of Living (Neuro-Psychiatric Institute of the Hartford Retreat)*A	N&M	NPAasn	400	400	..	...	837
J. J. McCook Memorial Hospital*AO	GenIso	City	281	190	6	95	4,158
Mount Sinai Hospital*	Gen	NPAasn	55	41	..	...	2,017
St. Francis Hospital*AO	Gen	Church	550	441	107	2,505	18,021
Kent, 1,245—Litchfield							
Kent School Infirmary	Inst	NPAasn	27	3	..	...	122
Lakeville, 1,800—Litchfield							
Hotchkiss School Infirmary	Inst	NPAasn	30	15	..	...	810
Manchester, 23,700—Hartford							
Manchester Memorial Hosp.*	Gen	NPAasn	164	121	19	591	4,459
Meriden, 39,494—New Haven							
Meriden Hospital*AO	Gen	NPAasn	146	122	30	1,242	5,377
Underhill Sanatorium*	TH	State	313	207	..	...	179
Middletown, 26,495—Middlesex							
Connecticut State Hosp.*AO	Ment	State	2,090	3,022	..	...	939
Middlesex Hospital*AO	Gen	NPAasn	150	107	30	1,101	4,595
Millford, 16,439—New Haven							
Millford Hospital	Gen	NPAasn	53	36	15	428	1,575
New Britain, 68,685—Hartford							
New Britain General Hospital*AO	Gen	NPAasn	257	205	38	1,944	7,377
New Canaan, 6,221—Fairfield							
Silver Hill Foundation*	N&M	NPAasn	46	35	..	...	252
New Haven, 160,605—New Haven							
Grace-New Haven Community Hospital							
Grace Unit*AO	Gen	NPAasn	230	154	40	1,800	6,632
New Haven Unit*AO	Gen	NPAasn	534	426	57	1,877	11,336
Hospital of St. Raphael*AO	Gen	Church	370	347	60	2,461	11,838
Newington, 5,449—Hartford							
Newington Home and Hospital for Crippled Children*AO	Orth	NPAasn	175	142	..	...	271
Veterans Admin. Hospital*	Gen	Vet	352	285	..	...	4,928
New London, 36,156—New London							
Lawrence and Memorial Associated Hospitals*AO	Gen	NPAasn	218	176	51	1,877	6,910
Dr. Lenn's Surgical Hospital	Surg	Indiv	26	16	..	...	561
U. S. Coast Guard Academy	Gen	USPHS	35	11	..	...	331
Newtown, 603—Fairfield							
Newtown Hospital*AO	Gen	NPAasn	26	17	0	173	767
Fairfield State Hospital*AO	Ment	State	2,556	2,497	..	...	901
Norwalk, 38,849—Fairfield							
Norwalk Hospital*AO	Gen	NPAasn	237	181	44	1,372	7,962
Norwich, 23,652—New London							
Norwich State Hospital*AO	Ment	State	2,670	2,670	..	...	855
Norwich State Tuberculosis	sp.	TB	422	350	..	...	232
Elmhurst Manor	N&M	Indiv	42	41	..	...	225
Laurel Heights State Tuberculosis Sanatorium*AO	TB	State	274	254	..	...	181
Southbury, 1,100—New Haven							
Southbury Training School	MeDe	State	1,500	1,355	..	...	144
Southington, 5,088—Hartford							
Bradley Memorial Hospital	Gen	NPAasn	50	30	8	310	1,531
Stafford Springs, 3,401—Tolland							
Cyril and Julia C. Johnson Memorial Hospital*	Gen	NPAasn	50	36	12	277	1,307
Stamford, 47,938—Fairfield							
Dr. Barnes Sanitarium	N&M	Corp	50	30	..	...	70
St. Joseph Hospital*	Gen	Church	90	79	30	978	3,635
Stamford Hall	N&M	Corp	175	171	..	...	925
Stamford Hospital*AO	Gen	NPAasn	217	166	27	810	7,199
Stamford Hospital*AO	Gen	NPAasn	133	98	27	819	4,083
St. Mary's Hospital*AO	Gen	Church	324	250	57	1,628	9,873
Waterbury Hospital*AO	Gen	NPAasn	316	242	68	1,825	12,773
Waterford, 100—New London							
The Seaside	TbOrth	State	145	119	..	...	35
Westport, 8,268—Fairfield							
Westport Sanitarium	N&M	Corp	50	63	..	...	239

Key to symbols and abbreviations is on page 37

CONNECTICUT—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Basinets	Number of Births	Admissions †
Willimantic, 12,161—Windham							
Windham Community Memorial Hospital*	Gen	NPAasn	96	65	22	570	3,323
Winsted, 7,674—Litchfield							
Litchfield County Hospital*	Gen	NPAasn	71	47	16	250	1,730
Related Institutions							
Bridgeport, 147,121—Fairfield							
Hillside Home and Hospital	Chr	City	275	254	..	...	403
East Lyme, 3,338—New London							
Ida Thompson Hospital	Unit of Connecticut State Farm for Women, Niantic						
Greenwich, 6,000—Fairfield							
Nathaniel Witherell Hospital	Chr	City	72	45	..	...	103
Mansfield Depot, 300—Tolland							
Mansfield State Training School and Hospital	MeDe	State	1,231	1,202	..	...	75
Meriden, 39,494—New Haven							
Connecticut School for Boys	Inst	State	37	5	..	...	200
New Haven, 160,605—New Haven							
Jewish Home for the Aged	Inst	NPAasn	87	83	..	...	32
Yale Infirmary	Inst	NPAasn	40	13	..	...	1,249
Niantic, 1,312—New London							
Connecticut State Farm for Women	Inst	State	213	57	6	20	134
Rocky Hill, 2,670—Hartford							
State of Connecticut Veterans' Home and Hospital	Inst	State	300	1-6	..	...	2,358
Stamford, 47,938—Fairfield							
Wyndover Hospital	Conv	Corp	75	..	..	...	Estab. 1918
Waterbury, 59,314—New Haven							
Connecticut Children's Hosp.	MeDe	NPAasn	127	121	..	...	65
West Hartford, 33,776—Hartford							
St. Agnes Home	Inst	Church	140	50	6	..	99
West Suffield, 700—Hartford							
Travelers Rest Home	Conv	NPAasn	40	12	..	...	69
Wethersfield, 9,644—Hartford							
Connecticut State Prison Hospital	Inst	State	50	14	..	...	202

DELAWARE

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Basinets	Number of Births	Admissions †
Dover, 5,517—Kent							
Kent General Hospital*	Gen	NPAasn	60	46	10	452	2,415
Farmhurst, 500—New Castle							
Delaware State Hospital*AO	Ment	State	1,259	1,226	..	...	293
Lewes, 2,246—Sussex							
Hebe Hospital*AO	Gen	NPAasn	160	56	17	326	2,312
Marshallton, 1,500—New Castle							
Brandywine Sanatorium	TB	State	120	114	..	...	123
Edgewood Sanatorium	TB	State	68	49	..	...	71
Millford, 4,214—Sussex							
Millford Memorial Hospital*AO	Gen	NPAasn	100	67	20	778	2,449
Smyrna, 1,570—Kent							
Delaware State Welfare Home Hospital	InstChr	StateCo	378	566	7	2	314
Wilmington, 112,501—New Castle							
Alfred I. du Pont Institute of the Nemours Foundation*	OrthChll	NPAasn	85	60	..	...	184
Delaware Hospital*AO	Gen	NPAasn	276	260	64	1,763	9,839
Doris Memorial Hospital	Unit of Wilmington General Hospital						
Gross Private Hospital	Gen	Corp	15	7	6	65	320
Memorial Hospital*AO	Gen	NPAasn	210	152	38	1,145	5,532
St. Francis Hospital*AO	Gen	Church	115	76	30	488	2,991
Veterans Admin. Hospital	Gen	Vet	150	140	..	...	1,407
Wilmington General Hosp.*AO	Gen	NPAasn	172	122	52	1,628	5,132
Related Institutions							
Marshallton, 1,500—New Castle							
Sunnybrook Cottage Prevention	TbChll	NPAasn	24	18	..	...	14
Stockley, 68—Sussex							
Delaware Colony	MeDe	State	507	470	..	...	21

DISTRICT OF COLUMBIA

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Basinets	Number of Births	Admissions †
Children's Hospital*AO	Chll	NPAasn	222	151	..	...	7,709
Columbia Hospital for Women and Lying-In Asylum*	MatGyn	NPAasn	125	98	96	3,816	5,724
Doctors Hospital*	Gen	Corp	240	208	61	1,571	8,839
Eastern Dispensary and Out-patient Hospital*	Gen	NPAasn	135	87	..	...	3,784
Episcopal Eye, Ear and Throat Hospital*	ENT	Church	100	66	..	...	6,819
Freedmen's Hospital*AO	GenTb	Fed	592	404	50	1,511	6,939
Gallagher Municipal Hosp.*AO	Gen	City	1,416	1,021	129	4,746	22,566
Garfield Memorial Hosp.*AO	Gen	NPAasn	323	222	103	2,905	10,251
Georgetown University Hospital*AO	Gen	Church	328	195	48	1,611	8,274

DISTRICT OF COLUMBIA—Continued								
Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Basinets	Number of Births	Admissions †	
George Washington University Hospital**	Gen	NPAssn	400	191	72	988	3,941	
National Homeopathic Hosp.▲	Gen	NPAssn	62	34	23	560	2,051	
Providence Hospital**	Gen	Church	340	214	69	2,875	11,331	
Saint Elizabeths Hosp.**	Ment	Gen Fed	6,400	6,314	11	5	1,406	
Sibley Memorial Hosp.**	Gen	Church	265	206	85	3,682	11,881	
Station Hospital.....	Gen	USAF	175	80	23	533	3,718	
Tuberculosis Sanatorium**								
(Glenn Dale Sanatorium, Glenn Dale, Md., P.O.).....	TB	City	618	552	..	..	562	
U. S. Soldiers' Home Hosp.▲	Inst	Fed	379	342	..	..	1,386	
Veterans Admin. Hospital**	Gen	Vet	335	278	..	..	3,490	
Walter Reed General Hospital**	Gen	Army	2,100	2,163	33	917	10,478	
Washington Sanitarium and Hospital**	Gen	Church	188	183	29	906	4,237	
Related Institutions								
Washington, 796,000								
District Training School (Laurel, Md., P.O.).....	McDe	City	672	621	..	..	58	
Florence Crittenton Home.....	Mat	NPAssn	56	9	28	147	144	
Home for the Aged and Infirm.....	Inst	City	600	447	..	..	202	
Kendall House Sanitarium.....	Conv	Indiv	22	13	..	..	15	
National Training School for Boys Hospital.....	Inst	Fed	30	10	..	..	525	
Washington Home for Incurables.....	Incur	NPAssn	174	174	..	..	37	

FLORIDA									
Hospitals and Sanatoriums									
Apalachicola, 3,268—Franklin Franklin County Hospital...	Gen	County	13	...	5	Estab.	1948		
Arcadia, 4,655—De Soto Florida State Hospital No. 2	Ment	State	900	883	..	...	302		
Avon Park, 3,125—Highlands Walker Memorial Sanitarium and Hospital	Gen	NPAssn	80	...	5	Estab.	1948		
Bartow, 6,158—Polk Bartow General Hospital.....	Gen	City	30	15	12	300	1,422		
Polk County Hospital.....	Gen	County	57	44	6	21	957		
Bay Pines,—Pinellas Veterans Admin. Center▲.....	Gen	Vet	440	409	..	...	3,108		
Bradenton, 7,444—Manatee Bradenton General Hospital..	Gen	Part	27	20	8	187	907		
Century, 2,600—Escambia Turberville Hospital▲	Gen	NPAssn	36	24	5	205	1,349		
Chattahoochee, 7,110—Gadsden Florida State Hospital▲.....	Ment	State	5,638	5,267	..	...	2,195		
Clearwater, 10,136—Pinellas Morton F. Plant Hospital▲.....	Gen	NPAssn	75	51	15	427	2,506		
Clewiston, 1,338—Hendry Sugarland Hospital	Gen	Corp	18	7	6	108	474		
Coral Gables, 8,291—Dade Coral Gables Hospital.....	Gen	Indiv	51	40	18	575	2,408		
Veterans Admin. Hospital+.....	Gen	Vet	350	370	..	...	4,295		
Dade City, 2,561—Pasco Jackson Memorial Hospital..	Gen	County	24	9	8	220	1,364		
Daytona Beach, 22,554—Volusia Halifax District Hospital▲.....	Gen	NPAssn	143	85	35	654	3,873		
De Funiak Springs, 2,570—Walton Lakeside Hospital	Gen	Part	40	8	10	280	536		
De Land, 7,041—Volusia De Land Memorial Hospital..	Gen	NPAssn	41	22	11	274	1,853		
Dunedin, 1,758—Pinellas Mease Hospital	Gen	NPAssn	25	13	4	102	1,529		
Eglin Field,—Okaloosa Station Hospital	Gen	USAF	150	100	28	439	4,140		
Eustis, 2,930—Lake Lake County Medical Center	Gen	NPAssn	77	30	12	297	1,939		
Fort Lauderdale, 17,996—Broward Broward General Hospital.....	Gen	City	142	89	38	794	4,325		
Fort Myers, 10,604—Lee Jones-Walker Hospital	Unit of Lee Memorial Hospital								
Lee Memorial Hospital.....	Gen	NPAssn	40	31	12	476	1,857		
Fort Pierce, 6,940—St. Lucie Fort Pierce Memorial Hospital..	Gen	NPAssn	53	39	15	436	1,445		
Fort Walton, 1,080—Okaloosa H. C. White Clinic Hospital..	Gen	Indiv	10	4	4	60	638		
Gainesville, 13,757—Alachua Alachua County Hospital▲.....	Gen	County	116	111	30	960	4,120		
University of Florida In- firmary	Inst	State	75	11	..	...	982		
Hollywood, 6,239—Broward Hollywood Hospital	Gen	Corp	30	17	8	139	1,238		
Homestead, 3,154—Dade James Archer Smith Hospital	Gen	NPAssn	18	10	8	158	688		
Jacksonville, 173,005—Duval Brewster Hospital▲	Gen	Church	130	65	35	1,064	2,585		
Duval Medical Center★+▲.....	Gen	County	225	166	15	758	4,762		
Hope Haven Hospital+.....	OrthChil	NPAssn	100	50	..	...	377		
Negro Tuberculosis Hospital TB	Gen	CyCo	48	32	..	...	59		
Riverside Hospital+▲.....	Gen	NPAssn	50	44	12	181	1,910		
St. Luke's Hospital★+▲.....	Gen	NPAssn	180	153	30	1,705	7,597		
St. Vincent's Hospital★+▲.....	Gen	Church	228	168	62	2,511	9,695		
U. S. Naval Air Station Dis- pensary	Gen	Navy	87	20	..	...	2,223		
U. S. Naval Hospital★+▲.....	Gen	Navy	500	385	40	697	5,253		

FLORIDA—Continued							
Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Basinets	Number of Births	Admissions †
Key West, 12,927—Monroe							
Monroe County Hospital.....	Gen	County	56	19	17	177	1,154
U. S. Naval Hospital.....	Gen	Navy	150	128	18	350	2,287
Kissimmee, 3,225—Osceola							
Osceola Hospital.....	Gen	Indiv	56	28	10	180	1,200
Lake City, 5,836—Columbia							
Lake Shore Hospital.....	Gen	City	62	38	24	556	2,004
Veterans Admin. Hospital▲...	Gen	Vet	378	328	..	...	3,222
Lakeland, 22,068—Polk							
Morrell Memorial Hospital▲...	Gen	City	115	77	22	686	3,461
Lake Wales, 5,024—Polk							
Lake Wales Hospital▲.....	Gen	NPAssn	50	19	18	197	774
Leesburg, 4,687—Lake							
Durham Young Hospital and							
Clinic.....	Gen	Indiv	28	13	10	175	874
Stevens Clinic and Hospital...	Gen	Indiv	18	8	6	63	319
Live Oak, 3,427—Suwannee							
Suwannee County Hospital...	Gen	NPAssn	37	...	14	Estab.	1948
Manatee, 3,595—Manatee							
Riverside Hospital.....	Gen	Indiv	20	8	3	24	300
Marianna, 5,079—Jackson							
Jackson Hospital.....	Gen	NPAssn	62	39	18	333	2,341
Northwest Florida State Sana-							
torium.....	TB	State	206	176	..	...	274
Melbourne, 2,622—Brevard							
Brevard Hospital.....	Gen	NPAssn	30	6	5	95	497
Florida Rapid Treatment							
Center.....	Ven	State	300	238	20	3	9,029
Miami, 172,172—Dade							
Biscayne Hospital.....	Gen	Corp	40	14	16	132	857
Christian Hospital.....	Gen	NPAssn	30	15	15	551	870
Dade County Hospital▲.....	Gen	Tb County	174	117	16	655	3,612
Jackson Memorial Hosp.**▲	Gen	County	533	422	60	3,067	17,904
Miami Medical Center.....	N&M	Indiv	35	26	..	...	540
Miami Retreat Sanatorium...	N&M	NPAssn	85	47	..	...	1,490
Miami Riverside Hospital.....	Gen	Corp	44	30	10	100	860
National Children's Cardiac							
Home.....	Card	NPAssn	62	35	..	...	66
Sun-Ray Park Health Resort Conv		Corp	75	43	..	...	791
Victoria Hospital.....	Gen	Indiv	59	38	22	873	3,704
Miami Beach, 28,012—Dade							
Alton Road Hospital.....	Gen	NPAssn	50	41	..	...	2,003
St. Francis Hospital▲.....	Gen	Church	175	109	40	740	4,389
Miami Springs, 898—Dade							
Miami-Battle Creek Sanit....	Gen	NPAssn	95	32	..	...	484
Ocala, 8,986—Marion							
Munroe Memorial Hospital... Gen	Gen	CyCo	74	48	15	518	3,048
Opa Locka, 1,855—Dade							
North Dade Hospital.....	Gen	NPAssn	250	60	20	408	1,520
Orlando, 36,736—Orange							
Florida Sanitarium and Hos-							
pital	Gen	Church	115	117	25	421	3,695
Florida State Tuberculosis							
Sanatorium▲	TB	State	380	351	..	...	319
Orange Memorial Hospital▲	Gen	NPAssn	212	177	28	1,241	7,411
Page and Fowler Private							
Hospital.....	ENT	Part	10	6	..	...	756
Station Hospital▲.....	Gen	USAF	50	23	10	153	1,216
Palatka, 7,140—Putnam							
Glendale Hospital.....	Gen	Indiv	25	No data supplied			
Mary Lawson Sanatorium....	Gen	Indiv	50	9	11	122	417
Panama City, 11,610—Bay							
Fraser Clinic Hospital.....	Gen	Indiv	10	3	5	135	235
Likensby Hospital.....	Gen	Indiv	31	15	10	223	975
Panama City Hospital.....	Gen	NPAssn	22	15	12	460	1,427
Station Hospital.....	Gen	Army	50	25	10	271	1,886
Pensacola, 37,449—Escambia							
Escambia General Hospital..	Gen	County	78	...	..	Estab.	1948
Pensacola Maternity Hospital Mat	Gen	NPAssn	33	18	28	1,111	1,254
Sacred Heart Hospital▲.....	Gen	Church	175	119	30	697	6,850
U. S. Naval Hospital**▲.....	Gen	Navy	350	241	24	666	4,120
Plant City, 7,491—Hillsborough							
Dr. T. C. Maguire's Hosp....	Gen	Indiv	15	8	9	231	478
Meriwether Hospital.....	Gen	Indiv	13	3	4	343	1,045
Port St. Joe, 2,393—Gulf							
Municipal Hospital.....	Gen	City	30	22	10	203	1,079
Punta Gorda, 1,889—Charlotte							
Charlotte Hospital.....	Gen	NPAssn	24	14	6	20	307
Quincy, 3,888—Gadsden							
Gadsden County Hospital...	Gen	NPAssn	30	23	6	296	1,433
Rockledge, 725—Brevard							
Eugene Wuesthoff Memorial							
Hospital.....	Gen	NPAssn	30	8	8	108	514
St. Augustine, 12,690—St. Johns							
East Coast Hospital▲.....	Gen	NPAssn	55	43	5	194	1,724
Flagler Hospital▲.....	Gen	NPAssn	65	47	16	360	2,331
St. Petersburg, 60,512—Pinellas							
American Legion Hospital for							
Crippled Children.....	Orth	NPAssn	35	30	..	...	460
Mound Park Hospital▲.....	Gen	City	150	141	25	661	5,355
St. Anthony's Hospital▲.....	Gen	Church	138	106	30	534	4,064
Sanford, 10,217—Seminole							
Fernald-Laughton Memorial							
Hospital.....	Gen	NPAssn	60	24	15	377	1,357
Sarasota, 11,141—Sarasota							
Joseph Halton Hospital.....	Gen	Indiv	10	6	2	6	475
Sarasota Hospital.....	Gen	City	50	48	17	444	2,083
Sebring, 3,153—Highlands							
Sebring General Hospital...	Gen	Indiv	25	9	7	61	720
Weems Hospital.....	Gen	Indiv	22	13	6	119	874
Starke, 2,130—Bradford							
Shadycrest Hospital.....	Gen	Corp	50	14	10	264	806

FLORIDA—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Basshuts	Number of Births	Admissions †
Stuart, 2,438—Martin							
Martin County Hospital.....	Gen	NPAasn	30	10	8	113	522
Tallahassee, 16,240—Leon							
Federal Correctional Institution.....	Inst	USPHS	30	10	..	...	249
Forsyth Memorial Sanitarium and Hospital.....	Gen	Church	43	11	10	55	683
Tallahassee Memorial Hosp....	Gen	City	100	38	26	244	1,007
Tampa, 108,391—Hillsborough							
Centro Asturiano Hospital....	Gen	NPAasn	80	72	16	341	2,639
Clara Frye Tampa Municipal							
Negro Hospital.....	Gen	City	66	52	6	156	1,088
Hillsborough County Home and Hospital.....	GenInst	County	254	194	12	309	4,605
St. Joseph's Hospital.....	Gen	Church	111	97	30	1,352	5,804
Southwest Florida State Tuberculosis Sanatorium.....	TB	State	650	350	..	...	623
Station Hospital.....	Gen	USAF	609	106	27	526	2,667
Tampa Municipal Hospital*+o	Gen	City	295	228	44	1,427	12,026
Tarpon Springs, 3,402—Pinellas							
Tarpon Springs Municipal Hospital.....	Gen	City	14	7	10	66	260
Umatilla, 1,149—Lake							
Harry Anna Crippled Children's Home.....	Orth	NPAasn	75	65	..	...	66
Valparaiso, 221—Okaloosa							
Bay Hospital.....	Gen	Indiv	13	5	6	90	759
Vero Beach, 3,050—Indian River							
Indian River Hospital.....	Gen	NPAasn	30	14	12	181	850
Wauchula, 2,710—Hardee							
Palmetto Medical Clinic-Hosp.	Gen	Part	17	...	5	Estab. 1948	
West Palm Beach, 33,693—Palm Beach							
Good Samaritan Hospital*+o...	Gen	NPAasn	124	79	24	533	4,209
St. Mary's Hospital.....	Gen	Church	100	72	25	592	2,921
Winter Haven, 6,199—Polk							
Winter Haven Hospital.....	Gen	NPAasn	62	35	18	392	2,187

Related Institutions

Fernandina, 3,492—Nassau							
Nassau County Hospital.....	Gen	County	30	11	9	163	505
Fort Lauderdale, 17,996—Broward							
Provident Hospital.....	Gen	NPAasn	42	30	5	132	580
Gainesville, 13,757—Alachua							
Florida Farm Colony.....	McDe	State	550	415	..	...	67
Gulfport, 2,443—Pinellas							
Cedars Hospital.....	Gen	Indiv	36	20	..	...	346
Largo, 1,031—Pinellas							
Pinellas County Home and Hospital.....	Chr	County	85	55	..	...	60
MeIntosh, 397—Marion							
Strange's Hospital.....	Gen	Indiv	17	6	7	43	240
Miami, 172,172—Dade							
Edgewater Hospital.....	Gen	Corp	41	20	12	450	1,525
Orlando, 36,736—Orange							
Holiday House Sanitarium... Conv	Part		21	14	..	...	50
Pinellas							
ome... Conv	Indiv		36	24	..	...	120
ome... Mat	NPAasn		18	17	11	53	53
nd Me-							
chanical College Hospital*+o	Gen	State	56	22	38	79	943
Wauchula, 2,710—Hardee							
Wauchula Infirmary.....	Gen	Indiv	20	12	5	180	500

GEORGIA

Hospitals and Sanatoriums

Albany, 19,055—Dougherty							
Phoebe Putney Memorial Hospital.....	Gen	CyCo	133	75	23	591	4,621
Alto, 217—Habersham							
Alto Medical Center*+a.....	Ven	State	727	390	4	7	14,323
Americus, 9,281—Sumter							
Americus and Sumter County Hospital.....	Gen	NPAasn	40	37	10	332	1,763
Athens, 20,650—Clarke							
Athens General Hospital.....	Gen	County	84	55	14	385	2,870
St. Mary's Hospital.....	Gen	Church	102	76	10	758	4,217
Atlanta, 302,288—Fulton							
Albert Steiner Clinic for Cancer and Allied Diseases*+o.....	Unit of Grady Memorial Hospital		25	24	..	...	930
Blackman-Walton Sanatorium							
Contagious Disease Hospital. Unit of Grady Memorial Hospital							
Crawford W. Long Memorial Hospital*+a.....	Gen	NPAasn	349	279	120	5,083	17,129
Georgia Baptist Hosp.*+a.....	Gen	Church	191	103	20	770	7,000
Grady Memorial Hosp.*+a.....	Gen	Counties	610	450	90	4,722	17,490
Henrietta Eggleston Hospital for Children*+a.....	ChilOrth	NPAasn	40	32	..	...	1,180
Jesse Parker Williams Hosp. Gen			69	40	..	...	1,397
Joseph B. Whitehead Memorial Hospital.....	Inst	State	29	5	..	...	491
Piedmont Hospital*+a.....	Gen	NPAasn	132	129	18	1,168	6,872
Ponce de Leon Ear, Nose and Throat Infirmary.....	ENT	Indiv	26	21	..	...	2,574
St. Joseph's Infirmary*+a.....	Gen	Church	139	115	28	1,359	6,675
Station Hospital.....	Gen	Army	200	70	9	302	2,949
U. S. Penitentiary Hospital.....	Inst	USPHS	132	53	..	...	900
Veterans Admin. Hospital.....	TB	Vet	225	103	..	...	772

GEORGIA—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Basshuts	Number of Births	Admissions †
William A. Harris Memorial Hospital.....	Gen	Corp	28	29	2	70	700
Augusta, 65,919—Richmond							
Oliver General Hosp.*+a.....	Gen	Army	1,500	1,237	15	240	8,250
University Hospital*+o.....	Gen	City	608	373	49	2,569	15,311
Veterans Admin. Hospital*+a	Gen	Vet	1,225	1,256	..	...	1,062
Willenford Hospital.....	Unit of University Hospital						
Bainbridge, 6,352—Decatur							
Bainbridge Hospital.....	Gen	Part	32	16	6	138	980
Riverside Hospital.....	Gen	Part	32	17	6	170	950
Wakely, 2,774—Early							
S. P. Holland Hospital.....	Gen	Indiv	19	No data supplied			
Wall Hospital.....	Gen	Indiv	16	4	6	57	269
Blue Ridge, 1,362—Fannin							
Burdine Hospital.....	Gen	Part	12	8	4	246	394
Bowdon, 1,021—Carroll							
Jubal Watts Memorial Hosp. Gen		Indiv	26	19	6	142	1,934
Brunswick, 15,035—Glynn							
City Hospital.....	Gen	CyCo	100	35	20	550	2,784
Buchanan, 501—Harrison							
Harrison County Hospital... Gen		NPAasn	20	6	10	41	270
... Hospital Gen		Corp	29	...	9	Estab. 1945	
Montgomery Hospital.....	Gen	Indiv	22	11	5	115	754
Cairo, 4,653—Grady							
Grady County Hospital.....	Gen	County	22	9	6	235	800
Calhoun, 2,955—Gordon							
Johnston-Hall Hospital.....	Gen	Indiv	26	13	3	471	1,102
Canton, 2,651—Cherokee							
Cokers' Hospital.....	Gen	Indiv	50	30	6	326	1,091
Cartersville, 4,141—Bartow							
Wofford-Stanford Hospital .. Gen		Part	12	4	3	127	431
Cedartown, 9,025—Polk							
Polk General Hospital.....	Gen	NPAasn	33	17	12	522	2,326
Chamblee, 1,041—De Kalb							
Veterans Admin. Hospital*+a	Gen	Vet	572	549	..	...	6,451
... Gen		City	500	188	36	2,054	9,560
Patterson Hospital.....	Gen	Part	48	No data supplied			
Dallas, 1,922—Paulding							
Matthews Hospital.....	Gen	Indiv	14	10	6	200	600
Dalton, 10,448—Whitfield							
Hamilton Memorial Hospital Gen		NPAasn	52	42	15	971	3,494
Decatur, 16,501—De Kalb							
Scottish Rite Hospital for Crippled Children*+a.....	Orth	NPAasn	64	49	..	...	328
Douglasville, 1,718—Seminole							
Douglasville Hospital.....	Gen	Part	30	16	6	197	1,358
Douglas, 3,175—Coffee							
Douglas Hospital.....	Gen	City	30	No data supplied			
Dublin, 7,814—Laurens							
Claxton Sanitarium.....	Gen	Indiv	65	45	12	329	2,223
Columbus Hospital.....	Gen	Indiv	45	26	6	255	1,709
Veterans Admin. Hospital... Gen		Vet	200	...	...	Estab. 1945	
Eastman, 3,311—Dodge							
Coleman Memorial Hospital.....	Gen	Part	18	8	5	78	727
Elberton, 6,188—Elbert							
Elbert County Hospital.....	Gen	CyCo	18	12	6	191	974
Emory University, 250—De Kalb							
Emory University Hosp.*+a.....	Gen	NPAasn	277	239	36	1,658	9,555
Folkston, 1,021—Charlton							
McCoy-Jackson Hospital.....	Gen	Part	11	4	4	104	390
Fort Benning, Chattahoochee Station Hospital.....	Gen	Army	600	282	22	921	8,002
Gainesville, 10,243—Hall							
Downey Hospital.....	Gen	Corp	52	34	13	356	2,310
Hall County Memorial Hosp. Gen		County	36	10	10	176	1,144
Griffin, 13,232—Spalding							
R. P. Strickland and Son Memorial Hospital.....	Gen	CyCo	42	35	8	657	2,713
Habers, 850—Lowndes							
Smith Hospital.....	Gen	Indiv	37	23	10	218	1,591
Irwinville, 3,000—Polanski							
R. J. Taylor Memorial Hosp. Gen		NPAasn	26	4	7	189	1,417
Jasper, 576—Plemons							
Roper Hospital.....	Gen	Indiv	40	15	8	276	1,133
Jesup, 2,903—Wayne							
Ritch-Leaphart Hospital Gen		Part	52	36	13	452	2,376
La Grange, 21,083—Propp							
City-County Hospital.....	Gen	CyCo	96	69	16	854	5,897
Louisville, 1,897—Jefferson							
Jefferson Hospital.....	Gen	Corp	55	20	6	250	1,700
Lyons, 1,900—Toombs							
Aiken Hospital.....	Gen	Indiv	16	7	6	146	679
Marion, 57,855—Wilkes							
Clinic Hospital.....	Gen	CyCo	40	27	6	204	1,352
Marion Hospital*+o.....	Gen	Church	264	210	40	2,107	10,638
Marey Hospital.....	Gen	Church	25	21	30	476	1,788
Middle Georgia Hospital*+o.....	Gen	Corp	50	40	10	277	2,654
St. Luke Hospital.....	Gen	NPAasn	32	8	5	71	452
Marietta, 8,607—Cobb							
Marietta Hospital.....	Gen	Corp	52	40	22	681	2,920
Metter, 1,824—Candler							
Kennedy Memorial Hospital... Gen		Indiv	20	16	6	115	1,038
Milledgeville, 6,778—Baldwin							
Allen's Invalid Home.....	N&M	Indiv	131	120	..	...	474
Milledgeville State Hosp.....	Ment	State	9,421	9,367	..	...	2,451
Richard Binton Clinic Hosp... Gen		Indiv	60	24	15	250	1,156
Scott Hospital.....	Gen	Indiv	25	25	6	97	755
Millen, 2,820—Jenkins							
Millen Hospital.....	Gen	Indiv	24	11	8	66	643
Mulkey Hospital.....	Gen	Part	35	17	10	221	1,148

GEORGIA—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Basinsets	Number of Births	Admis- sions †
Monroe, 4,168—Walton							
Walton County Hospital.....	Gen	County	38	15	11	425	1,416
Montezuma, 2,346—Macon							
Macon County Clinic Hospital Gen	Part		31	12	6	65	700
Riverside Sanatorium.....	Gen	Indiv	35	18	8	110	897
Moultrie, 10,147—Colquitt							
Vereen Memorial Hospital....	Gen	NPAssn	58	31	14	544	2,508
Nashville, 2,440—Berrien							
Askew Memorial Hospital....	Gen	Indiv	16	6	6	146	731
Ocilla, 2,124—Irwin							
Ocilla Hospital	Gen	Part	29	11	5	250	1,250
Peiham, 2,570—Mitchell							
Howard-Pirke Hospital	Gen	Part	20	8	6	71	591
Quitman, 4,450—Brooks							
Brooks County Hospital.....	Gen	CyCo	40	30	10	347	1,388
Reidsville, 805—Tattnall							
Jelks Hospital	Gen	Indiv	13	8	2	128	525
Rome, 26,282—Floyd							
Battley State HospitalA.....	TB	State	2,200	1,234	..	..	1,149
Floyd HospitalA.....	Gen	County	110	48	25	726	4,744
McCall HospitalA.....	Gen	Corp	63	45	24	778	3,611
Royston, 1,540—Franklin							
Brown's Hospital	Gen	Indiv	20	7	3	60	600
Sandersville, 3,566—Washington							
Rawlings SanatoriumA.....	Gen	NPA+sn	50	40	10	258	1,661
Savannah, 65,066—Chatham							
Central of Georgia Railway							
HospitalA.....	Indus	NPAssn	65	53	..	..	2,704
Charity Hospital	Gen	NPAssn	100	42	19	512	2,761
Georgia Infirmary	Gen	NPAssn	95	43	12	342	2,209
Oglethorpe Sanatorium	Gen	Corp	50	40	10	75	1,888
St. Joseph's HospitalA.....	Gen	Church	124	92	26	726	4,022
Telfair Hospital	Gen	NPAssn	89	65	38	781	3,849
U. S. Marine HospitalA.....	Gen	USPHS	180	144	..	..	3,551
Warren A. Candler Hosp.A.....	Gen	Church	127	88	23	813	5,748
Smyrna, 1,340—Cobb							
Brawner's Sanitarium	N&M	Indiv	45	35	..	..	1,314
Statesboro, 5,028—Bulloch							
Bulloch County Hospital.....	Gen	County	74	44	12	478	2,815
Thomasville, 12,683—Thomas							
John D. Archbold Memorial							
HospitalA.....	Gen	NPAssn	100	91	15	447	4,652
Tifton, 5,228—Tift							
Tift County Hospital.....	Gen	County	44	27	12	586	2,165
Toccoa, 5,494—Stephens							
Stephens County Hospital... Gen	NPAssn		42	32	10	842	2,448
Trion, 3,800—Chattooga							
Riegel Community Hospital.. Gen	NPAssn		30	25	8	325	1,742
Valdosta, 15,595—Lowndes							
Little-Griffin Hospital	Gen	NPAssn	100	51	18	680	3,237
Vidalia, 4,109—Toombs							
Gross-Mercer Hospital	Gen	Corp	17	3	7	..	553
Vienna, 2,063—Dooly							
Dooly Hospital	Gen	Corp	17	9	5	90	1,592
Warm Springs, 608—Meriwether							
Georgia Warm Springs Founda- tionA.....	Orth	NPAssn	165	158	..	..	857
Warner Robins, 4,000—Houston							
Station Hospital	Gen	USAF	25	6	..	..	218
Washington, 3,537—Wilkes							
Washington General Hospital Gen	City		50	40	10	331	2,080
Waycross, 16,763—Ware							
Atlantic Coast Line Hosp.A.. Indus	NPAssn		75	42	..	..	1,346
Ware County Hospital.....	Gen	County	85	56	15	732	4,300
West Point, 3,591—Troup							
Valley Hospital	Gen	City	28	21	7	314	2,597
Woodbine, 373—Camden							
Atkinson Memorial Hospital Gen	Indiv		10	2	4	29	125
Related Institutions							
Athens, 20,650—Clarke							
Gilbert Memorial Infirmary... Inst	State		35	2	..	..	708
Atlanta, 302,288—Fulton							
Aldmore Children's Conva- lescent Hospital	Orth	NPAssn	78	63	..	..	499
Dwelle's Infirmary	Gen	Indiv	20	10	3	25	300
Florence Crittenton Home... Mat	NPAssn		6	2	12	56	63
Our Lady of Perpetual Help							
Free Cancer Home.....	Cancer	Church	80	55	..	..	263
Barwick, 400—Brooks							
Barwick Hospital	Gen	Indiv	6	2	4	91	313
Chamblee, 1,081—De Kalb							
Chamblee Hospital	Gen	Indiv	8	3	4	164	363
Clayton, 1,088—Rabun							
Rabun County Maternity Hos- pital	Mat	County	12	5	15	327	324
Columbus, 53,280—Muscooke							
Muscooke County Tuberculosis Hospital	TB	County	45	39	..	..	58
Cordale, 7,920—Crisp							
Gillespie Hospital	Gen	Church	25	10	8	28	576
Cornelia, 1,808—Habersham							
Arrendale Hospital	Gen	Indiv	15	..	6	Estab.	1948
Gracewood, 500—Richmond							
Georgia Training School for Mental Defectives	MeDe	State	580	569	..	..	95
Stone Mountain, 1,408—De Kalb							
Brook Haven Manor Sani- tarium	N&M	Indiv	37	26	..	..	160

IDAHO

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Basinsets	Number of Births	Admis- sions †
American Falls, 1,430—Power							
Schiltz Memorial Hospital....	Gen	County	23	10	8	164	619
Blackfoot, 3,681—Bingham							
State Hospital South.....	Ment	State	750	650	..	..	215
Boise, 20,130—Ada							
St. Alphonsus HospitalA.....	Gen	Church	144	118	27	1,037	5,519
St. Luke's HospitalA.....	Gen	Church	135	105	28	779	4,323
Veterans Admhn. HospitalA... Gen	Vet		263	199	..	..	3,143
Bonnars Ferry, 1,345—Boundary							
Boundary County Hospital.. Gen	County		22	17	9	135	1,700
Burley, 5,329—Cassia							
Cottage Hospital	Gen	Corp	28	15	8	194	1,118
Caldwell, 7,272—Canyon							
Caldwell Sanitarium	Gen	Part	20	16	7	191	927
Coeur d'Alene, 10,049—Kootenai							
Lake City General Hospital.. Gen	Indiv		36	24	14	313	1,456
Cottonwood, 673—Idaho							
Our Lady of Consolation Hos- pital	Gen	Church	35	23	10	199	944
Council, 692—Adams							
Community Hospital	Gen	NPAssn	25	17	8	149	899
Gooding, 2,568—Gooding							
Idaho State Tuberculosis Hos- pital	TB	State	50	40	..	..	40
Grangeville, 1,929—Idaho							
General Hospital	Gen	City	25	14	6	144	539
Hailey, 1,443—Blaine							
Hailey Clinical Hospital.....	Gen	Indiv	20	13	6	93	614
Idaho Falls, 15,024—Bonnevill							
Idaho Falls Latter-Day Saints' HospitalA.....	Gen	Church	116	87	40	995	5,152
Sacred Heart HospitalA.....	Gen	Church	28	25	7	73	1,072
Kellogg, 4,235—Shoshone							
Wardner Hospital	Gen	Part	35	33	8	208	1,610
Lewiston, 10,548—Nez Perce							
St. Joseph's HospitalA.....	Gen	Church	120	88	18	763	3,708
Malad City, 2,781—Oneida							
Oneida Hospital	Gen	NPAssn	17	6	7	124	442
Moscow, 6,014—Latah							
Gritman Memorial Hospital.. Gen	Corp		58	37	22	503	1,971
Nampa, 12,149—Canyon							
Mercy HospitalA.....	Gen	Church	96	74	24	666	3,350
Samaritan HospitalA.....	Gen	Church	50	48	14	233	2,188
Orofino, 1,002—Clearwater							
Orofino Hospital	Gen	Part	25	8	4	75	445
State Hospital North.....	Ment	State	461	431	..	..	96
Pocatello, 18,133—Bannock							
Pocatello General HospitalA Gen	County		76	52	22	509	2,241
St. Anthony's Mercy Hosp.A Gen	Church		100	73	25	920	4,453
Preston, 4,236—Franklin							
General Memorial Hospital... Gen	NPAssn		17	10	8	237	467
Rexburg, 3,437—Madison							
Harlo B. Rigby Hospital.....	Gen	Indiv	15	7	6	95	420
Rupert, 3,167—Minidoka							
Rupert General Hospital.....	Gen	Indiv	11	5	4	55	425
St. Maries, 2,234—Benewah							
St. Maries Hospital.....	Gen	NPAssn	25	10	4	86	565
Sandpoint, 4,356—Bonner							
Community Hospital	Gen	NPAssn	25	25	8	272	776
Soda Springs, 1,087—Caribou							
Caribou County Hospital....	Gen	County	34	18	11	191	956
Sun Valley, 300—Blaine							
Sun Valley Hospital.....	Gen	Indiv	11	5	2	30	450
Twin Falls, 11,851—Twin Falls							
Twin Falls County General Hospital	Gen	County	82	64	28	1,246	3,600
Wallace, 3,639—Shoshone							
Providence HospitalA.....	Gen	Church	50	44	12	242	2,556
Wallace Hospital	Gen	Part	40	18	8	177	989
Wendell, 1,001—Gooding							
St. Valentine's Hospital.....	Gen	Church	31	19	12	642	1,850
Related Institutions							
Boise, 26,130—Ada							
Booth Memorial Hospital....	Mat	Church	27	15	14	61	91
Idaho State Elks' Convalescent							
Home for Children.....	Orth	NPAssn	90	68	..	..	216
Nampa, 12,149—Canyon							
State School and Colony.....	MeDe	State	700	670	..	..	87
Priest River, 1,056—Bonner							
Priest River Hospital.....	Gen	Indiv	10	3	..	..	76
ILLINOIS							
Hospitals and Sanatoriums							
Alton, 31,255—Madison							
Alton Memorial HospitalA+ Gen	Church		130	103	34	1,007	6,257
Alton State HospitalA.....	Ment	State	1,876	1,797	..	..	687
St. Anthony's Infirmary and Sanitarium	Gen	Church	95	78	..	..	885
St. Joseph's HospitalA+.....	Gen	Church	165	125	40	1,025	6,128
Amboy, 1,986—Lee							
Amboy Public Hospital.....	Gen	NPAssn	12	9	5	106	365
Anna, 4,092—Union							
Anna State HospitalA.....	Ment	State	2,416	2,243	..	..	710
Hale-Willard Memorial Hosp. Gen	City		16	7	7	355	676
Aurora, 47,170—Kane							
Copley Memorial HospitalA Gen	NPAssn		200	106	40	721	4,367

ILLINOIS—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Basinets	Number of Births	Admissions †
Kane County Springbrook Sanitarium	TB	County	75	60	..	..	88
Mercyville Sanitarium	N&M	Church	172	165	..	..	488
St. Charles Hospital	Gen	Church	125	92	23	608	3,661
St. Joseph Mercy Hospital	Gen	Church	120	98	30	881	3,011
Avon, 803—Fulton							
Saunders Hospital	Gen	NPAasn	15	12	6	142	263
Batavia, 5,101—Kane							
Fox River Sanitarium	TB	NPAasn	65	48	..	..	92
Beardstown, 6,505—Cass							
Schmitt Memorial Hospital	Gen	City	36	36	8	356	1,928
Belleville, 28,405—St. Clair							
St. Elizabeth's Hospital	Gen	Church	121	130	32	1,216	5,256
Station Hospital	Gen	USAF	250	173	12	363	3,922
Belvidere, 8,094—Boone							
Highland Hospital	Gen	NPAasn	37	30	5	159	1,225
St. Joseph's Hospital	Gen	Church	65	37	17	296	1,937
Benton, 7,372—Franklin							
Moore Hospital	Gen	Indiv	25	12	2	35	415
Berwyn, 48,451—Cook							
MacNeal Memorial Hosp.	Gen	NPAasn	165	133	45	1,798	7,735
Bloomington, 32,863—McLean							
Mennonite Hospital	Gen	Church	102	96	25	954	4,139
St. Joseph's Hospital	Gen	Church	209	162	25	731	4,815
Blue Island, 16,638—Cook							
St. Francis Hospital	Gen	Church	110	98	25	923	4,538
Breese, 2,206—Clinton							
St. Joseph Hospital	Gen	Church	44	27	12	382	1,181
Businell, 2,906—McDonough							
"Elmgrove" McDonough County Tuberculosis Sanatorium ..	TB	County	40	10	..	..	32
Calro, 14,407—Alexander							
Alexander County Tuberculosis Sanatorium	TB	County	56	39	..	..	98
St. Mary's Hospital	Gen	Church	95	67	12	621	3,454
Canton, 11,577—Fulton							
Graham Hospital	Gen	NPAasn	121	85	30	855	4,260
Carbondale, 8,550—Jackson							
Holden Hospital	Gen	Church	72	41	15	538	4,151
Carlinville, 4,963—Macoupin							
Macoupin Hospital	Gen	Indiv	28	21	6	238	1,009
Carrollton, 2,285—Greene							
Boyd Memorial Hospital	Gen	NPAasn	28	20	12	368	1,011
Centralia, 16,313—Marion							
St. Mary's Hospital	Gen	Church	85	71	15	609	3,127
Champaign, 23,302—Champaign							
Burnham City Hospital	Gen	City	115	106	25	901	5,391
Mercy Hospital	See Urbana						
Charleston, 8,197—Coles							
M. A. Montgomery Memorial Sanitarium	Gen	NPAasn	35	20	12	237	1,101
Chester, 5,110—Randolph							
Chester Hospital	Gen	NPAasn	23	13	12	130	600
Chicago, 3,396,808—Cook							
Albert Merritt Billings Hosp. Unit of University of Chicago Clinics							
Alexian Brothers Hosp.	Gen	Church	275	182	..	..	4,821
American Hospital	Gen	NPAasn	175	120	25	676	7,637
Augustana Hospital	Gen	Church	275	261	30	1,013	8,074
Belmont Community Hosp. ..	Gen	NPAasn	110	80	27	856	4,385
Bethany Methodist Hospital ..	Gen	Church	25	17	..	..	867
Bethany Sanitarium and Hospital	Gen	Church	66	61	21	698	2,810
Bobs Roberts Memorial Hospital for Children	Unit of University of Chicago Clinics						
Burrows Hospital	Gen	Indiv	40	13	6	75	398
Chicago Clinic of Physical Medicine	Gen	NPAasn	60	25	..	..	245
Chicago Eye, Ear, Nose and Throat Hospital	ENT	Corp	75	17	..	..	1,164
Chicago Fresh Air Hospital ..	TB	NPAasn	70	46	..	..	164
Chicago Intensive Treatment Center	Gen	City	150	148	..	..	5,061
Chicago Lying-In Hosp.	Unit of University of Chicago Clinics						
Chicago Memorial Hosp.	Gen	NPAasn	92	88	20	456	3,018
Chicago State Hospital	Ment	State	4,917	4,887	..	..	2,388
Children's Memorial Hospital ..	Chil	NPAasn	233	123	..	..	4,553
City of Chicago Municipal Tuberculosis Sanitarium ..	TB	City	1,369	1,300	..	..	1,385
Columbus Hospital	Gen	Church	132	95	18	541	6,625
Cook County Children's Hospital	Unit of Cook County Hospital						
Cook County Hospital	Gen	County	3,200	2,569	225	7,664	80,962
Cook County Psychopathic Hospital	Unit of Cook County Hospital						
Edgewater Hospital	Gen	NPAasn	138	111	28	853	5,160
Englewood Hospital	Gen	NPAasn	157	135	32	1,158	4,469
Evangelical Hospital	Gen	Church	105	168	60	2,244	7,993
Fairview Sanitarium	N&M	Corp	60	43	..	..	970
Frank Cuneo Hospital	Mat	Church	75	48	50	1,614	2,651
Franklin Boulevard Community Hospital	Gen	NPAasn	66	62	..	..	2,972
Garfield Park Community Hospital	Gen	NPAasn	150	103	32	1,319	5,782
Grant Hospital	Gen	NPAasn	230	100	45	1,378	7,098
Henrotin Hospital	Gen	NPAasn	100	79	25	660	5,200
Holy Cross Hospital	Gen	Church	125	103	30	1,920	6,063
Home for Destitute Crippled Children	Unit of University of Chicago Clinics						
Hospital of St. Anthony de Padua	Gen	Church	217	174	38	1,655	7,860
Illinois Central Hospital	Gen	NPAasn	262	212	40	1,036	6,072
Illinois Eye and Ear Infirmary	ENT	State	147	87	..	..	4,221

ILLINOIS—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Basinets	Number of Births	Admissions †
Illinois Masonic Hosp.	Gen	NPAasn	225	176	40	1,171	7,378
Illinois Neuropsychiatric Institute	Ment	State	82	70	..	..	865
Illinois Surgical Institute for Children	Unit of Research and Educational Hosps.						
Jackson Park Hospital	Gen	Corp	135	108	25	759	4,778
La Rabida Jackson Park Sanitarium	CardChil	NPAasn	81	47	..	..	159
Lewis Memorial Maternity Hospital	MatGyn	Church	117	45	100	1,633	2,255
Loretto Hospital	Gen	Church	137	109	31	1,124	5,131
Lutheran Deaconess Home and Hospital	Gen	Church	103	189	42	1,431	8,598
Manor Hospital	Gen	NPAasn	47	31	..	..	1,971
Martha Washington Hospital ..	Gen	NPAasn	75	47	18	363	2,531
Mercy Hospital-Loyola University Clinics	Gen	Church	265	203	47	1,255	9,991
Michael Reese Hospital	Gen	Church	573	461	45	2,460	16,267
Miscordia Hospital and Home for Infants	Mat	Church	58	4	19	161	163
Mother Cabrini Memorial Hospital	Gen	Church	150	90	30	1,166	4,574
Mount Sinai Hospital	Gen	NPAasn	285	224	49	1,290	9,095
Municipal Contagious Disease Hospital	Inf	City	318	52	..	..	1,641
Norwegian-American Hospital	Gen	NPAasn	161	140	50	1,773	6,072
Passavant Memorial Hospital	Gen	NPAasn	275	206	37	1,015	6,529
Pinel Sanitarium	N&M	NPAasn	50	55	..	..	313
Presbyterian Hospital	Gen	NPAasn	435	371	52	1,500	12,374
Provident Hospital	Gen	NPAasn	120	110	25	1,024	5,999
Ravenwood Hospital	Gen	NPAasn	183	133	53	1,641	6,147
Research and Educational Hospital	Gen	State	422	370	27	841	6,721
Roosevelt Memorial Hospital ..	Gen	NPAasn	35	19	..	..	1,917
Roseland Community Hospital	Gen	NPAasn	101	76	24	851	3,747
St. Anne's Hospital	Gen	Church	320	301	60	3,325	19,973
St. Anthony de Padua Hosp. See Hospital of St. Anthony de Padua							
St. Bernard's Hospital	Gen	Church	183	175	42	1,291	6,652
St. Elizabeth Hospital	Gen	Church	275	246	77	2,562	9,912
St. George Hospital	Gen	Church	109	71	..	..	3,125
St. Joseph Hospital	Gen	Church	220	155	50	1,316	6,291
St. Luke's Hospital	Gen	NPAasn	517	473	55	1,419	15,588
St. Mary of Nazareth Hospital	Gen	Church	263	242	60	2,423	9,816
St. Vincent's Infant and Maternity Hospital	MatChil	Church	290	209	40	320	975
Sarah Morris Hospital for Children	Unit of Michael Reese Hospital						
Shriners Hospital for Crippled Children	Orth	NPAasn	60	56	..	..	190
South Chicago Community Hospital	Gen	NPAasn	234	143	40	1,523	6,475
South Shore Hospital	Gen	Corp	100	76	17	784	4,170
Southtown Hospital	Gen	NPAasn	87	64	12	752	3,465
Sveiths Covenant Hosp.	Gen	Church	193	172	65	1,593	6,222
U. S. Marine Hospital	USPHS		306	201	..	..	2,790
University Hospital	Gen	Church	61	69	..	..	596
University of Chicago Clinics	Gen	NPAasn	326	420	134	4,038	12,845
Veterans Rehabilitation Center	Ment	State	29	0	..	..	127
Walther Memorial Hosp.	Gen	Church	175	125	34	1,118	6,292
Wesley Memorial Hosp.	Gen	Church	562	520	51	1,117	15,699
Women and Children's Hospital	Gen	NPAasn	115	92	30	1,051	3,530
Woodlawn Hospital	Gen	NPAasn	115	92	22	617	4,407
Chicago Heights, 22,461—Cook							
St. James Hospital	Gen	Church	100	81	20	861	4,662
Christopher, 3,533—Franklin							
Miners Hospital	Gen	NPAasn	42	30	11	351	1,178
Clinton, 6,331—DeWitt							
John Warner Hospital	Gen	City	45	30	6	212	1,316
Danville, 36,910—Vermilion							
Lake View Hospital	Gen	NPAasn	155	143	25	978	5,916
St. Elizabeth Hospital	Gen	Church	195	133	35	1,120	6,818
Vermilion County Tuberculosis Dispensary and Hospital ..	TB	County	60	45	..	..	42
Veterans Admin. Hospital	Ment	Vet	2,025	1,876	..	..	1,174
Decatur, 69,305—Macon							
Decatur and Macon County Hospital	Gen	NPAasn	246	184	40	1,303	6,455
Macon County Tuberculosis Sanatorium	TB	County	80	76	..	..	103
St. Mary's Hospital	Gen	Church	245	193	35	1,295	7,616
Wabash Employees' Hospital ..	Indus	NPAasn	75	57	..	..	1,731
De Kalb, 9,146—De Kalb							
De Kalb County Tuberculosis Sanatorium	TB	County	33	12	..	..	23
De Kalb Public Hospital	Gen	City	40	38	12	315	1,701
St. Mary's Hospital	Gen	Church	50	38	13	235	1,250
Des Plaines, 9,518—Cook							
Forest Sanitarium	N&M	Indiv	45	24	..	..	188
Dixon, 10,671—Lee							
Dixon Public Hospital	Gen	NPAasn	165	67	22	588	2,600
Dixon State Hospital	McDe	State	4,890	4,563	..	..	516
Downey, —Lake							
Veterans Admin. Hospital	Ment	Vet	2,917	2,020	..	..	1,779
Dunning, —Cook							
Chicago State Hospital	See Chicago						

ILLINOIS—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Basinets	Number of Births	Admissions †
Du Quoin, 7,515—Perry							
Marshall Browning Hospital.. Gen	NPAssn		58	40	14	473	1,862
Dwight, 2,489—Livingston							
Veterans Admin. Hospital.. Gen	Vet		220	188	..	..	2,331
East Moline, 12,350—Rock Island							
East Moline State Hospital.. Ment	State		2,323	2,173	..	..	838
East St. Louis, 75,609—St. Clair							
Christian Welfare Hosp.†.. Gen	NPAssn		150	118	75	1,242	5,711
Pleasant View Sanatorium†.. TB	County		100	90	..	..	114
St. Mary's Hospital†.. Gen	Church		265	225	30	1,175	6,720
Edwardsville, 8,008—Madison							
Madison County Tuberculosis Sanatorium†.. TB	County		90	73	..	..	118
	Gen	Church	120	104	15	864	4,605
Ferrell Hospital	Gen	Part	48	28	16	343	1,172
Elgin, 38,333—Kane							
Elgin State Hospital†.. Ment	State		5,426	5,524	..	..	2,014
Resthaven Sanitarium..... N&M	Indiv		85	74	..	..	131
St. Joseph Hospital..... Gen	Church		150	118	30	887	4,951
Sherman Hospital†.. Gen	NPAssn		125	127	30	777	5,279
Elmhurst, 15,455—Du Page							
Memorial Hospital†.. Gen	NPAssn		176	132	35	1,394	6,676
Evansville, 65,330—Cook							
Community Hospital..... Gen	NPAssn		28	14	7	106	745
Evansville Hospital†.. Gen	NPAssn		250	214	46	1,482	8,040
St. Francis Hospital†.. Gen	Church		359	285	79	2,137	11,282
Evergreen Park, 3,313—Cook							
Little Company of Mary Hospital†.. Gen	Church		200	187	65	2,981	10,205
Fairbury, 2,300—Livingston							
Fairbury Hospital..... Gen	NPAssn		37	22	16	330	1,400
Fort Sheridan, —Lake							
Station Hospital†.. Gen	Army		100	56	16	315	2,300
Freeport, 22,600—Stephenson							
Deaconess Hospital†.. Gen	NPAssn		97	70	25	590	2,625
St. Francis Hospital†.. Gen	Church		156	113	20	357	3,794
Galesburg, 28,876—Knox							
Galesburg Cottage Hosp.†.. Gen	NPAssn		113	90	22	612	4,224
St. Mary's Hospital..... Gen	Church		106	81	20	514	2,910
Geneseo, 3,844—Henry							
J. C. Hammond City Hosp.†.. Gen	City		29	21	8	276	975
Geneva, 4,101—Kane							
Community Hospital†.. Gen	NPAssn		73	52	20	301	2,644
Granite City, 22,974—Madison							
St. Elizabeth Hospital†.. Gen	Church		125	93	25	1,015	4,166
Great Lakes, —Lake							
U. S. Naval Hospital†.. Gen	Navy		1,100	802	34	591	9,639
Harrisburg, 11,453—Saline							
Harrisburg Hospital..... Gen	Corp		50	10	5	63	375
Lightner Hospital..... Gen	Corp		32	27	12	359	1,976
Harvard, 3,121—McHenry							
Harvard Community Hosp... Gen	NPAssn		25	8	10	207	659
Harvey, 17,878—Cook							
Ingalls Memorial Hospital†.. Gen	NPAssn		112	69	30	1,091	4,385
Herrin, 9,352—Williamson							
Herrin Hospital..... Gen	NPAssn		83	71	24	731	2,785
Highland, 3,820—Madison							
St. Joseph's Hospital..... Gen	Church		70	70	14	621	2,563
Highland Park, 14,476—Lake							
Highland Park Hospital†.. Gen	NPAssn		51	35	20	340	1,960
Hillshoro, 4,544—Montgomery							
Hillshoro Hospital..... Gen	NPAssn		46	38	10	296	1,322
Hines, —Cook							
Veterans Admin. Hospital†.. Gen	Vet		3,253	2,672	..	..	23,682
Hinsdale, 7,326—Du Page							
Hinsdale Sanitarium and Hospital†.. Gen	Church		125	107	15	483	3,417
Jacksonville, 19,844—Morgan							
Jacksonville State Hosp.†.. Ment	State		3,327	3,310	..	..	1,054
Norbury Sanatorium†.. N&M	Corp		100	80	..	..	213
"Oaklawn" Morgan County Tuberculosis Sanatorium... TB	County		40	26	..	..	61
Our Saviour's Hospital†.. Gen	Church		83	63	15	420	2,484
Passavant Memorial Hosp.†.. Gen	Church		70	63	12	360	2,543
Joliet, 42,365—Will							
Illinois State Penitentiary							
Hospital	Inst	State	153	75	..	..	2,650
St. Joseph's Hospital†.. Gen	Church		202	269	45	1,504	8,806
Silver Cross Hospital†.. Gen	NPAssn		170	120	30	885	4,592
Will County Tuberculosis Sanatorium	TB	County	98	70	..	..	80
Kankakee, 22,241—Kankakee							
Kankakee State Hospital†.. Ment	State		4,677	4,250	..	..	1,609
St. Mary's Hospital†.. Gen	Church		186	148	42	1,405	6,464
Kewanee, 16,901—Henry							
Kewanee Public Hospital†.. Gen	NPAssn		53	48	11	271	1,743
St. Francis Hospital†.. Gen	Church		100	72	18	472	2,203
Lake Forest, 6,885—Lake							
Lake Forest Hospital†.. Gen	NPAssn		44	36	10	200	1,457
La Salle, 12,812—La Salle							
St. Mary's Hospital†.. Gen	Church		90	75	18	447	2,366
Libertyville, 3,930—Lake							
Condell Memorial Hospital... Gen	NPAssn		25	14	10	210	1,093
Magnus Rest Home..... N&M	Corp		20	12	..	..	30
Lincoln, 12,752—Logan							
Evangelical Deaconess Hosp.. Gen	Church		75	44	14	317	1,917
Lincoln State School and Colony†	MeDe	State	4,855	4,534	..	..	439
St. Clara's Hospital..... Gen	Church		60	53	6	238	2,364
Litchfield, 7,048—Montgomery							
St. Francis Hospital..... Gen	Church		165	129	18	657	4,650

ILLINOIS—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Basinets	Number of Births	Admissions †
Mackinaw, 845—Tazewell							
Oak Knoll Sanatorium..... TB	County		45	30	..	..	30
Macomb, 8,764—McDonough							
Phelps Hospital..... Gen	NPAssn		43	24	10	254	1,121
St. Francis Hospital†.. Gen	Church		88	86	12	394	2,830
Manteno, 1,537—Kankakee							
Manteno State Hospital†.. Ment	State		7,416	6,891	..	..	2,775
Marion, 9,251—Williamson							
Veterans Admin. Hospital†.. Gen	Vet		176	172	..	..	2,803
Mattoon, 15,827—Coles							
Memorial Methodist Hospital Gen	Church		50	33	16	713	2,121
Melrose Park, 10,933—Cook							
Westlake Hospital†.. Gen	NPAssn		81	49	26	627	2,258
Mendota, 4,215—La Salle							
Harris Hospital	Gen	Part	27	18	8	214	756
Metropolis, 6,287—Massac							
Metropolis Memorial Hosp... Gen	Part		24	20	6	96	445
Moline, 34,608—Rock Island							
Lutheran Hospital†.. Gen	Church		135	108	30	935	4,532
Moline Public Hospital†.. Gen	City		198	173	48	1,330	6,729
Monmouth, 9,066—Warren							
Monmouth Hospital†.. Gen	City		74	64	18	460	1,713
Monticello, 2,529—Platt							
John and Mary E. Kirby Hospital	Gen	NPAssn	32	29	8	199	1,191
Morris, 6,145—Grundy							
Morris Hospital..... Gen	NPAssn		40	23	14	393	1,049
Morrison, 3,187—Whiteside							
Morrison Community Hosp. Gen	City		18	12	12	333	797
Mount Vernon, 14,724—Jefferson							
Good Samaritan Hospital.... Gen	Church		35	23	14	471	1,497
Mowena, 1,399—Shelby							
Mowena Hospital	Gen	Indiv	28	20	8	42	133
Murphysboro, 8,976—Jackson							
St. Andrew's Hospital†.. Gen	Church		36	26	12	474	1,692
Naperville, 5,272—Du Page							
Edward Sanatorium†.. TB	NPAssn		110	104	..	..	193
Normal, 6,983—McLean							
Brokaw Hospital†.. Gen	Church		92	72	16	174	2,144
Fairview Sanatorium..... TB	County		56	29	..	..	29
North Riverside, 1,636 (Riverside P.O.)—Cook							
Municipal Tuberculosis Sanatorium	Unit of City of Chicago Municipal Tuberculosis Sanatorium						
Oak Forest, 825—Cook							
Cook County Infirmary..... Chr	County		2,253	1,159	..	..	1,223
Cook County Tuberculosis Hospital	TB	County	548	402	..	..	503
Oak Park, 66,015—Cook							
Oak Park Hospital†.. Gen	Church		148	123	48	1,234	5,271
West Suburban Hospital†.. Gen	NPAssn		312	278	100	3,218	11,617
Olney, 7,531—Richland							
Olney Sanitarium†.. Gen	Corp		87	64	17	336	2,492
Oregon, 2,525—Ogle							
Warrinots Clinic-Hospital.... Gen	Indiv		25	15	6	70	494
Ottawa, 16,605—La Salle							
Highland	TB	County	80	68	..	..	78
Ottawa Tuberculosis Sanatorium†.. TB	Corp		123	126	..	..	137
Peoria, 5,166—Christian							
Huber Memorial Hospital†.. Gen	Church		40	32	12	380	1,402
Paris, 9,281—Edgar							
Paris Hospital†.. Gen	NPAssn		75	68	10	441	2,332
Paxton, 3,100—Ford							
Paxton Community Hospital Gen	NPAssn		19	14	7	237	960
Pekin, 19,407—Tazewell							
Pekin Public Hospital..... Gen	NPAssn		96	82	25	736	3,404
Peoria, 105,974—Peoria							
Costeff Sanatorium	N&M	Corp	17	15	..	..	109
John C. Proctor Hospital†.. Gen	NPAssn		110	85	14	440	3,366
Methodist Hospital of Central Illinois†.. Gen	Church		200	161	40	1,589	7,191
Michell Farm Sanatorium..... N&M	Indiv		25	24	..	..	23
Michell Sanatorium..... N&M	Indiv		25	17	..	..	100
Peoria Municipal Tuberculosis Sanatorium†.. TB	City		102	73	..	..	102
Peoria State Hospital†.. Ment	State		2,700	2,616	..	..	983
St. Francis Hospital†.. Gen	Church		500	455	93	2,938	14,582
Peru, 8,983—La Salle							
Peoples Hospital..... Gen	NPAssn		50	30	10	190	1,020
Pittsfield, 2,884—Pike							
Illini Community Hospital†.. Gen	NPAssn		43	33	10	350	1,483
Pontiac, 9,583—Livingston							
Livingston County Sanat... TB	County		50	48	..	..	61
St. James Hospital..... Gen	Church		50	36	17	364	1,366
Princeton, 5,224—Bureau							
Julia Rackley Perry Memorial Hospital	Gen	City	57	41	17	380	1,498
Quincy, 40,469—Adams							
Blessing Hospital†.. Gen	NPAssn		126	98	25	620	3,863
Hillcrest	TB	County	42	35	..	..	53
St. Mary's Hospital†.. Gen	Church		195	163	25	985	5,240
Rantoul, 2,867—Champaign							
Station Hospital†.. Gen	USAF		620	65	..	..	2,479
Red Bud, 1,302—Randolph							
St. Clement's Hospital..... Gen	Church		35	28	10	366	1,154
Robinson, 4,311—Crawford							
Brooks Hospital..... Gen	Part		21	17	5	182	756
Rochelle, 4,200—Ogle							
Rochelle Hospital..... Gen	City		33	20	12	248	958
Rockford, 84,697—Winnebago							
Elmhawn Sanitarium..... N&M	Indiv		50	24	..	..	625
Rockford Memorial Hosp.†.. Gen	NPAssn		132	88	24	753	5,015

ILLINOIS—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Basinsets	Number of Births	Admissions †
Rockford Municipal Tuberculosis Sanatorium+▲.....	TB	City	120	91	..	..	139
St. Anthony's Hospital+▲.....	Gen	Church	265	256	60	1,565	8,474
Swedish-American Hospital+▲.....	Gen	NPAssn	125	110	30	1,014	5,314
Winnebago County Hospital+▲.....	Gen	County	76	66	6	11	690
Rock Island, 42,775—Rock Island							
Rock Island County Tuberculosis Sanatorium.....	TB	County	65	41	..	..	51
St. Anthony's Hospital+▲.....	Gen	Church	185	170	30	856	4,880
Rosiclare, 1,774—Hardin							
Rosiclare Hospital.....	Gen	Part	17	4	5	50	206
Rushville, 2,480—Schuyler							
Culbertson Hospital.....	Gen	Indiv	25	15	9	86	434
St. Charles, 5,870—Kane							
Delnor Hospital+▲.....	Gen	NPAssn	30	19	10	280	1,127
Salem, 7,319—Marion							
Salem Memorial Hospital.....	Gen	NPAssn	38	24	10	392	1,655
Savanna, 4,792—Carroll							
Savanna City Hospital.....	Gen	City	36	21	12	436	810
Shelbyville, 4,092—Shelby							
Shelby County Memorial Hospital.....	Gen	NPAssn	22	18	10	136	578
Sparta, 3,664—Randolph							
Sutherland Hospital.....	Gen	Indiv	30	12	10	98	411
Springfield, 75,503—Sangamon							
Memorial Hospital+▲.....	Gen	NPAssn	253	193	40	1,074	6,206
Palmer Sanatorium+▲.....	TB	Corp	75	71	..	..	147
St. John's Crippled Children's School and Hospital.....	Orth	Church	50	37	..	..	47
St. John's Hospital+▲.....	Gen	Church	678	615	79	2,394	10,034
St. John's Sanitarium.....	TB	Church	200	192	..	..	193
Spring Valley, 5,010—Bureau							
St. Margaret's Hospital.....	Gen	Church	90	84	15	404	3,287
Sterling, 11,363—Whiteside							
Home Hospital.....	Gen	NPAssn	25	18	6	101	695
Public Hospital+▲.....	Gen	City	58	40	14	690	2,130
Streator, 14,930—La Salle							
St. Mary's Hospital.....	Gen	Church	110	90	15	837	5,182
Sycamore, 4,702—De Kalb							
Sycamore Municipal Hosp.+▲.....	Gen	City	28	19	12	281	989
Taylorville, 8,313—Christian							
St. Vincent Hospital.....	Gen	Church	68	61	22	320	3,116
Tuscola, 2,838—Douglas							
Douglas County Jarman Memorial Hospital.....	Gen	County	44	33	12	317	1,330
Urbana, 14,661—Champaign							
Carle Memorial Hospital+▲.....	Gen	NPAssn	72	62	12	420	2,929
Champaign County Hospital.....	Gen	County	55	25	10	54	689
Mercy Hospital+▲.....	Gen	Church	108	83	19	1,056	4,695
The Outlook.....	TB	County	52	46	..	..	47
Vandalia, 5,288—Fayette							
Mark Greer Hospital.....	Gen	Indiv	35	27	12	443	1,551
Watseka, 3,744—Iroquois							
Iroquois Hospital.....	Gen	NPAssn	39	26	13	531	1,501
Waukegan, 34,241—Lake							
Lake County General Hosp.+▲.....	Gen	County	65	57	..	..	512
Lake County Tuberculosis Sanatorium+▲.....	TB	County	100	91	..	..	140
St. Therese's Hospital.....	Gen	Church	180	147	30	1,237	8,157
Victory Memorial Hosp.+▲.....	Gen	NPAssn	113	83	28	944	4,512
White Hall, 3,025—Greene							
White Hall Hospital.....	Gen	NPAssn	9	8	5	98	309
Winfield, 567—Du Page							
Winfield Hospital+▲.....	TB	NPAssn	71	66	..	..	98
Zare Sanatorium.....	TB	NPAssn	50	35	..	..	65
Winnetka, 12,430—Cook							
North Shore Health Resort+▲.....	N&M	Corp	75	69	..	..	455
Woodstock, 6,123—McHenry							
Woodstock Public Hospital.....	Gen	NPAssn	51	33	10	518	1,816

Related Institutions

Arlington Heights, 5,668—Cook							
Magnus Farm.....	Conv	Indiv	24	24	..	..	32
Batavia, 5,101—Kane							
Bellevue Place Sanitarium.....	N&M	Indiv	60	55	..	..	76
Bellefonte, 28,405—St. Clair							
St. Clair County Hospital and Home.....	InstGen	County	98	75	2	..	96
Champaign, 23,302—Champaign							
Cole Hospital.....	Conv	Part	13	10	..	..	1,066
Chicago, 3,356,808—Cook							
Beverly Hills Rest Home.....	Conv	Indiv	12	11	..	..	17
Bigley Rest Home.....	Conv	Indiv	24	..	..	..	..
Catherine Booth Memorial Convalescent Hospital.....	Conv	Church	30	26	..	..	121
Chicago Home for Incurables Incurable Hospital.....	Conv	Church	269	258	..	..	76
Convalescent Home.....	Conv	City	180	122	..	..	547
House of Correction Hospital	Inst	City	75	5	..	..	2,016
Jewish Peoples Convalescent Home.....	Conv	NPAssn	50	30	..	..	350
Long's Convalescent Home.....	Conv	Indiv	35	30	..	..	86
Martha Washington Home for Dependent Crippled Children	Orth	NPAssn	27	21	..	..	23
Reynolds Rest Home.....	Conv	Indiv	35	..	..	..	..
Rosary Hill Convalescent Home.....	Conv	Church	32	23	..	..	95
Salvation Army Booth Memorial Hospital.....	Mat	Church	81	39	12	219	306
Washington and Jane Smith Home.....	InstGen	NPAssn	22	14	..	..	80
Decatur, 53,305—Marion							
City Public Hospital.....	Iso	City	20	2	..	..	100

ILLINOIS—Continued

Related Institutions	Type of Service	Ownership or Control	Beds	Average Census †	Basinsets	Number of Births	Admissions †
Des Plaines, 9,518—Cook							
Northwestern Hospital.....	Gen	NPAssn	14	8	5	00	300
Evanston, 65,359—Cook							
Broadhurst Nursing Home.....	Unit of Broad Nursing Homes	Conv	62	58	..	..	90
Broad Nursing Homes.....	Conv	Part	62	58	..	..	90
The Cradle.....	Chil	NPAssn	69	40	..	..	243
Geneva, 4,101—Kane							
State Training School for Girls.....	Inst	State	22	17	15	1	251
Godfrey, 900—Madison							
McDe Corp	MeDe	Corp	150	185	..	..	10
Independent Order Odd Fellows Old Folks Home Hosp. Inst	NPAssn	Inst	55	35	..	..	85
Menard, 22—Randolph							
Illinois Security Hospital.....	Ment	State	350	315	..	..	26
Moovehart, 995—Kane							
Philadelphia Memorial Hosp. Chil	NPAssn	Chil	65	36	..	..	1,716
Normal, 6,982—McLean							
Illinois Soldiers' and Sailors' Children's School Hospital.....	Inst	State	100	9	..	..	726
Park Ridge, 12,033—Cook							
Park Ridge Convalescent Home.....	Conv	Indiv	18	18	..	..	16
Peoria, 165,057—Peoria							
Florence Crittenton Home.....	Mat	NPAssn	70	48	4	73	82
Pontiac, 9,557—Livingston							
Illinois State Penitentiary Hospital.....	Inst	State	40	17	..	..	703
Robinson, 1,311—Crawford							
Griffy Eye and Ear Infirmary ENT	Indiv	Indiv	11	1	..	..	123
Rockford, 81,627—Winnebago							
Children's Convalescent Home Orth	NPAssn	Orth	35	22	..	..	37
St. Charles, 5,870—Kane							
Illinois State Training School for Boys.....	Inst	State	26	5	..	..	1,625
Urbana, 14,661—Champaign							
McKinley Memorial Hospital.....	Inst	State	135	42	..	..	2,800
Waterman, 579—De Kalb							
Bellevue Place.....	N&M	Indiv	59	20	..	..	50
Wedron, 262—La Salle							
St. Joseph's Health Resort.....	Conv	Church	71	58	..	..	1,678
Whetton, 739—Du Page							
Mary E. Poque School.....	MeDe	Indiv	90	55	..	..	80
Wheeling, 550—Cook							
Addolorata Villa Health Resort for Women.....	Conv	Church	40	..	..	..	27

INDIANA

Hospitals and Sanatoriums

Anderson, 41,572—Madison							
St. John's Hickey Memorial Hospital+▲.....	Gen	Church	250	181	60	1,994	8,191
Angola, 3,141—Steuben							
Cameron Hospital.....	Gen	NPAssn	21	13	5	236	675
Argos, 1,130—Marshall							
Kelly Hospital.....	Gen	NPAssn	10	6	4	77	284
Auburn, 5,415—De Kalb							
Dr. Rosnell M. Souder Hosp. Gen	Indiv	Indiv	26	9	7	201	592
Batesville, 3,663—Ripley							
Margaret Mary Hospital.....	Gen	Church	68	69	20	600	2,005
Bedford, 12,514—Lawrence							
Dunn Memorial Hospital.....	Gen	County	60	47	12	822	3,278
Beech Grove, 3,907—Marion							
St. Francis Hospital+▲.....	Gen	Church	150	104	50	1,691	6,167
Bloomington, 20,870—Monroe							
Bloomington Hospital.....	Gen	NPAssn	75	54	25	929	3,303
Bluffton, 5,417—Vels							
Cliffe Hospital+▲.....	Gen	Corp	75	54	8	139	2,221
Wells County Hospital.....	Gen	County	25	19	6	311	557
Clinton, 7,692—Vermillion							
Vermillion County Hospital.....	Gen	County	42	45	20	511	1,628
Columbus, 11,758—Bartholomew							
Bartholomew County Hospital.....	Gen	County	75	61	15	808	3,764
Connersville, 12,495—Fayette							
Fayette Memorial Hospital.....	Gen	NPAssn	46	34	15	623	1,786
Crawfordsville, 11,080—Montgomery							
Montgomery County Culver Union Hospital.....	Gen	County	85	76	18	785	3,968
Crown Point, 4,613—Lake							
James O. Parramore Hosp.+▲.....	TB	County	235	223	..	..	196
Decatur, 5,561—Adams							
Adams County Memorial Hospital.....	Gen	County	48	38	18	620	2,448
Dyer, 976—Lake							
Mount Mercy Hospital and Sanitarium.....	N&M	Church	75	69	..	..	850
East Chicago, 51,617—Lake							
St. Catherine's Hospital+▲.....	Gen	Church	261	206	60	1,805	8,358
Elkhart, 23,434—Elkhart							
Elkhart General Hospital+▲.....	Gen	NPAssn	111	78	28	1,259	4,451
Elwood, 10,813—Madison							
Mercy Hospital.....	Gen	Church	45	37	15	623	1,892
Evansville, 97,062—Vanderburgh							
Boehne Tuberculosis Hosp.+▲.....	TB	County	150	121	..	..	335
Clearview Hospital.....	N&M	Indiv	80	22	..	..	165
Evansville State Hospital.....	Ment	State	1,200	1,219	..	..	302
Protestant Deaconess Hospital+▲.....	Gen	Church	242	221	36	2,098	13,144
St. Mary's Hospital+▲.....	Gen	Church	186	127	21	988	7,069

INDIANA—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Bassinets	Number of Births	Admissions †
Welborn Memorial Baptist Hospital [▲]	Gen	Church	128	72	24	656	4,402
Fort Benjamin Harrison, —Marion Veterans Admin. Hospital [▲]	Gen	Vet	500	368	..	...	3,474
Fort Wayne, 115,410—Allen Irene Byron Sanatorium [▲]	TB	Counties	262	252	..	...	534
Lutheran Hospital ^{▲▲}	Gen	Church	210	170	40	1,870	6,482
Methodist Hospital [▲]	Gen	Church	118	75	25	916	3,66
St. Joseph Hospital ^{▲▲}	Gen	Church	350	204	60	1,811	9,46
Frankfort, 13,706—Clinton Clinton County Hospital.....	Gen	County	43	37	15	639	2,058
Franklin, 6,264—Johnson Johnson County Memorial Hospital.....	Gen	County	62	28	16	456	1,664
Garrett, 4,285—De Kalb Sacred Heart Hospital.....	Gen	Church	42	32	12	374	1,174
Gary, 11,719—Lake Gary Patients' Hospital.....	Gen	NPA ^{ssn}	40	18	6	97	578
Methodist Hospital ^{▲▲}	Gen	Church	209	178	69	2,295	8,440
St. Mary's Mercy Hosp. ^{▲▲}	Gen	Church	286	151	70	1,952	7,484
Goshen, 11,375—Elkhart Goshen Hospital.....	Gen	NPA ^{ssn}	34	22	12	785	1,779
Greencastle, 4,872—Putnam Putnam County Hospital.....	Gen	County	48	50	12	451	1,934
Greensburg, 6,065—Decatur Decatur County Memorial Hospital.....	Gen	County	50	34	16	439	1,651
Hammond, 70,184—Lake Mount Mercy Sanitarium.....	N&M	Church	29	20	..	...	226
St. Margaret Hospital ^{▲▲}	Gen	Church	260	199	60	2,667	10,222
Hartford City, 6,946—Blackford Blackford County Hospital.....	Gen	County	30	19	8	323	974
Huntingburg, 3,816—Dubois Stork Hospital.....	Gen	Indiv	27	27	16	501	1,542
Huntington, 13,603—Huntington Huntington County Hospital.....	Gen	County	50	31	16	703	1,602
Indianapolis, 386,972—Marion Central State Hospital [▲]	Ment	State	2,546	2,269	..	...	326
Flower Mission Memorial Hosp. Unit of Indianapolis General Hospital	Gen	Unit of Indianapolis General Hospital					
Indianapolis General Hospital ^{▲▲}	Gen	Tb City	704	550	40	1,318	10,505
Indiana University Medical Center ^{▲▲}	Gen	State	584	484	62	1,790	9,847
James Whitcomb Riley Hospital for Children.....	Unit of Indiana University Medical Center	Unit of Indiana University Medical Center					
Kiwanis Home.....	Unit of Indiana University Medical Center	Unit of Indiana University Medical Center					
Methodist Hospital ^{▲▲}	Gen	Church	639	337	55	4,533	22,505
Norways Sanatorium ⁺	N&M	NPA ^{ssn}	43	30	..	...	352
Public Health Center.....	Ven	City	112	43	..	...	1,800
Robert W. Long Hospital.....	Unit of Indiana University Medical Center	Unit of Indiana University Medical Center					
Rotary Convalescent Home.....	Unit of Indiana University Medical Center	Unit of Indiana University Medical Center					
St. Vincent's Hospital ^{▲▲}	Gen	Church	329	297	56	3,200	12,744
Sunnyside Sanatorium [▲]	TB	County	224	212	..	...	500
Veterans Admin. Hospital [▲]	Gen	Vet	349	314	..	...	4,899
William H. Coleman Hospital for Women.....	Unit of Indiana University Medical Center	Unit of Indiana University Medical Center					
Jeffersonville, 11,493—Clark Clark County Memorial Hospital [▲]	Gen	County	91	61	22	703	2,750
Kendallville, 5,431—Noble McCray Memorial Hospital.....	Gen	City	32	13	12	422	1,254
Kokomo, 33,795—Howard St. Joseph Memorial Hosp. [▲]	Gen	Church	125	117	36	1,356	4,643
La Fayette, 28,798—Tippecanoe La Fayette Home Hosp. [▲]	Gen	NPA ^{ssn}	135	91	25	982	4,644
St. Elizabeth Hospital ^{▲▲}	Gen	Church	309	201	50	1,482	8,042
William Ross Sanatorium.....	TB	County	27	24	..	...	36
La Porte, 16,180—La Porte Fairview Hospital.....	Gen	NPA ^{ssn}	72	45	21	602	2,092
Holy Family Hospital.....	Gen	Church	98	80	23	626	3,390
Lebanon, 6,529—Boone Witham Memorial Hospital.....	Gen	County	70	43	22	684	1,968
Linton, 6,263—Greene Freeman Greene County Hosp. Gen	Gen	County	50	30	12	521	2,079
Logansport, 20,177—Cass Logansport State Hosp. [▲]	Ment	State	2,399	2,256	..	...	364
Memorial Hospital [▲]	Gen	County	70	56	15	510	2,626
St. Joseph Hospital [▲]	Gen	Church	60	56	12	636	2,492
Madison, 6,923—Jefferson Kings Daughters Hospital.....	Gen	NPA ^{ssn}	48	24	14	487	1,435
Marion, 26,767—Grant Marion General Hospital [▲]	Gen	NPA ^{ssn}	103	71	30	1,406	4,466
Veterans Admin. Hospital [▲]	Ment	Vet	1,924	1,862	..	...	754
Martinsville, 5,009—Morgan Morgan County Memorial Hospital.....	Gen	County	28	18	10	350	1,099
Michigan City, 26,476—La Porte Clinic Hospital [▲]	Gen	Corp	50	45	12	154	2,913
Indiana Hospital for Insane Criminals.....	Ment	State	345	350	..	...	29
Indiana State Prison Hosp. ⁺	Inst	State	175	82	..	...	820
St. Anthony's Hospital [▲]	Gen	Church	100	65	26	787	3,414
Warren Hospital.....	Gen	Corp	25	12	..	...	512
Mishawaka, 29,298—St. Joseph St. Joseph Hospital [▲]	Gen	Church	160	74	20	1,052	3,745
Mooreville, 1,979—Morgan Comer's Sanitarium.....	Proct	Part	21	14	..	...	252
Muncie, 49,720—Delaware Ball Memorial Hospital ^{▲▲}	Gen	NPA ^{ssn}	217	207	30	2,293	8,751
New Albany, 25,414—Floyd St. Edward Hospital [▲]	Gen	Church	100	86	25	1,196	4,944
"Silvercrest" Southern Indiana Tuberculosis Hospital.....	TB	State	141	120	..	...	147

INDIANA—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Bassinets	Number of Births	Admissions †
New Castle, 16,620—Henry Clinie Hospital.....	Gen	Part	22	20	..	...	766
Henry County Hospital [▲]	Gen	County	110	90	23	1,244	3,874
North Madison, 316—Jefferson Madison State Hospital.....	Ment	State	1,500	1,581	..	...	298
Oakland City, 3,068—Gibson Wood Hospital and Clinic.....	Gen	Indiv	12	4	6	156	372
Peru, 12,432—Miami Dukes-Miami County Memorial Hospital.....	Gen	County	64	63	16	644	2,331
Wabash Employees Hospital [▲]	Indus	NPA ^{ssn}	50	30	..	...	545
Plymouth, 5,713—Marshall Parkview Hospital.....	Gen	County	33	23	12	446	1,462
Portland, 6,262—Jay Jay County Hospital.....	Gen	County	35	39	8	346	2,077
Princeton, 7,786—Gibson Gibson General Hospital [▲]	Gen	NPA ^{ssn}	44	35	15	527	1,939
Rensselaer, 3,214—Jasper Jasper County Hospital.....	Gen	County	41	31	10	505	2,351
Richmond, 35,147—Wayne Reid Memorial Hospital [▲]	Gen	NPA ^{ssn}	144	124	26	1,620	6,023
Richmond State Hospital.....	Ment	State	1,742	1,584	..	...	324
Smith-Esteb Memorial Hosp. TB	County	County	47	42	..	...	43
Rochester, 3,853—Fulton Woodlawn Hospital.....	Gen	County	32	23	16	321	1,218
Rockville, 2,208—Parke Indiana State Sanatorium.....	TB	State	200	177	..	...	161
Rome City, 504—Noble Kneipp Springs Sanatorium.....	Gen	Church	150	...	..	...	1,590
Rushville, 5,900—Rush Rushville City Hospital.....	Gen	City	14	5	7	423	749
Seymour, 8,620—Jackson Schneek Memorial Hospital.....	Gen	County	56	27	12	675	2,058
Shelbyville, 10,791—Shelby W. S. Major Hospital.....	Gen	City	50	34	18	647	2,600
South Bend, 101,268—St. Joseph Healthwin Hospital [▲]	TB	County	185	138	..	...	191
Memorial Hospital [▲]	Gen	NPA ^{ssn}	217	173	45	1,872	8,059
St. Joseph's Hospital [▲]	Gen	Church	184	140	42	1,829	7,096
Sullivan, 5,077—Sullivan Mary Sherman Memorial Hospital.....	Gen	County	50	39	12	460	1,699
Tell City, 5,395—Perry Parkview Hospital.....	Gen	Indiv	14	5	12	132	611
Terre Haute, 62,693—Vigo Hoover's Sanatorium.....	Gen	Indiv	14	4	2	12	301
St. Anthony's Hospital [▲]	Gen	Church	185	149	40	1,356	5,972
Union Hospital [▲]	Gen	NPA ^{ssn}	182	146	24	916	5,344
U. S. Penitentiary Hospital [▲]	Inst	USPHS	100	39	..	...	1,022
Tipton, 5,101—Tipton Emergency Hospital.....	Gen	Part	10	5	2	79	192
Union City, 3,335—Randolph Union City Hospital.....	Gen	NPA ^{ssn}	13	9	6	174	589
Valparaiso, 8,736—Porter Porter Memorial Hospital [▲]	Gen	County	67	61	21	692	2,471
Vincennes, 18,228—Knox Good Samaritan Hospital ⁺	Gen	County	115	100	22	1,086	4,834
Hillcrest Tuberculosis Hosp. ⁺	TB	County	60	41	..	...	78
Wabash, 9,653—Wabash Wabash County Hospital.....	Gen	County	60	51	17	500	2,340
Warsaw, 6,378—Kosciusko McDonald Hospital.....	Gen	Indiv	40	34	12	435	1,562
Murphy Medical Center.....	Gen	Indiv	35	23	12	141	518
Washington, 9,312—Davies Davies County Hospital.....	Gen	County	110	88	15	861	3,094
Williamsport, 1,222—Warren Community Hospital.....	Gen	NPA ^{ssn}	20	10	7	175	806
Winchester, 5,303—Randolph Randolph County Hospital.....	Gen	County	37	28	11	428	1,538
Wolf Lake, 250—Noble Lucky Hospital.....	Gen	Indiv	20	10	6	198	727
Related Institutions							
Anderson, 41,372—Madison Citizens' Nursing Center.....	Gen	Part	15	12	..	...	732
Butler, 266—Jennings Muscatatuck State School.....	MeDe	State	1,460	1,405	..	...	76
Fort Wayne, 118,410—Allen Fort Wayne State School.....	MeDe	State	1,908	1,900	..	...	150
Grace Convalescent Hospital Conv	Indiv	Indiv	32	19	..	...	33
Greencastle, 4,872—Putnam Indiana State Farm Hospital Inst	State	State	50	12	..	...	548
Greensburg, 6,065—Decatur Odd Fellows Home Hospital.....	Inst	NPA ^{ssn}	75	59	..	...	100
Hammond, 70,184—Lake Kuhn Clinic Hospital.....	ENT	Part	12	4	..	...	1,492
La Fayette, 28,798—Tippecanoe Indiana State Soldiers' Home Hospital.....	Inst	State	112	63	..	...	592
Martinsville, 5,009—Morgan Home Lawn Mineral Springs.....	Conv	Corp	154	121	..	...	4,555
Martinsville Sanitarium.....	Conv	Corp	120	62	..	...	2,966
New Castle, 16,620—Henry Indiana Village for Epileptics Epil	State	State	1,036	1,006	..	...	91
Pendleton, 1,651—Madison Indiana State Reformatory Hospital.....	Inst	State	86	20	..	...	1,935
Plainfield, 1,811—Hendricks Indiana Boys' School Hosp.....	Inst	State	25	2	..	...	83

Key to symbols and abbreviations is on page 37

IOWA

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Basins	Number of Births	Admissions †
Akron, 1,314—Plymouth	Gen	Indiv	14	7	0	116	424
Akron Hospital	Gen	Indiv	14	7	0	116	424
Albia, 5,157—Marshall	Gen	Indiv	24	8	5	142	453
Smith Hospital	Gen	Indiv	24	8	5	142	453
Algona, 4,954—Kossuth	Gen	Indiv	28	8	8	350	500
Kossuth Hospital	Gen	Indiv	28	8	8	350	500
Alta, 1,260—Buena Vista	Gen	NPAasn	13	8	0	78	232
Alta Memorial Hospital.....	Gen	NPAasn	13	8	0	78	232
Ames, 12,555—Story	Inst	State	75	10	..	..	1,058
Iowa State College Hospital..	Inst	State	75	10	..	..	1,058
Anamosa, 4,069—Jones	Gen	Church	35	29	10	296	1,094
Mercy Hospital	Gen	Church	35	29	10	296	1,094
Atlantic, 5,892—Cass	Gen	NPAasn	50	41	10	319	1,178
Atlantic Memorial Hospital..	Gen	NPAasn	50	41	10	319	1,178
Battle Creek, 827—Ida	Gen	Part	18	5	8	43	199
Battle Creek Hospital.....	Gen	Part	18	5	8	43	199
Bellevue, 1,771—Jackson	Gen	Church	25	9	8	111	469
Bellevue Memorial Hospital..	Gen	Church	25	9	8	111	469
Belmont, 2,109—Wright	Gen	Part	13	8	7	187	588
Steele Memorial Hospital.....	Gen	Part	13	8	7	187	588
Buffalo Center, 911—Winnebago	Gen	Indiv	13	11	8	168	461
Dolmage Hospital	Gen	Indiv	13	11	8	168	461
Burlington, 25,832—Des Moines	Gen	Indiv	13	11	8	168	461
Burlington Protestant Hos- pital..	Gen	NPAasn	105	105	20	474	4,370
Mercy Hospital..	Gen	Church	100	100	25	180	3,511
St. Francis Hospital.....	Gen	Church	65	50	15	223	1,719
Carroll, 5,380—Carroll	Gen	Church	115	96	35	905	4,299
St. Anthony Hospital..	Gen	Church	115	96	35	905	4,299
Cedar Falls, 9,349—Black Hawk	Gen	City	44	28	10	405	1,527
Sartori Memorial Hospital..	Gen	City	44	28	10	405	1,527
Cedar Rapids, 62,120—Linn	Gen	Church	200	158	32	1,191	7,271
Mercy Hospital..	Gen	Church	200	158	32	1,191	7,271
St. Luke's Methodist Hospi- tal..	Gen	Church	200	169	35	1,120	9,209
Centerville, 8,413—Appanoose	Gen	Church	46	38	12	417	2,323
St. Joseph's Mercy Hospital..	Gen	Church	46	38	12	417	2,323
Chariton, 5,754—Lucas	Gen	Indiv	25	14	10	165	735
Yocum Hospital	Gen	Indiv	25	14	10	165	735
Charles City, 8,681—Floyd	Gen	City	60	53	20	595	2,830
Cedar Valley Hospital.....	Gen	City	60	53	20	595	2,830
Cherokee, 7,469—Cherokee	Gen	State	1,755	1,610	..	..	313
Cherokee State Hospital..	Gen	State	1,755	1,610	..	..	313
Clarinda, 4,905—Page	Gen	City	55	36	13	350	2,082
Clarinda Municipal Hospital..	Gen	City	55	36	13	350	2,082
Clarinda State Hospital.....	Gen	State	1,170	1,517	..	..	373
Clinton, 26,210—Clinton	Gen	NPAasn	97	73	16	711	3,599
Jane Lamb Memorial Hosp..	Gen	NPAasn	97	73	16	711	3,599
St. Joseph Mercy Hospital..	Gen	Church	100	89	25	691	2,861
Colfax, 2,252—Jasper	Gen	Corp	20	8	1	31	210
Colfax Sanitarium	Gen	Corp	20	8	1	31	210
Council Bluffs, 41,459—Pottawattamie	Gen	NPAasn	136	108	20	1,076	4,260
Jennie Edmundson Memorial Hospital..	Gen	NPAasn	136	108	20	1,076	4,260
Mercy Hospital..	Gen	Church	153	133	22	785	4,582
St. Bernard's Hospital..	Gen	Church	211	178	..	..	753
Creco, 3,530—Howard	Gen	Church	28	10	10	211	1,015
St. Joseph Mercy Hospital...	Gen	Church	28	10	10	211	1,015
Davenport, 66,039—Scott	Gen	Church	250	180	60	1,738	8,512
Mercy Hospital..	Gen	Church	250	180	60	1,738	8,512
Pine Knoll Sanatorium.....	Gen	County	75	42	..	..	43
St. Elizabeth's and St. John's Hospitals	Units of Mercy Hospital	Gen	92	102	22	929	3,500
St. Luke's Hospital..	Gen	Church	92	102	22	929	3,500
Decorah, 5,303—Winnebago	Gen	Church	52	43	13	426	1,596
Decorah Hospital.....	Gen	Church	52	43	13	426	1,596
Denison, 4,761—Crawford	Gen	Indiv	21	5	12	293	911
Den'son Hospital	Gen	Indiv	21	5	12	293	911
Des Moines, 159,810—Polk	Gen	County	166	119	21	300	5,072
Broadlawn Polk County Hos- pital..	Gen	County	166	119	21	300	5,072
Broadlawn Polk County Hos- pital..	Gen	County	166	119	21	300	5,072
Iowa Lutheran Hospital..	Gen	Church	135	126	20	870	5,393
Iowa Methodist Hospital..	Gen	Church	312	248	52	2,036	11,576
Mercy Hospital..	Gen	Church	100	173	30	1,580	8,228
Raymond Blank Memorial Hos- pital for Children..	Unit of Iowa Methodist Hospital	Gen	52	48	..	..	286
Retreat Hospital	N&M	Corp	506	444	..	..	5,351
Veterans Admin. Center..	Gen	Vet	506	444	..	..	5,351
Dexter, 760—Dallas	Gen	Part	21	20	7	105	917
Clinic Hospital	Gen	Part	21	20	7	105	917
Dubuque, 43,892—Dubuque	Gen	NPAasn	115	71	20	745	3,551
Finley Hospital..	Gen	NPAasn	115	71	20	745	3,551
St. Joseph Mercy Hospital..	Gen	Church	408	341	35	1,305	6,293
St. Joseph Sanitarium..	Gen	Church	233	227	..	..	677
Sunny Crest Sanatorium.....	Gen	County	70	51	..	..	69
Xavier Hospital	Gen	Church	100	..	22	Estab.	1949
Emmetsburg, 3,374—Palo Alto	Gen	NPAasn	23	21	11	301	1,331
Emmetsburg Hospital	Gen	NPAasn	23	21	11	301	1,331
Estherville, 5,651—Emmet	Gen	Church	55	47	20	481	2,769
Holy Family Hospital.....	Gen	Church	55	47	20	481	2,769
Forest City, 2,545—Winnebago	Gen	City	20	14	8	223	710
Forest City Municipal Hosp..	Gen	City	20	14	8	223	710
Fort Dodge, 22,901—Webster	Gen	Church	120	101	25	979	6,116
Lutheran Hospital.....	Gen	Church	125	114	20	691	4,280
St. Joseph Mercy Hospital..	Gen	Church	125	114	20	691	4,280
Fort Madison, 14,063—Lee	Gen	NPAasn	40	40	..	..	480
Aetehson, Topeka and Santa Fe Railway Employees' Hosp..	Indus	NPAasn	72	62	18	620	2,491
Sacred Heart Hospital.....	Gen	Church	72	62	18	620	2,491

IOWA—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Basinets	Number of Births	Admissions †
Grinnell, 5,210—Poweshiek	Gen	NPAasn	41	25	13	141	1,224
Community Hospital	Gen	NPAasn	41	25	13	141	1,224
St. Francis Hospital.....	Gen	Church	35	30	10	220	1,241
Hamburg, 2,187—Fremont	Gen	Indlv	28	20	10	132	1,233
Hamburg Hospital	Gen	Indlv	28	20	10	132	1,233
Hampton, 4,006—Franklin	Gen	Church	48	31	12	387	1,809
Lutheran Hospital.....	Gen	Church	48	31	12	387	1,809
Hartley, 1,503—O'Brien	Gen	Part	12	6	5	122	430
Haud Hospital	Gen	Part	12	6	5	122	430
Hull, 1,072—Sioux	Gen	Corp	15	9	5	94	600
Hull Hospital	Gen	Corp	15	9	5	94	600
Independence, 4,312—Buchanan	Gen	State	1,867	1,701	..	..	672
Independence State Hospital	Ment	State	1,867	1,701	..	..	672
Peoples Hospital	Gen	NPAasn	32	35	13	316	1,282
Iowa City, 17,182—Johnson	Gen	NPAasn	32	35	13	316	1,282
Children's Hospital.....	Unit of University Hospitals	Gen	69	40	..	..	346
Iowa State Psychopathic Hos- pital.....	Unit of University Hospitals	Gen	69	40	..	..	346
Mercy Hospital.....	Gen	Church	147	117	23	881	4,705
University Hospitals.....	Gen	State	881	683	54	1,018	20,255
Keokuk, 15,076—Lee	Gen	NPAasn	65	65	15	493	2,673
Graham Hospital	Gen	NPAasn	65	65	15	493	2,673
St. Joseph's Hospital.....	Gen	Church	140	109	25	591	3,964
Knoxville, 6,936—Marion	Gen	Part	50	20	10	269	1,225
Collins Memorial Hospital....	Gen	Part	50	20	10	269	1,225
Veterans Admin. Hospital.....	Ment	Vet	1,705	1,633	..	..	675
Lake City, 2,216—Calhoun	Gen	Part	15	10	6	95	525
McTarry-Rost Hospital	Gen	Part	15	10	6	95	525
McVay Memorial Hospital.....	Gen	Part	20	10	10	162	759
Le Mars, 5,333—Plymouth	Gen	Church	50	39	15	661	2,185
Sacred Heart Hospital.....	Gen	Church	50	39	15	661	2,185
Leon, 2,597—Decatur	Gen	County	21	21	11	216	1,341
Decatur County Hospital....	Gen	County	21	21	11	216	1,341
Marshalltown, 19,210—Marshall	Gen	Church	150	123	22	563	3,970
Evangelical Deaconess Home and Hospital.....	Gen	Church	102	85	20	479	2,350
St. Thomas Mercy Hospital..	Gen	Church	102	85	20	479	2,350
Mason City, 27,080—Cerro Gordo	Gen	Corp	56	50	15	328	1,858
Park Hospital	Gen	Corp	56	50	15	328	1,858
St. Joseph's Mercy Hospital.....	Gen	Church	210	173	56	1,024	6,573
McGregor, 1,330—Clayton	Gen	NPAasn	15	6	3	42	205
McGregor Community Hosp.	Gen	NPAasn	15	6	3	42	205
Monticello, 2,746—Jones	Gen	NPAasn	35	21	10	250	1,550
John McDonald Hospital.....	Gen	NPAasn	35	21	10	250	1,550
Mount Pleasant, 4,610—Henry	Gen	State	1,692	1,525	..	..	335
Mount Pleasant State Hosp..	Ment	State	1,692	1,525	..	..	335
Muscatine, 18,286—Muscatine	Gen	Part	50	40	15	324	2,318
Bellevue Hospital	Gen	Part	50	40	15	324	2,318
Benjamin Hershey Memorial Hospital	Gen	NPAasn	50	47	14	362	2,010
New Hampton, 2,933—Chickasaw	Gen	Church	52	40	12	367	1,919
St. Joseph's Hospital.....	Gen	Church	52	40	12	367	1,919
Newton, 10,162—Jasper	Gen	City	56	34	10	422	1,463
Skiff Memorial Hospital.....	Gen	City	56	34	10	422	1,463
Oakdale, 2,746—Johnson	Gen	State	426	401	..	..	355
State Sanatorium.....	Gen	State	426	401	..	..	355
Osborne, 7,001—Fayette	Gen	Church	43	37	15	505	2,005
Mercy Hospital	Gen	Church	43	37	15	505	2,005
Onawa, 4,438—Monona	Gen	Indlv	25	14	4	31	321
Onawa Hospital	Gen	Indlv	25	14	4	31	321
Orange City, 1,920—Sioux	Gen	Part	15	9	5	136	419
Grossmann Hospital	Gen	Part	15	9	5	136	419
Osgo, 3,284—Clarke	Gen	Indlv	26	14	5	51	667
Harken Hospital	Gen	Indlv	30	14	7	154	1,961
Osgo Hospital	Gen	Indlv	30	14	7	154	1,961
Oskaloosa, 11,024—Mahaska	Gen	Part	32	21	12	310	1,140
Mercy Hospital	Gen	Part	32	21	12	310	1,140
Ottumwa, 31,570—Wapello	Gen	NPAasn	57	43	14	476	2,149
Ottumwa Hospital	Gen	NPAasn	57	43	14	476	2,149
St. Joseph Hospital.....	Gen	Church	125	104	25	757	4,090
Sunnyslope Sanatorium	Gen	County	19	18	..	..	16
Perry, 5,977—Dallas	Gen	NPAasn	35	19	9	230	1,141
Kings Daughters Hospital....	Gen	NPAasn	35	19	9	230	1,141
Pleasantville, 595—Marion	Gen	Indlv	10	4	4	35	121
Community Hospital	Gen	Indlv	10	4	4	35	121
Red Oak, 5,763—Montgomery	Gen	City	26	21	12	462	1,250
Murphy Memorial Hospital.....	Gen	City	26	21	12	462	1,250
Sheldon, 3,768—O'Brien	Gen	Church	16	6	8	220	861
Good Samaritan Hospital....	Gen	Church	16	6	8	220	861
Shenandoah, 6,846—Page	Gen	NPAasn	40	25	10	316	1,452
Henry and Catherine L. Hand Memorial Hospital	Gen	NPAasn	40	25	10	316	1,452
Sibley, 2,376—Osgo	Gen	Corp	55	14	12	260	1,103
Osgo Hospital	Gen	Corp	55	14	12	260	1,103
Sigourney, 2,355—Keokuk	Gen	Indlv	20	10	8	142	397
Sigourney Hospital	Gen	Indlv	20	10	8	142	397
Sioux City, 82,564—Woodbury	Gen	Church	105	102	15	517	3,524
Lutheran Hospital.....	Gen	Church	105	102	15	517	3,524
Methodist Hospital.....	Gen	Church	110	110	15	719	4,085
St. Joseph Mercy Hosp.....	Gen	Church	250	231	50	961	9,291
St. Vincent's Hospital.....	Gen	Church	122	125	22	771	6,641
Spencer, 6,590—Cincy	Gen	City	50	20	9	487	1,682
Spencer Municipal Hospital...	Gen	City	50	20	9	487	1,682
Spirit Lake, 2,161—Dickinson	Gen	Part	24	21	6	136	933
Marcus Snyder Memorial Hospital	Gen	Part	24	21	6	136	933
Storm Lake, 5,274—Buena Vista	Gen	Indlv	12	14	7	362	1,217
Porath Hospital	Gen	Indlv	12	14	7	362	1,217
Vinton, 4,163—Benton	Gen	City	40	30	9	227	904
Virginia Gny Hospital.....	Gen	City	40	30	9	227	904
.....	Gen	County	51	33	12	472	1,492
.....	Gen	NPAasn	80	77	25	1,266	4,663

IOWA—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Bassineets	Number of Births	Admissions †
Presbyterian Hospital	Gen	NPAasn	46	41	10	322	2,119
St. Francis Hospital	Gen	Church	125	101	25	1,058	4,617
Waverly, 4,156—Bremer	Gen						
St. Joseph Mercy Hospital	Gen	Church	50	28	17	326	1,121
West Union, 2,059—Fayette	Gen						
West Union Community Hosp. Gen	City		12	10	8	183	496
Williamsburg, 1,308—Iowa	Gen						
Miller Hospital	Gen	Indiv	8	5	5	91	251
Related Institutions							
Davenport, 66,039—Scott	Iso	County	26	6	1	2	290
Isolation Hospital							
Des Moines, 159,819—Polk							
Junior League Convalescent	Conv	NPAasn	18	13	..	..	58
Home for Children							
Salvation Army Booth Memo-							
rial Hospital	Mat	Church	50	30	15	101	137
Glenwood, 4,501—Mills							
Glenwood State School	McDe	State	1,920	1,860	..	..	122
Marshalltown, 19,240—Marshall							
Iowa Soldiers' Home Hosp...	Inst	State	160	106	..	..	250
Orange City, 1,920—Sioux							
Doornink Hospital	Gen	Indiv	15	7	4	48	245
Postville, 1,194—Allamakee							
Postville Community Hosp...	Gen	City	18	13	7	125	510
Red Oak, 5,763—Montgomery							
Powell School	McDe	Indiv	75	75	..	..	9
Sac City, 3,165—Sac							
Loring Hospital	Gen	NPAasn	11	5	5	149	247
Sioux City, 82,364—Woodbury							
Florence Crittenton Home...	Mat	NPAasn	80	40	50	59	79
Toledo, 2,078—Tama							
State Juvenile Home Hosp...	Inst	State	25	4	..	..	125
Woodward, 895—Dallas							
Hospital for Epileptics and							
School for Feebleminded....	McDe	State	1,695	1,677	..	..	160

KANSAS

Hospitals and Sanatoriums

Abilene, 5,671—Dickinson							
Dickinson County Memorial							
Hospital	Gen	NPAasn	30	20	10	202	852
Anthony, 2,873—Harper							
Galloway Hospital	Gen	Indiv	22	20	8	140	846
Arkansas City, 12,752—Cowley							
Mercy Hospital	Gen	NPAasn	42	14	14	408	1,440
Atchison, 12,648—Atchison							
Atchison Hospital	Gen	NPAasn	55	34	12	404	1,501
Axtell, 545—Marshall							
Axtell Hospital	Gen	Indiv	12	5	5	92	252
Bellefonte, 2,580—Republic							
Bellefonte Hospital	Gen	Indiv	28	18	6	210	724
Beloit, 3,765—Mitchell							
Community Hospital	Gen	NPAasn	52	32	14	420	1,508
Caldwell, 1,662—Sumner							
Caldwell General Hospital...	Gen	Part	20	6	5	74	398
Chanute, 10,142—Neosho							
Johnson Hospital	Gen	Corp	45	31	9	282	1,532
Clay Center, 4,518—Clay							
Clay Center Municipal Hosp...	Gen	City	25	19	8	209	1,015
Coffeyville, 17,555—Montgomery							
Southeast Kansas Hospital...	Gen	NPAasn	25	20	10	369	1,270
Colby, 2,458—Thomas							
St. Thomas Hospital	Gen	Church	38	30	14	322	1,964
Concordia, 6,255—Cloud							
St. Joseph's Hospital	Gen	Church	100	79	20	494	3,132
Dodge City, 8,487—Ford							
Murray Memorial Hospital	Gen	Indiv	54	43	15	255	1,683
St. Anthony's Hospital	Gen	Church	70	58	22	522	2,841
El Dorado, 10,045—Butler							
Susan B. Allen Memorial Hos-							
pital	Gen	NPAasn	56	41	14	430	2,113
Ellsworth, 2,227—Ellsworth							
Ellsworth County Veterans							
Memorial Hospital	Gen	NPAasn	45	34	9	208	1,293
Emporia, 13,188—Lyon							
Newman Memorial County							
Hospital	Gen	County	85	73	20	392	2,338
St. Mary's Hospital	Gen	Church	75	55	20	388	1,126
Fort Leavenworth, 4,982—Leavenworth							
Station Hospital	Gen	Army	100	46	18	314	2,148
Station Hospital, U. S. Discl-							
iplinary Barracks	Gen	Army	50	44	..	..	507
Fort Riley, Geary							
Station Hospital	Gen	Army	275	94	17	612	3,331
Fort Scott, 10,577—Bourbon							
Mercy Hospital	Gen	Church	110	95	18	448	3,047
Garden City, 6,285—Finney							
St. Catherine's Hospital	Gen	Church	68	56	17	582	3,625
Gardner, 510—Johnson							
Reece Hospital	Gen	NPAasn	17	7	6	133	465
Girard, 2,551—Crawford							
Girard General Hospital	Gen	City	22	10	4	81	366
Goessel, 300—Marion							
Mennonite Bethesda Hospital	Gen	NPAasn	17	14	8	106	463
Goodland, 3,306—Sherman							
Boothroy Memorial Hospital	Gen	Church	28	25	11	291	1,501
Great Bend, 9,044—Barton							
St. Rose Hospital	Gen	Church	132	113	26	1,009	4,815

KANSAS—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Bassineets	Number of Births	Admissions †
Halstead, 1,897—Harvey							
Halstead Hospital	Gen	Church	160	138	8	52	4,092
Harper, 1,695—Harper							
Joslin Hospital	Gen	Indiv	10	6	4	60	234
Hays, 6,385—Ellis							
Hadley Memorial Hosp'tal...	Gen	Church	40	35	10	198	1,505
St. Anthony's Hospital	Gen	Church	100	105	28	784	4,275
Hillsboro, 1,580—Marion							
Salem Hospital	Gen	Church	25	14	8	115	566
Holsington, 3,719—Barton							
Holsington Hospital	Gen	NPAasn	15	No data supplied			
Holton, 2,885—Jackson							
Holton Hospital	Gen	NPAasn	21	13	6	218	533
Horton, 2,872—Brown							
Horton Hospital	Gen	Part	31	23	13	235	1,085
Hutchinson, 30,013—Reno							
Grace Hospital	Gen	Church	140	116	30	745	4,790
St. Elizabeth Mercy Hosp.	Gen	Church	65	57	20	498	2,263
Independence, 11,565—Montgomery							
Mercy Hospital	Gen	Church	70	56	20	509	2,267
Iola, 7,244—Allen							
St. John's Hospital	Gen	Church	35	23	14	325	1,141
Junction City, 8,507—Geary							
Junction City Municipal Hosp.	Gen	City	67	48	20	360	2,920
Kansas City, 121,458—Wandotte							
Bell Memorial Hospital	Unit of University of Kansas Medical Center						
Bethany Hospital	Gen	Church	150	129	30	724	5,391
Douglass Hospital	Gen	Church	46	30	14	162	864
Providence Hospital	Gen	Church	140	117	40	1,197	5,344
St. Margaret's Hospital	Gen	Church	203	140	25	599	5,231
University of Kansas Medical							
Center	Gen	State	395	331	45	962	8,528
Kingman, 3,213—Kingman							
Kingman Memorial Hospital	Gen	City	28	18	11	146	713
Larned, 3,533—Pawnee							
Larned State Hospital	Ment	State	1,789	1,751	..	..	519
Lawrence, 14,360—Douglas							
Haskell Institute Hospital...	Inst	IA	36	2	..	..	151
Lawrence Memorial Hospital	Gen	City	72	52	25	883	3,913
Watkins Memorial Hospital	Inst	State	62	18	..	..	1,473
Leavenworth, 19,220—Leavenworth							
Cushing Memorial Hosp.	Gen	NPAasn	60	40	15	323	1,750
St. John's Hospital	Gen	Church	65	53	14	326	1,626
U. S. Penitentiary Hospital	Inst	USPHS	165	62	..	..	1,304
Liberal, 4,410—Seward							
Epworth Hospital	Gen	Church	38	45	10	484	2,123
Little River, 603—Rice							
Hoffman Memorial Hospital...	Gen	City	16	5	4	10	400
Lyons, 4,497—Rice							
Lyons Hospital	Gen	NPAasn	20	10	6	172	558
Manhattan, 11,659—Riley							
St. Mary Hospital	Gen	Church	98	73	25	792	2,992
Marion, 2,086—Marion							
Marion Hospital	Gen	NPAasn	10	5	4	76	255
Marysville, 4,055—Marshall							
Marysville Hospital	Gen	Indiv	12	4	6	116	219
Randall Hospital	Gen	Indiv	16	8	6	127	457
McPherson, 7,194—McPherson							
McPherson County Hospital...	Gen	County	53	53	12	334	1,618
Neodesha, 3,376—Wilson							
Wilson County Hospital	Gen	County	31	20	14	192	923
Newton, 11,048—Harvey							
Axtell Christian Hospital	Gen	Church	50	31	8	135	1,494
Bethel Deaconess Hospital	Gen	Church	78	67	16	406	2,473
Norton, 2,762—Norton							
Norton County Hospital	Gen	County	21	14	11	268	825
State Sanatorium for Tubercu-							
losis	TB	State	419	404	..	..	413
Oberlin, 1,878—Decatur							
Benton Memorial Hospital...	Gen	Part	21	9	8	108	629
Osawatimie, 4,145—Miami							
Osawatimie State Hospital...	Ment	State	1,715	1,668	..	..	271
Ottawa, 10,193—Franklin							
Ransom Memorial Hospital...	Gen	County	38	30	14	434	1,602
Parsons, 14,594—Labette							
Mercy Hospital	Gen	Church	75	50	22	510	2,145
Missouri-Kansas-Texas Railroad							
Employees' Hospital	Indus	NPAasn	50	23	..	..	565
State Hospital for Epileptics	Epil	State	851	735	..	..	105
Pittsburg, 17,571—Crawford							
Mount Carmel Hospital	Gen	Church	98	88	12	669	3,503
Pratt, 6,501—Pratt							
Ninnesah Hospital	Gen	Corp	27	13	7	251	1,116
Quinter, 461—Gove							
Gove County Hospital	Gen	County	8	8	4	133	497
Russell, 4,819—Russell							
Russell City Hospital	Gen	City	24	18	12	250	1,044
Sabetha, 2,241—Nemaha							
St. Anthony Murdock Memo-							
rial Hospital	Gen	Church	50	35	12	193	1,619
Salina, 21,073—Saline							
Asbury Hospital	Gen	Church	80	63	20	484	2,896
St. John's Hospital	Gen	Church	85	74	20	439	2,668
Station Hospital	Gen	USAF	100	36	12	293	1,763
Seneca, 2,015—Nemaha							
Seneca Hospital	Gen	Church	23	7	12	149	952
Stafford, 2,011—Stafford							
Stafford City Hospital	Gen	City	28	18	10	175	638
Syracuse, 1,226—Hamilton							
Donohue Memorial Hospital...	Gen	County	26	15	12	193	624
Topeka, 67,833—Shawnee							
Atchison, Topeka and Santa							
Fe Railway Hospital	Indus	NPAasn	140	138	..	..	3,808

Key to symbols and abbreviations is on page 37

KANSAS—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Businesses	Number of Births	Admissions †
Christ's Hospital ¹⁴⁰	Gen	NPAssn	108	79	26	869	4,078
Jane C. Stormont Hospital ¹⁴⁰	Gen	NPAssn	80	70	25	811	3,173
Menginger Sanatorium ¹⁴¹	N&M	NPAssn	68	59	..	..	97
St. Francis Hospital ¹⁴¹	Gen	Church	100	76	26	851	3,696
Security Benefit Clinic and Hospital	Gen	NPAssn	73	71	..	..	3,109
State Sanatorium, Hillcrest Division	TB	State	20	14	..	..	156
Station Hospital	Gen	USAF	50	8	..	..	19
Topeka State Hospital	Ment	State	1,847	1,807	..	..	372
Veterans Admin. Hospital ¹⁴¹	Ment	Vet	1,109	1,061	..	..	4,091
Wadsworth, 2,300—Leavenworth Veterans Admin. Center ¹⁴¹	Gen	Vet	1,062	977	..	..	8,062
Wamego, 1,767—Pottawatomie Gen Hospital	Gen	City	15	8	8	102	377
Wellington, 7,240—Sumner Hatcher Hospital	Gen	NPAssn	21	12	5	50	572
St. Luke's Hospital	Gen	City	32	19	10	320	657
Wichita, 114,966—Sedgwick St. Francis Hospital ¹⁴¹	Gen	Church	173	370	70	2,395	14,879
St. Joseph's Hospital ¹⁴¹	Gen	Church	120	96	..	..	2,750
Sedgwick County Hospital	Gen	County	66	41	6	101	1,789
Sedgwick County Tuberculosis Sanatorium	TB	County	25	15	..	..	43
Veterans Admin. Hospital ¹⁴¹	Gen	Vet	256	247	..	..	3,410
Wesley Hospital ¹⁴¹	Gen	Church	325	313	51	2,016	10,438
Wichita Hospital ¹⁴¹	Gen	Church	110	121	25	811	3,552
Winfield, 9,506—Cowley St. Mary's Hospital ¹⁴¹	Gen	Church	60	11	9	170	1,469
William Newton Memorial Hospital ¹⁴¹	Gen	City	53	59	10	301	2,215
Related Institutions							
Ashland, 1,186—Clark Ashland Hospital	Gen	NPAssn	11	6	5	136	413
Fort Dodge, 550—Ford Kansas State Soldiers' Home Hospital	Inst	State	32	7	..	..	128
Lansing, 812—Leavenworth Kansas State Penitentiary Hospital	Inst	State	47	25	..	..	411
Manhattan, 11,653—Riley Kansas State College Hosp.	Inst	State	60	8	..	..	820
St. Francis, 1,011—Cheyenne St. Francis Hospital	Gen	Indiv	30	6	8	135	603
Topeka, 67,833—Shawnee Florence Crittenton Home	Mat	NPAssn	20	10	16	31	33
Wichita, 114,966—Sedgwick Booth Memorial Hospital	Mat	Church	50	28	30	89	111
Suburban Rest Sanatorium	N&M	Part	40	25	..	..	61
Winfield, 9,506—Cowley State Training School	McDe	State	1,378	1,347	..	..	78

KENTUCKY

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Businesses	Number of Births	Admissions †
Anchorage, 609—Jefferson Pleasant Grove Hospital	N&M	NPAssn	65	59	..	..	638
Ashland, 29,537—Boyd Federal Correctional Institution	Inst	USPHS	32	11	..	..	421
Barbourville, 2,420—Knox Kings Daughters Hospital	Gen	NPAssn	130	109	26	1,350	5,360
Berea, 2,176—Madison Knox Hospital	Gen	Part	22	9	7	124	559
Berea College Hospital ¹⁴⁰	Gen	NPAssn	70	30	8	328	2,311
Beverly, 306—Bell Red Bird Evangelical Hosp.	Gen	Church	11	4	5	81	206
Bowling Green, 14,585—Warren City Hospital	Gen	City	55	16	11	779	2,660
Campbellsville, 2,488—Taylor Rosary Hospital	Gen	Church	33	..	12	Estab. 1919	..
Camp Campbell—Christian Station Hospital	Gen	Army	500	48	6	115	2,177
Corbin, 7,893—Whitley Smith Hospital	Gen	Indiv	38	15	9	268	959
Covington, 62,018—Kenton Covington-Kenton County Tuberculosis Sanatorium	TB	County	17	15	..	..	8
St. Elizabeth Hospital ¹⁴⁰	Gen	Church	308	283	56	2,191	10,625
Vm. Booth Memorial Hosp.	Gen	Church	104	88	30	1,234	3,625
Cynthiana, 4,840—Harrison Harrison Memorial Hospital	Gen	NPAssn	32	26	8	291	957
Danville, 6,754—Boyle Ephraim McDowell Memorial Hospital	Gen	NPAssn	76	61	21	587	3,033
Kentucky State Hospital	Ment	State	1,269	1,016	..	..	566
Dayton, 8,379—Campbell Speers Memorial Hospital ¹⁴⁰	Gen	County	100	78	19	703	2,719
Fort Knox—Hardin Station Hospital	Gen	Army	600	398	36	751	10,511
Fort Thomas, 11,034—Campbell Veterans Admin. Hospital ¹⁴¹	Gen	Vet	308	93	..	..	624
Fulton, 3,308—Fulton Fulton Hospital	Gen	Corp	45	23	8	160	1,216
Haws Memorial Hospital	Gen	Indiv	30	25	5	103	810

KENTUCKY—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Businesses	Number of Births	Admissions †
Georgetown, 4,420—Scott John Graves Ford Memorial Hospital	Gen	Corp	33	21	11	229	1,250
Glasgow, 5,815—Harren T. J. Samson Community Hospital	Gen	NPAssn	89	79	16	813	5,498
Grayson, 1,176—Carler J. Q. Carver Memorial Hosp.	Gen	Corp	20	11	12	172	698
Grenov Mulh.	Gen	NPAssn	57	39	16	614	2,731
Harlan, 5,122—Harlan Harlan Hospital	Gen	Corp	65	48	10	330	2,183
Harrodsburg, 4,673—Mercer A. D. Price Memorial Hosp.	Gen	NPAssn	26	18	10	250	1,139
Hazard, 7,387—Perry Hurst-Snyder Hospital	Gen	Corp	25	12	6	176	2,958
Mount Mary Hospital	Gen	Church	72	54	8	250	3,915
Henderson, 13,160—Henderson Methodist Hospital	Gen	Church	80	30	20	601	2,139
Hopkinsville, 11,724—Christian Jennie Stuart Memorial Hospital	Gen	NPAssn	65	61	20	453	3,579
Western State Hospital	Ment	State	1,500	1,555	..	..	416
Hyden, 709—Leslie Hyden Hospital of the Frontier Nursing Service	Gen	NPAssn	19	18	8	153	550
Jenkins, 9,438—Letcher Shiron Heights Hospital	Gen	Church	34	..	..	Reorganized	..
La Grange, 1,331—Oldham Mallory Taylor Memorial Hospital	Gen	City	21	15	8	155	1,051
Lakeland, 55—Jefferson Central State Hospital	Ment	State	2,796	2,131	..	..	521
Lebanon, 3,766—Marion Mary Immaculate Infirmary	Gen	Church	35	25	14	714	1,090
Lexington, 49,304—Fayette Eastern State Hospital	Ment	State	2,090	1,712	..	..	698
Good Samaritan Hospital ¹⁴⁰	Gen	Church	285	268	35	1,282	8,655
Julius Marks Sanatorium	TB	County	115	101	..	..	190
St. Joseph Hospital ¹⁴⁰	Gen	Church	300	219	50	1,221	10,697
Shirley Hospital for Crippled Children	Orth	NPAssn	25	21	..	..	62
U. S. Public Health Service Hospital ¹⁴⁰	DrugMent	USPHS	1,108	1,110	..	..	2,591
Veterans Admin. Hospital ¹⁴¹	Ment	Vet	1,230	1,011	..	..	1,671
London, 2,261—Laurel Marymount Hospital	Gen	Church	35	16	10	201	987
Louisville, 2,023—Lawrence Riverview Hospital	Gen	Indiv	16	8	8	159	500
Louisville, 319,677—Jefferson Childrens Hospital ¹⁴⁰	Chil	NPAssn	70	46	..	..	1,497
Hazelwood Sanatorium	TB	State	121	123	..	..	225
Jewish Hospital ¹⁴¹	Gen	NPAssn	100	71	15	459	3,270
Kentucky Baptist Hosp.	Gen	Church	215	213	17	1,537	10,522
Kentucky Treatment Center	Ven	State	159	92	..	..	33,702
Knoxville Crippled Children Hospital	Orth	NPAssn	100	97	..	..	1,298
Louisville General Hosp.	Gen	CyCo	389	221	35	1,663	8,329
Methodist Deaconess Hosp.	Gen	Church	73	70	12	327	2,575
Norton Memorial Infirmary	Gen	NPAssn	137	142	32	1,232	6,214
Red Cross Hospital	Gen	NPAssn	45	38	10	308	1,970
St. Anthony's Hospital ¹⁴⁰	Gen	Church	188	145	31	1,318	6,682
St. Joseph Infirmary ¹⁴⁰	Gen	Church	100	303	65	2,155	12,468
St. Mary and Elizabeth Hospital	Gen	Church	202	161	65	2,527	8,010
Stokes Sanatorium	N&M	Indiv	40	20	..	..	150
Veterans Admin. Hospital ¹⁴¹	Gen	Vet	1,000	822	..	..	9,670
Lynch, 10,000—Harlan Lynch Hospital	Gen	NPAssn	55	18	8	222	1,209
Madisonville, 8,202—Hopkins Hopkins County Hospital	Gen	NPAssn	61	33	16	497	1,975
Marion, 2,163—Crittenden Crittenden County Hospital	Gen	NPAssn	23	11	9	190	587
Marion, 957—Floyd Our Lady of The Way Hosp.	Gen	Church	25	10	4	50	1,650
Mayfield, 8,619—Graves Fuller-Gilliam Hospital	Gen	Corp	55	22	8	303	1,456
Mayfield Hospital	Gen	NPAssn	40	25	8	150	990
Maysville, 6,522—Mason Hayswood Hospital	Gen	NPAssn	65	62	11	632	3,191
Middlesboro, 11,777—Bell Middlesboro Hospital	Gen	Corp	60	50	12	397	3,208
Morganfield, 5,099—Union Our Lady of Mercy Hospital	Gen	Church	35	16	7	156	763
Mount Sterling, 4,782—Montgomery Mary Childs Hospital	Gen	NPAssn	29	18	8	380	1,015
Murray, 3,773—Calloway Murray Hospital	Gen	NPAssn	60	28	12	261	1,396
Oneida, 300—Clay Oneida Maternity Hospital	Mat	State	25	12	22	471	726
Outwood, 50—Christian Veterans Admin. Hospital	TB	Vet	341	307	..	..	797
Owensboro, 30,245—Davless Owensboro-Davless County Hospital	Gen	CyCo	150	118	18	1,086	5,352
Paducah, 33,765—McCracken Ewart Purcell Isolation Hospital	Unit of Riverside Hospital	Indus	90	51	..	..	2,246
Illinois Central Hospital	Indus	NPAssn	114	91	28	1,016	5,770
Riverside Hospital	Geniso	City	30	16	5	175	767
Paintsville, 2,321—Johnson Paintsville Clinic-Hospital	Gen	Indiv	30	16	5	175	767
Paintsville Hospital	Gen	Corp	85	59	15	617	2,993

KENTUCKY—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Basinets	Number of Births	Admissions †
Paris, 6,607—Bourbon							
Masonic Memorial Hospital... Gen	City		50	23	8	271	1,247
Pewee Valley, 625—Oldham							
Pewee Valley Sanitarium and Hospital..... Gen	NPAssn		50	40	6	41	402
Pikeville, 4,185—Pike							
Methodist Hospital..... Gen	Church		80	108	13	1,079	7,809
Pineville, 3,882—Bell							
Pineville Community Hosp... Gen	Corp		70	60	11	287	3,171
Richmond, 7,335—Madison							
Gibson Hospital..... Gen	Indiv		50	30	8	93	1,059
Irvine-McDowell Memorial							
Trachoma Hospital... Trac	State		38	19	..	..	152
Pattie A. Clay Infirmary..... Gen	NPAssn		70	45	15	442	2,711
Riverside, 25—Warren							
Warren County Tuberculosis Hospital..... TB	County		27	26	..	..	61
Russellville, 3,983—Logan							
Logan County Hospital..... Gen	County		25	17	6	215	904
Shelbyville, 4,392—Shelby							
Kings Daughters Hospital... Gen	NPAssn		45	39	14	350	1,718
Somerset, 6,154—Pulaski							
Somerset City Hospital..... Gen	City		69	53	21	662	3,594
Stanford, 1,940—Lincoln							
Stanford Hospital..... Gen	Indiv		12	13	6	91	702
Versailles, 2,548—Woodford							
Woodford County Memorial Hospital..... Gen	NPAssn		32	16	8	247	1,316
Waverly Hills, 230—Jefferson							
Waverly Hills Sanatorium+▲ TB	CyCo		400	356	..	..	336
Winchester, 8,594—Clark							
Clark County Hospital..... Gen	NPAssn		50	35	8	281	1,592
Guerrant Memorial Hospital.. Gen	NPAssn		25	15	4	36	402
Related Institutions							
Fleming, 1,193—Letcher							
Fleming Hospital..... Gen	Part		30	14	2	93	873
Frankfort, 11,492—Franklin							
Kentucky Training Home... MeDe	State		714	683	..	..	69
La Grange, 1,334—Oldham							
State Reformatory Hospital Inst	State		61	18	..	..	720
Lexington, 49,304—Fayette							
Our Lady of the Oaks Hosp. N&M	Church		34	24	..	..	339
Louisville, 319,077—Jefferson							
Kings Daughters Home for Incurables..... Incur	NPAssn		100	100	..	..	10
Susan Speed Davis Home and Hospital..... Mat	Church		12	5	21	80	94

LOUISIANA

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Basinets	Number of Births	Admissions †
Abbeville, 6,672—Vermilion							
Abbeville Clinic Hospital..... Gen	Indiv		21	4	5	190	877
Alexandria, 27,006—Rapides							
Baptist Hospital+▲..... Gen	Church		210	118	40	955	8,110
Murrell Hospital-Clinic..... Gen	Indiv		35	28	5	145	1,481
Texada Admin. Hospital..... Gen	Part		14	8	5	264	898
Veterans Admin. Hospital+▲.. Gen	Vet		662	577	..	..	3,624
Bastrop, 6,656—Morehouse							
Bastrop General Hospital... Gen	Church		30	31	8	319	1,995
Baton Rouge, 34,719—East Baton Rouge							
Baton Rouge General Hosp. Gen	NPAssn		57	56	24	702	3,533
Our Lady of the Lake Sanitarium+▲..... Gen	Church		230	191	33	2,542	13,701
Bogalusa, 14,604—Washington							
Elizabeth Sullivan Memorial Hospital+▲..... Gen	NPAssn		118	87	20	616	6,663
Breaux Bridge, 1,608—St. Martin							
St. Paul Hospital..... Gen	Indiv		16	5	6	214	580
Bunkie, 3,575—Avoyelles							
Jones-McConnell Clinic-Hosp. Gen	Part		11	7	5	99	521
Knoll Infirmary..... Gen	Part		15	4	8	140	1,525
Carville, 250—Iberville							
U. S. Marine Hospital+▲..... Lepr	USPHS		538	400	..	..	97
Converse, 314—Sabine							
Allen Sanitarium..... Gen	Corp		15	8	6	95	800
Covington, 4,123—St. Tammany							
Fenwick Sanitarium..... N&M	Corp		30	22	..	..	258
Crowley, 9,523—Acadia							
Acadia Hospital..... Gen	Part		12	8	5	135	640
Legion Memorial Hospital... Gen	NPAssn		30	9	10	234	970
Delhi, 1,192—Richland							
Delhi Clinic and Sanitarium.. Gen	Part		18	10	12	290	795
De Ridder, 3,750—Beauregard							
Frazier Clinic and Hospital... Gen	Indiv		18	12	7	444	742
Donaldsonville, 3,889—Ascension							
Donaldsonville General Hosp. Gen	Indiv		10	2	6	70	201
Ferriday, 2,857—Concordia							
Ferriday Hospital..... Gen	Part		28	17	5	200	900
Greenwell Springs, 130—East Baton Rouge							
Greenwell Springs Tuberculosis Hospital..... TB	State		233	122	..	..	142
Haynesville, 2,418—Claiborne							
Haynesville Hospital+▲..... Gen	Corp		25	10	8	107	930
Hodge, 1,445—Jackson							
Hodge Clinic-Hospital..... Gen	NPAssn		16	2	3	126	764
Houma, 9,052—Terrebonne							
Ellender Memorial Hospital.. Gen	Part		23	14	8	890	2,559

LOUISIANA—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Basinets	Number of Births	Admissions †
Independence, 1,498—Tangipahoa							
Florida Parishes Charity Hospital..... Gen	State		65	51	14	374	2,660
Jackson, 5,384—East Feliciana							
East Louisiana State Hosp... Ment	State		4,501	4,430	..	..	927
Parker Hospital+▲..... Unit of East Louisiana State Hospital							
Lafayette, 19,210—Lafayette							
Des Ormeaux Clinic-Hospital Gen	Indiv		10	5	2	39	418
Lafayette Charity Hospital+▲ Gen	State		245	177	25	1,635	7,612
Lafayette Sanitarium..... Gen	NPAssn		25	15	8	356	1,430
St. Ann Infirmary..... Gen	Indiv		13	9	10	235	1,084
Lake Charles, 21,207—Calcasieu							
St. Patrick's Hospital+▲..... Gen	Church		100	63	39	1,391	5,317
Lecompte, 1,311—Rapides							
Lecompte Sanitarium..... Gen	Indiv		17	5	4	120	1,010
Logansport, 1,222—De Soto							
Sandifer Sanitarium..... Gen	Indiv		10	8	6	108	313
Many, 1,474—Sabine							
Fraser Sanitarium..... Gen	Indiv		17	6	8	181	676
Marksville, 1,811—Avoyelles							
Marksville Hospital..... Gen	Indiv		17	8	4	150	695
Minden, 6,077—Webster							
Minden Sanitarium..... Gen	Corp		45	26	8	384	1,403
Monroe, 28,309—Ouachita							
E. A. Conway Memorial Hospital+▲..... Gen	State		169	170	16	1,027	7,744
G. B. Cooley Sanatorium... TB	NPAssn		73	39	..	..	42
Monroe Charity Hospital..... Sec E. A. Conway Memorial Hospital							
Riverside Sanitarium+▲..... Gen	Indiv		26	14	8	96	852
St. Francis Sanitarium+▲..... Gen	Church		145	139	25	1,057	8,200
Vaughan-Wright-Bendel Clinic-Hospital+▲..... Gen	Part		36	36	10	184	1,784
New Iberia, 13,747—Iberia							
Dnutive Hospital..... Gen	Part		26	14	6	300	1,308
Iberia General Hospital..... Gen	Indiv		15	8	6	190	625
New Orleans, 494,537—Orleans							
Charity Hospital of Louisiana+▲+▲..... Gen	State		3,200	1,933	240	9,211	44,373
City Hospital for Mental Diseases..... Ment	City		100	33	..	..	359
De Paul Sanitarium+▲+▲..... N&M	Church		233	196	..	..	901
Eye, Ear, Nose and Throat Hospital+▲..... ENT	NPAssn		85	62	..	..	5,675
Flint Goodridge Hospital of Dillard University+▲..... Gen	NPAssn		97	56	20	448	2,005
French Hospital..... Gen	NPAssn		68	34	12	315	1,622
Hotel Dieu, Sisters' Hospital+▲+▲..... Gen	Church		301	236	55	2,245	11,268
Illinois Central Hospital+▲..... Indus	NPAssn		60	33	..	..	854
John Dibert Memorial Tuberculosis Hospital..... Unit of Charity Hospital							
Lakeshore Hospital..... Gen	NPAssn		175	91	23	631	4,768
Mercy Hospital-Soniat Memorial+▲..... Gen	Church		125	93	32	1,165	6,033
Mettairie Hospital..... Gen	NPAssn		22	10	8	50	550
Montelepre Memorial Hosp... Gen	NPAssn		30	11	6	94	554
Ochsner Foundation Hosp.+▲ Gen	NPAssn		216	151	..	..	5,246
Richard Milliken Memorial Hospital..... Unit of Charity Hospital							
Sara Mayo Hospital+▲..... Gen	NPAssn		64	36	32	719	2,618
Southern Baptist Hosp.+▲+▲ Gen	Church		350	283	70	2,952	13,632
Station Hospital..... Gen	Army		75	33	..	..	1,195
Touro Infirmary+▲+▲..... Gen	NPAssn		381	329	41	2,197	14,234
U. S. Marine Hospital+▲+▲..... Gen	USPHS		358	382	12	6,724	5,204
Veterans Admin. Hospital+▲.. Gen	Vet		606	479	..	..	5,204
Oplousas, 8,980—St. Landry							
St. Landry Clinic-Hospital... Gen	Corp		22	12	4	270	1,320
Pineland, 4,297—Rapides							
Central Louisiana State Hospital..... Ment	State		2,500	2,427	..	..	657
Fuquay Memorial Hospital+▲.. Unit of Central Louisiana State Hospital							
Huey P. Long Charity Hosp.+▲ Gen	State		276	200	24	1,477	9,295
Plaquemine, 5,049—Iberville							
Plaquemine Sanitarium..... Gen	NPAssn		35	24	9	322	1,527
Port Sulphur, 530—Plaquemines							
Port Sulphur Hospital..... Gen	NPAssn		14	8	7	158	844
Ruston, 7,107—Lincoln							
Ruston Hospital..... Gen	NPAssn		50	26	16	263	1,798
St. Martinsville, 3,501—St. Martin							
St. Martin Infirmary..... Gen	Indiv		11	6	7	101	406
Shreveport, 98,467—Caddo							
Gilmer Chest Hospital..... TB	Indiv		32	23	..	..	103
Gowen Sanatorium..... TB	Corp		55	48	..	..	203
Highland Sanitarium+▲+▲..... Gen	Part		102	79	16	326	3,892
North Louisiana Sanitarium+▲+▲..... Gen	Corp		130	60	17	404	4,283
Physicians and Surgeons Hospital..... Gen	Corp		75	60	..	..	2,947
Pines Sanatorium..... TB	State		100	36	..	..	85
T. E. Schumppert Memorial Sanitarium+▲+▲..... Gen	Church		107	82	27	1,250	5,180
Shreveport Charity Hosp.+▲+▲ Gen	State		650	469	52	2,892	14,533
Shriners Hospital for Crippled Children+▲..... Orth	NPAssn		60	48	..	..	705
Station Hospital+▲..... Gen	USAF		129	28	16	310	2,040
Tri-State Hospital+▲+▲..... Gen	Corp		120	109	20	835	5,240
Thibodaux, 5,531—La Fourche							
St. Joseph Hospital..... Gen	NPAssn		35	15	8	470	1,414
Urania, 800—La Salle							
Hardtner Memorial Clinic Hospital..... Gen	Part		13	8	4	74	649
Winnsboro, 2,834—Franklin							
Winnsboro Sanitarium..... Gen	Corp		20	9	4	105	1,163

Key to symbols and abbreviations is on page 37

LOUISIANA—Continued

Related Institutions	Type of Service	Ownership or Control	Beds	Average Census †	Basinsets	Number of Births	Admis- sions †
Alexandria, 27,066—Rapides State Colony and Training School	MeDe	State	950	321 ..	...	82	
Angola, 18—West Feliciana Angola General Hospital.....	Inst	State	110	40 ..	...	822	
Minden, 6,677—Webster Dr. J. A. Phillips Hospital...	Gen	Indiv	14	8 4	36	507	
Morgan City, 6,969—St. Mary Morgan City General Hosp...	Gen	NPAasn	24	10 6	306	1,331	
New Orleans, 494,537—Orleans Memorial Mercy Home-Hosp. Mat	Church	Church	50	32 15	81	89	
New Orleans Convalescent Home	Conv	NPAasn	33	11 ..	...	145	
Pleasant Hill, 737—Sabine Prothro Clinic and Hospital..	Gen	Indiv	14	9 5	87	701	

MAINE

Hospitals and Sanatoriums

Augusta, 19,360—Kennebec Augusta General Hospital*o..	Gen	NPAasn	75	60 20	811	2,865	
Augusta State Hospital.....	Ment	State	1,600	1,557 ..	...	311	
Bangor, 29,822—Penobscot Bangor Sanatorium	TB	NPAasn	30	18 ..	...	23	
Bangor State Hospital*o.....	Ment	State	1,232	1,203 ..	...	391	
Eastern Maine General Hos- pital*+*o	Gen	NPAasn	251	223 30	1,393	7,596	
St. Joseph Hospital.....	Gen	Church	28	22 ..	...	761	
Stinson Private Hospital.....	Gen	Indiv	26	10 12	351	911	
Bar Harbor, 4,378—Hancock Mount Desert Island Hosp.*	Gen	NPAasn	68	29 10	198	1,100	
Bath, 10,235—Sagadahoc Bath Memorial Hospital*....	Gen	NPAasn	70	41 20	307	1,478	
Belfast, 5,540—Waldo Bradley Memorial Hospital Gen	NPAasn	18	0 ..	...	197		
Waldo County General Hosp.*	Gen	NPAasn	35	20 10	297	722	
Biddeford, 10,700—York Trull Hospital	Gen	Corp	43	38 10	219	1,470	
Webber Hospital*o	Gen	NPAasn	55	69 15	517	3,491	
Blue Hill, 1,343—Hancock Blue Hill Memorial Hospital Gen	NPAasn	25	7 6	24	311		
Boothbay Harbor, 2,121—Lincoln St. Andrews Hospital*....	Gen	Corp	26	17 4	100	514	
Brunswick, 8,658—Cumberland Brunswick Hospital	Gen	Indiv	45	20 10	243	702	
Camden, 3,554—Knox Camden Community Hospital Gen	NPAasn	18	13 6	138	557		
Caribou, 8,218—Aroostook Cary Memorial Hospital*....	Gen	City	40	28 16	391	1,410	
Castine, 662—Hancock Castine Community Hospital Gen	NPAasn	12	9 6	207	407		
Damariscotta, 844—Lincoln Miles Memorial Hospital.....	Gen	NPAasn	28	17 7	247	821	
Dexter, 3,714—Penobscot Plummer Memorial Hospital..	Gen	NPAasn	20	9 7	190	485	
Dover-Foxcroft, 4,015—Piscataquis Mayo Memorial Hospital.....	Gen	City	21	14 8	189	718	
Ellsworth, 3,911—Hancock Eastern Memorial Hospital... Gen	NPAasn	14	7 7	162	398		
Fairfield, 5,294—Somerset Central Maine Sanatorium*..	TB	State	205	141 ..	...	192	
Farmington, 3,743—Franklin Franklin County Memorial Hospital*	Gen	NPAasn	49	19 14	350	1,071	
Fort Fairfield, 5,607—Aroostook Fort Fairfield Clinic Hosp....	Gen	NPAasn	18	13 10	201	613	
Gardiner, 6,044—Kennebec Gardiner General Hospital*..	Gen	NPAasn	54	28 16	372	1,396	
Greenville Junction, 600—Piscataquis Charles A. Dean Memorial Hospital	Gen	NPAasn	18	8 4	90	701	
Greenwood Mountain, 250—Oxford Western Maine Sanatorium*+ TB	State	150	90 ..	...	152		
Hartland, 1,240—Somerset Scott-Webb Memorial Hosp... Gen	NPAasn	40	30 12	236	817		
Houlton, 7,771—Aroostook Aroostook General Hospital..	Gen	NPAasn	36	26 10	191	1,119	
Madigan Memorial Hospital*o	Church	54	48 13	224	1,765		
Island Falls, 1,370—Aroostook Emma V. Milliken Memorial Hospital	Gen	NPAasn	25	14 12	191	635	
Lewiston, 38,598—Androscoggin Central Maine General Hos- pital*+*o	Gen	NPAasn	226	195 38	1,001	5,656	
St. Mary's General Hosp.*+*o	Gen	Church	155	128 25	1,018	4,159	
Old Town, 7,688—Penobscot Home Private Hospital.....	Gen	Indiv	15	8 8	210	350	
Portland, 73,643—Cumberland Maine Eye and Ear Infirmary*o	Gen	NPAasn	128	97 36	739	4,752	
Maine General Hospital*+*o..	Gen	NPAasn	330	261 55	1,834	8,401	
Mercy Hospital*o	Gen	Church	156	144 80	959	4,538	
Portland City Hospital.....	Gen	Inst	131	100 12	28	806	
U. S. Marine Hospital*..	USPHS	90	59 ..	...	1,269		
Presque Isle, 7,339—Aroostook Northern Maine Sanatorium..	TB	State	124	70 ..	...	130	
Presque Isle General Hosp.*..	Gen	NPAasn	55	39 10	431	2,325	
Rockland, 8,899—Knox Knox County General Hosp.*	Gen	NPAasn	65	36 12	312	1,702	
Rumford, 10,230—Oxford Rumford Community Hosp.*o	Gen	NPAasn	60	45 16	569	2,533	

MAINE—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Basinsets	Number of Births	Admis- sions †
Sanford, 14,886—York Henrietta D. Goodall Hosp.*	Gen	NPAasn	40	42 14	480	2,307	
Skowhegan, 7,159—Somerset Redington Memorial Hospital	Gen	NPAasn	25	22 8	343	1,453	
Togus, 2,350—Kennebec Veterans Admin. Center*...Ment	Gen	Vet	891	747 ..	...	2,935	
Waterville, 10,688—Kennebec Sisters' Hospital*o	Gen	Church	102	69 18	720	3,616	
Thayer Hospital*	Gen	NPAasn	35	32 8	235	1,691	
Westbrook, 11,057—Cumberland Westbrook Hospital	Gen	Corp	25	18 10	247	896	

Related Institutions

Bangor, 29,822—Penobscot Gay Private Hospital.....	N&M	Indiv	17	15 ..	...	132	
Eagle Lake, 1,891—Aroostook Northern Maine General Hosp. Gen	Church	40	36 7	156	1,065		
Pownall, 575—Cumberland Pownall State School.....	MeDe	State	1,120	1,066 ..	...	20	
Union, 1,150—Knox Jones Sanitarium	N&M	Corp	39	18 ..	...	12	
Van Buren, 5,300—Aroostook Hotel Dieu Hospital.....	Gen	Church	15	9 7	157	551	
Yarmouth, 2,214—Cumberland Gilbert Maternity and Con- valescent Home	Mat	Indiv	17	15 3	20	26	
York Village, 1,500—York York Hospital	Gen	NPAasn	22	11 6	124	612	

MARYLAND

Hospitals and Sanatoriums

Aberdeen Proving Ground,—Harford Station Hospital	Gen	Army	150	69 14	272	2,069	
Annapolis, 13,669—Anne Arundel Annapolis Emergency Hosp.*	Gen	NPAasn	72	56 16	551	2,762	
U. S. Naval Hospital*+..	Gen	Navy	307	96 19	276	2,991	
Army Chemical Center,—Harford Station Hospital	Gen	Army	50	15 ..	...	544	
Baltimore, 829,160—Baltimore City Baltimore City Hospital*+*o	Gen	Tb City	1,914	1,501 80	1,508	7,407	
Baltimore City Tuberculosis Hospital	Unit of Baltimore City Hospitals						
Baltimore Eye, Ear and Throat Charity Hospital*+..	ENT	NPAasn	60	51 ..	...	4,002	
Beck Diagnostic Clinic-Hosp..	Gen	Indiv	14	10 ..	...	228	
Bon Secours Hospital*+*o..	Gen	Church	150	126 55	1,119	4,831	
Children's Hospital School*+	Orth	NPAasn	129	89 ..	...	442	
Church Home and Hosp.*+*o	Gen	Church	165	129 25	1,137	5,122	
Franklin Square Hosp.*+*o..	Gen	NPAasn	218	125 50	1,480	5,335	
Gundry Sanitarium	N&M	Indiv	45	35 ..	...	39	
Hospital for Women*+*o..	Gen	NPAasn	129	95 38	1,681	4,538	
James Lawrence Kernan Hos- pital and Industrial School for Crippled Children*+..	Orth	NPAasn	85	62 ..	...	252	
Johns Hopkins Hospital*+*o	Gen	NPAasn	990	714 75	2,355	19,898	
Johnston Memorial Children's Hospital	Unit of Union Memorial Hospital						
Maryland General Hosp.*+*o	Gen	Church	242	200 26	1,067	6,365	
Mercy Hospital*+*o	Gen	Church	291	237 51	1,570	8,785	
Providence Eye, Ear and Throat Charity Hospital... ENT	Church	40	4 ..	...	1,249		
Provident Hospital and Free Dispensary*+*o	Gen	NPAasn	130	92 30	1,265	3,147	
St. Agnes Hospital*+*o..	Gen	Church	221	175 37	1,275	7,032	
St. Joseph's Hospital*+*o..	Gen	Church	250	189 37	1,421	7,510	
Seton Institute*o	N&M	Church	310	302 ..	...	270	
Sinal Hosp.*+*o	Gen	NPAasn	311	258 59	2,244	9,399	
South Baltimore General Hos- pital*+*o	Gen	NPAasn	157	138 24	955	5,632	
Sydenham Hospital*+..	Gen	City	110	44 6	1	9-2	
Union Memorial Hosp.*+*o..	Gen	NPAasn	311	268 36	1,154	9,261	
U. S. Marine Hospital*+*o..	Gen	USPHS	500	405 ..	...	8,474	
University Hospital*+*o ..	Gen	State	435	387 70	2,372	10,688	
West Baltimore General Hos- pital*+*o	Gen	NPAasn	185	143 35	1,814	6,253	
Bethesda, 20,000—Montgomery Suburban Hospital*+..	Gen	NPAasn	102	73 22	610	3,592	
U. S. Naval Hospital*+..	Gen	Navy	1,550	1,084 40	1,409	15,573	
Cambridge, 10,102—Dorchester Cambridge-Maryland Hosp.*	Gen	NPAasn	70	40 15	412	2,013	
Eastern Shore State Hospital	Ment	State	500	481 ..	...	197	
Cascade, 350—Washington Ritchie Hospital	Chr	State	200	83 ..	...	198	
Cantonville, 7,647—Baltimore Hnarrin Lodge	N&M	Part	43	31 ..	...	147	
Spring Grove State Hosp.*..	Ment	State	2,311	2,262 ..	...	684	
Chestertown, 2,760—Kent Kent and Upper Queen Anne's General Hospital	Gen	NPAasn	30	18 12	254	851	
Cheverly (Hyattsville P.O.), 926—Prince Georges Prince George's General Hosp. Gen	County	102	84 18	743	4,123		
Crisfield, 3,008—Somerset Edward W. McCready Memo- rial Hospital	Gen	NPAasn	38	25 14	189	590	
Crownsville, 30—Anne Arundel Crownsville State Hospital..	Ment	State	1,760	1,744 ..	...	674	
Hospital for Colored Feeble-minded Children	Unit of Crownsville State Hospital						

MARYLAND—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Basinsets	Number of Births	Admissions †
Cumberland, 39,483—Allegany							
Allegany Hospital of the Sisters of Charity* ^o	Gen	Church	129	103	20	761	4,305
Memorial Hospital* ^o	Gen	CyCo	218	178	50	1,308	6,769
Easton, 4,528—Talbot							
Memorial Hospital* ^o	Gen	NPAasn	125	74	20	326	3,250
Elkton, 3,518—Cecil							
Union Hosp. of Cecil County	Gen	NPAasn	74	41	25	401	1,953
Fort George G. Meade—Anne Arundel							
Station Hospital* ^o	Gen	Army	737	92	10	356	2,090
Fort Howard, 1,200—Baltimore							
Veterans Admin. Hospital* ^o	Gen	Vet	483	382	..	..	3,677
Frederick, 15,802—Frederick							
Emergency Hospital	Gen	County	40	23	16	251	506
Frederick Memorial Hosp.* ^o	Gen	NPAasn	125	92	24	997	4,073
Frostburg, 7,659—Allegany							
Miners Hospital	Gen	State	51	38	14	464	1,798
Glen Dale, 205—Prince Georges							
Tuberculosis Sanatorium	See Washington, D. C.						
Hagerstown, 32,491—Washington							
Children's Hospital	Chil	NPAasn	14	..	..	..	..
Washington County Hosp.* ^o	Gen	NPAasn	158	140	48	1,493	6,400
Havre de Grace, 4,967—Harford							
Harford Memorial Hospital* ^o	Gen	NPAasn	76	62	30	765	3,442
Henryton, 30—Carroll							
Maryland Tuberculosis Sanat.	TB	State	396	333	..	..	418
Ijamsville, 200—Frederick							
Riggs Cottage Sanitarium	N&M	Indiv	20	20	..	..	43
La Plata, 488—Charles							
Physicians Memorial Hospital	Gen	NPAasn	32	18	16	242	1,045
Laurel, 2,823—Prince Georges							
District Training School	See Washington, D. C.						
Laurel Sanitarium	N&M	Indiv	50	74	..	..	304
Warren Hospital	Gen	Part	16	10	8	142	495
Leonardtown, 608—St. Marys							
St. Mary's Hospital	Gen	NPAasn	45	22	11	355	1,215
Mount Wilson, 225—Baltimore							
Mount Wilson Branch, Maryland Tuberculosis Sanat.	TB	State	200	181	..	..	101
Olney, 100—Montgomery							
Montgomery County General Hospital	Gen	NPAasn	40	36	14	415	1,606
Patuxent River, St. Marys							
U. S. Naval Air Station Dispensary	Gen	Navy	248	42	24	322	2,365
Perry Point, 80—Cecil							
Veterans Admin. Hospital* ^o	Ment	Vet	1,830	1,787	..	..	2,891
Prince Frederick, 300—Calvert							
Calvert County Hospital	Gen	Corp	26	12	8	384	1,014
Reisterstown, 2,000—Baltimore							
Mount Pleasant	TB	NPAasn	60	52	..	..	65
Relay, 2,016—Baltimore							
Relay Sanitarium	N&M	Part	35	24	..	..	186
Riverdale, 2,330—Prince Georges							
Eugene Leland Memorial Hospital	Gen	Corp	56	39	21	378	1,709
Rockville, 2,047—Montgomery							
Chestnut Lodge Sanitarium* ^o	N&M	Indiv	80	59	..	..	64
Salisbury, 13,313—Wicomico							
Maryland Tuberculosis Sanatorium,							
Eastern Shore Branch	TB	State	50	56	..	..	73
Peninsula General Hosp.* ^o	Gen	NPAasn	177	137	30	1,322	6,567
Silver Spring, 28,000—Montgomery							
Cedarcroft Sanitarium	N&M	Part	50	30	..	..	770
State Sanatorium, 200—Frederick							
Maryland Tuberculosis Sanat.	TB	State	365	333	..	..	281
Sykesville, 806—Carroll							
Springfield State Hospital* ^o	Ment	State	3,000	2,970	..	..	774
Takoma Park, 8,938—Montgomery							
Walter Reed General Hospital	See Washington, D. C.						
Washington Sanitarium and Hospital	See Washington, D. C.						
Towson, 2,074—Baltimore							
Aigburth Manor Hospital	Nerv	Indiv	25	23	..	..	49
Hospital for Consumptives (Eudowood Sanatorium)	TB	NPAasn	180	180	..	..	182
Sheppard and Enoch Pratt Hospital* ^o	N&M	NPAasn	285	193	..	..	227
Western Port, 3,565—Allegany							
Reeves Clinic-Hospital	Gen	Part	12	1	..	..	200
Related Institutions							
Baltimore, 559,100—Baltimore City							
Baltimore City Jail Hospital	Inst	City	24	3	..	..	465
Happy Hills Convalescent Home for Children	Conv	NPAasn	80	55	..	..	185
Home for Incurables	Incur	NPAasn	164	138	..	..	25
Levindale Hebrew Home and Infirmary	Inst	NPAasn	180	174	..	..	56
Maryland Penitentiary Hosp.	Inst	State	20	25	..	..	378
Ellicott City, 1,216—Howard							
Pinel Clinic-Hospital	N&M	Corp	41	28	..	..	125
Jessups, 400—Anne Arundel							
Maryland House of Correction	Inst	State	25	7	..	..	350
Owings Mills, 130—Baltimore							
Rosewood State Training School	MeDe	State	1,275	1,250	..	..	86
Rockville, 2,047—Montgomery							
Christ Child Farm for Convalescent Children	Conv	NPAasn	31	27	..	..	114

MASSACHUSETTS

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Basinsets	Number of Births	Admissions †
Acushnet (New Bedford P.O.),—Bristol							
Acushnet Hospital	Gen	NPAasn	52	33	17	720	1,554
Adams, 12,608—Berkshire							
W. B. Plunkett Memorial Hospital* ^o	Gen	City	50	23	15	339	1,191
Amesbury, 10,862—Essex							
Amesbury Hospital* ^o	Gen	City	35	22	10	270	1,094
Arlington, 40,013—Middlesex							
Ring Sanatorium and Hosp.	N&M	Corp	60	42	..	..	421
Symmes Arlington Hospital* ^o	Gen	NPAasn	59	51	12	400	2,554
Attleboro, 22,071—Bristol							
Bristol County Tuberculosis Hospital	TB	County	60	51	..	..	109
Sturdy Memorial Hospital* ^o	Gen	NPAasn	120	111	32	1,119	4,075
Ayer, 3,572—Middlesex							
Community Memorial Hosp.* ^o	Gen	NPAasn	27	18	10	268	794
Bedford, 3,807—Middlesex							
Veterans Admin. Hospital* ^o	Ment	Vet	1,875	1,827	..	..	1,080
Beverly, 25,537—Essex							
Beverly Hospital* ^o	Gen	NPAasn	166	145	41	1,006	5,266
Boston, 770,816—Suffolk							
Adams House (Adams Nerve Hospital)	Nerv	NPAasn	35	30	..	..	116
Adubon Hospital	Gen	Corp	37	29	6	356	1,786
Beth Israel Hospital* ^o	Gen	NPAasn	215	193	..	..	5,781
Boston City Hospital* ^o	Gen	City	2,378	1,781	159	2,610	36,421
Boston Floating Hospital* ^o	Chil	NPAasn	56	41	..	..	1,883
Boston Lying-In Hosp.* ^o	Mat	NPAasn	134	76	125	4,997	2,971
Boston Psychopathic Hospital* ^o	Ment	State	117	116	..	..	1,228
Boston Sanatorium*	TB	City	573	431	..	..	506
Boston State Hospital* ^o	Ment	State	3,128	2,957	..	..	1,357
Carney Hospital* ^o	Gen	Church	228	190	84	1,016	6,213
Channing Home	TB	NPAasn	29	28	..	..	34
Children's Hospital* ^o	Chil	NPAasn	345	233	..	..	9,250
Faulkner Hospital* ^o	Gen	NPAasn	144	105	25	785	4,538
Glenside Hospital	N&M	Corp	118	117	..	..	128
Harley Hospital	Gen	Corp	55	42	21	673	2,371
Haynes Memorial Hospital	Unit of Massachusetts Memorial Hospitals						
House of the Good Samaritan* ^o	Card	NPAasn	79	47	..	..	157
Huntington Clinic	Maintained by Massachusetts Gen. Hosp.						
Infants' Hospital	Unit of Children's Hospital						
Jewish Memorial Hospital	GenChr	NPAasn	122	114	..	..	214
Joseph H. Pratt Diagnostic Hospital	See New England Center Hospital						
Long Island Hospital	GenChr	City	575	448	..	..	808
Massachusetts Eye and Ear Infirmary* ^o	ENT	NPAasn	190	131	..	..	6,359
Massachusetts General Hospital* ^o	Gen	NPAasn	526	344	..	..	7,390
Massachusetts General Hospital, Baker Memorial	Gen	NPAasn	344	268	42	229	7,311
Massachusetts General Hospital, Phillips House	Gen	NPAasn	94	79	22	717	2,277
Massachusetts Memorial Hospitals* ^o	Gen	NPAasn	465	266	45	785	8,149
Massachusetts Women's Hospital	Gen	NPAasn	66	59	23	661	1,986
New England Baptist Hosp.* ^o	Gen	NPAasn	227	192	..	..	5,449
New England Center Hosp.* ^o	Gen	NPAasn	84	64	..	..	4,872
New England Deaconess Hospital* ^o	Gen	Church	300	279	..	..	7,624
New England Hospital for Women and Children* ^o	Gen	NPAasn	193	113	75	1,993	4,561
Palmer Memorial Hospital	Unit of New England Deaconess Hospital						
Peter Bent Brigham Hospital* ^o	Gen	NPAasn	250	198	..	..	5,133
Robert Breck Brigham Hosp.* ^o	Gen	NPAasn	105	71	..	..	786
Robert Dawson Evans Memorial* ^o	Unit of Massachusetts Memorial Hospitals						
St. Elizabeth's Hospital* ^o	Gen	Church	256	210	60	2,667	7,127
St. Margaret's Hospital* ^o	Gen	Church	125	92	60	1,971	4,567
St. Mary's Lying-In Hosp.* ^o	Mat	Church	18	19	18	132	145
U. S. Marine Hospital* ^o	Gen	USPHS	372	280	..	..	3,708
Veterans Admin. Hospital* ^o	Gen	Vet	382	336	..	..	5,744
Wolfson Nose and Throat Hospital	ENT	Indiv	9	3	..	..	310
See State Farm, Mass.							
Brookton Hospital* ^o	Gen	NPAasn	124	104	23	952	3,705
Goddard Hospital* ^o	Gen	Corp	67	60	15	634	2,651
Moore Hospital	Gen	Indiv	22	12	8	292	603
Brookline, 49,786—Norfolk							
Allerton Hospital	Gen	NPAasn	60	51	20	506	2,250
Bellevue Hospital	Gen	NPAasn	32	28	10	291	1,481
Booth Memorial Hospital* ^o	Mat	Church	65	41	48	998	2,209
Bournwood Hospital	N&M	Indiv	69	57	..	..	883
Brooks Hospital* ^o	Gen	NPAasn	50	35	..	..	1,603
Free Hospital for Women* ^o	Gyn	NPAasn	91	72	..	..	3,057
Health Department Hospital* ^o	TB	City	55	15	..	..	33
Parkway Hospital	Unit of Free Hospital for Women						
Cambridge, 110,879—Middlesex							
Cambridge City Hospital* ^o	City	City	300	174	100	1,347	5,724
Cambridge Sanatorium	TB	City	100	82	..	..	208
Chester Hospital	Gen	Corp	35	27	12	387	1,168
Mount Auburn Hospital* ^o	Gen	NPAasn	221	201	51	1,642	6,831
Sancta Maria Hospital	Gen	Church	69	..	20	Estab.	1948
Canton, 6,351—Norfolk							
Massachusetts Hosp. School* ^o	Orth	State	260	125	..	..	56
Chelsea, 41,259—Suffolk							
Captain John Adams Hosp.* ^o	Gen	State	190	180	..	..	1,919
Chelsea Memorial Hospital* ^o	Gen	NPAasn	98	70	25	916	2,922
U. S. Naval Hospital* ^o	Gen	Navy	725	600	20	528	6,550

MASSACHUSETTS—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Bassinets	Number of Births	Admissions †
Chicopee Falls, 16,941—Hampden Station Hospital	Gen	USAF	125	52	..	...	1,576
Clinton, 12,440—Worcester Clinton Hospital	Gen	NPAasn	63	55	20	455	1,979
Concord, 7,972—Middlesex Emerson Hospital	Gen	NPAasn	37	34	18	506	1,633
Danvers, 14,179—Essex Danvers State Hospital	See Hathorne						
Hunt Memorial Hospital	Gen	City	16	9	8	75	762
Everett, 46,784—Middlesex Whidden Memorial Hosp.	Gen	NPAasn	113	86	20	1,076	3,280
Fall River, 115,423—Bristol Fall River General Hospital	Gen	City	269	115	..	...	1,270
St. Anne's Hospital	Gen	Church	100	87	32	1,077	3,673
Truesdale Hospital	Gen	NPAasn	170	122	30	848	1,786
Union Hospital	Gen	NPAasn	165	133	42	1,091	5,216
Fitchburg, 41,824—Worcester Burbank Hospital	Gen	City	250	263	37	1,010	6,005
Lucy Helen Memorial Hosp.	Unit of Burbank Hospital						
Foxboro, 6,303—Norfolk Foxboro State Hospital	Ment	State	1,270	1,213	..	...	205
F	Gen	NPAasn	101	95	31	883	5,020
Gardner, 20,206—Worcester Gardner State Hospital	Ment	State	1,437	1,384	..	...	242
Henry Heywood Memorial Hospital	Gen	NPAasn	107	90	20	825	3,294
Georgetown, 1,803—Essex Baldpate	N&M	Corp	42	37	..	...	248
Gloucester, 24,016—Essex Addison Gilbert Hospital	Gen	NPAasn	85	72	15	644	2,652
Great Barrington, 5,824—Berkshire Fairview Hospital	Gen	NPAasn	56	33	14	362	1,259
Greenfield, 15,672—Franklin Franklin County Public Hospital	Gen	NPAasn	102	88	25	789	3,329
Hanson, 2,570—Plymouth Plymouth County Hospital	TB	County	140	53	..	...	69
Hathorne, 146—Essex Danvers State Hospital	Ment	State	2,495	2,345	..	...	893
Haverhill, 46,752—Essex Benson Hospital	Gen	Corp	20	16	17	105	1,005
Haverhill Municipal Hospital (Hale)	Gen	City	161	113	30	894	6,617
Haydenville, 1,030—Hampshire Hampshire County Sanat.	See Northampton						
Holden, 3,924—Worcester Holden District Hospital	Gen	NPAasn	29	28	6	253	1,128
Holyoke, 53,750—Hampden Holyoke Hospital	Gen	NPAasn	110	116	21	648	3,506
Providence Hospital	Gen	Church	165	111	52	1,417	5,189
Hyannis, 1,500—Barnstable Cape Cod Hospital	Gen	NPAasn	65	52	15	589	2,924
Ipswich, 6,348—Essex Benjamin Stickney Cable Memorial Hospital	Gen	NPAasn	25	15	7	184	698
Lawrence, 81,323—Essex Bessie Burke Memorial Hosp.	Gen	City	99	60	5	47	1,132
Clover Hill Hospital	Gen	Corp	62	41	23	870	2,418
Lawrence General Hosp.	Gen	NPAasn	190	156	42	1,323	5,903
Leominster, 22,226—Worcester Leominster Hospital	Gen	NPAasn	102	67	22	621	3,048
Lowell, 101,389—Middlesex Lowell General Hospital	Gen	NPAasn	183	139	30	926	4,714
St. John's Hospital	Gen	Church	189	118	35	810	5,566
St. Joseph's Hospital	Gen	Church	135	111	31	1,107	4,951
Shaw Hospital	Gen	Indiv	20	9	12	213	462
Ludlow, 8,181—Hampden Ludlow Hospital	Gen	NPAasn	32	20	16	458	1,673
Lynn, 98,123—Essex Lynn Hospital	Gen	NPAasn	242	188	74	1,392	7,990
Lynn Hospital	Gen	NPAasn	52	39	14	610	2,928
Marblehead, 10,856—Essex Mary A. Alley Emergency	Gen	City	18	10	10	71	511
Methuen, 21,880—Essex Mary E. McGowan Memorial Hospital	Gen	Corp	32	25	12	580	1,417
Middleton, 2,348—Essex Essex County Tuberculosis Hospital	TB	County	360	227	..	...	214
Milford, 15,388—Worcester Milford Hospital	Gen	NPAasn	61	46	15	728	2,531
Milton, 18,708—Norfolk Milton Hospital and Convalescent Home	Gen	NPAasn	23	14	6	70	534

MASSACHUSETTS—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Bassinets	Number of Births	Admissions †
Montague City, 635—Franklin Parren Memorial Hospital	Gen	Church	74	58	8	277	3,014
Nantucket, 3,401—Nantucket Nantucket Cottage Hospital	Gen	NPAasn	33	17	5	70	613
Natick, 13,851—Middlesex Leonard Morse Hospital	Gen	NPAasn	68	41	17	475	1,002
Nedham, 12,445—Norfolk Gley Memorial Hospital	Gen	City	23	15	10	195	803
New Bedford, 110,511—Bristol St. Luke's Hospital	Gen	NPAasn	294	204	45	2,091	9,521
Sassaquin Sanatorium	TB	NPAasn	101	85	..	...	84
Sole-Mor Orthopedic Hospital for Children	Orth	NPAasn	40	23	..	...	45
Union Hospital	Gen	Corp	36	28	..	...	1,221
Newburyport, 13,916—Essex Anna Jaques Hospital	Gen	NPAasn	53	46	10	317	1,718
Worcester Memorial Hosp.	Gen	NPAasn	29	13	5	125	526
Newton, 69,873—Middlesex New England Penabody Home for Crippled Children	Orth	NPAasn	109	65	..	...	21
Newton-Wellesley Hosp.	Gen	NPAasn	240	176	55	1,471	6,550
Norfolk, 2,294—Norfolk State Prison Colony Hosp.	Inst	State	75	43	..	...	567
North Adams, 22,213—Berkshire North Adams Hospital	Gen	NPAasn	91	59	19	566	2,769
Northampton, 21,794—Hampshire Cooley Dickinson Hospital	Gen	NPAasn	151	124	35	1,234	5,279
Hampshire County Sanat.	TB	County	65	59	..	...	54
Northampton State Hosp.	Ment	State	1,788	2,247	..	...	865
Veterans Admin. Hospital	Ment	Vet	1,105	1,060	..	...	410
North Grafton, 1,150—Worcester Grafton State Hospital	Ment	State	1,863	1,789	..	...	315
North Reading, 472—Middlesex North Reading State Sanat.	TB	State	210	101	..	...	89
Norwood, 15,333—Norfolk Norwood Hospital	Gen	NPAasn	122	101	30	914	4,112
Oak Bluffs, 1,584—Dukes Martha's Vineyard Hospital	Gen	NPAasn	34	19	10	121	642
Palmer, 8,149—Hampden Monson State Hospital	Epil	State	1,163	1,440	..	...	101
Wing Memorial Hospital	Gen	NPAasn	29	15	10	223	1,633
Penabody, 21,711—Essex Josiah B. Thomas Hospital	Gen	City	69	49	15	314	1,808
Pittsfield, 49,644—Berkshire Hillcrest Hospital	Gen	NPAasn	45	37	10	365	1,428
Pittsfield General Hosp.	Gen	NPAasn	189	129	31	649	4,661
St. Luke's Hospital	Gen	Church	150	127	33	1,062	4,424
Plymouth, 13,100—Plymouth Jordan Hospital	Gen	NPAasn	89	42	15	465	1,505
Pocasset, 265—Barnstable Barnstable County Sanat.	TB	County	70	65	..	...	272
Quincy, 75,400—Norfolk Quincy City Hospital	Gen	City	324	248	60	1,634	7,573
Rutland, 2,181—Worcester Jewish Tuberculosis Sanat.	TB	NPAasn	25	20	..	...	47
Rutland State Sanatorium	TB	State	260	225	..	...	200
Rutland Heights, 800—Worcester Veterans Admin. Hospital	TB	Vet	524	454	..	...	686
Salem, 41,213—Essex North Shore Babies' Hosp.	Chil	NPAasn	35	20	13	...	437
Salem Hospital	Gen	NPAasn	237	197	52	1,465	6,890
Somerville, 102,177—Middlesex Somerville Hospital	Gen	NPAasn	120	109	30	1,070	4,056
Springfield, 119,551—Hampden Health Department Hosp.	TB	City	100	48	..	...	318
Mercy Hospital	Gen	Church	340	297	60	2,041	9,624
Shriners Hospital for Crippled Children	Orth	NPAasn	60	50	..	...	280
Springfield Hospital	Gen	NPAasn	281	250	4	13	7,861
Wesson Maternity Hospital	Mat	NPAasn	70	64	80	2,837	3,647
Wesson Memorial Hospital	Gen	NPAasn	112	88	..	...	3,584
State Farm, 200—Plymouth Bridgewater State Hospital	Ment	State	1,074	988	..	...	116
Stockbridge, 1,815—Berkshire Austen Riggs Foundation	N&M	NPAasn	40	30	..	...	125
Taunton, 37,395—Bristol Morton Hospital	Gen	NPAasn	88	63	45	601	2,524
Taunton State Hospital	Ment	State	1,950	2,000	..	...	738
Tewksbury, 6,261—Middlesex Tewksbury State Hospital and Infirmary	Gen	Chr	2,715	1,913	40	126	1,594
Vineyard Haven, 1,500—Dukes U. S. Marine Hospital	Gen	USPHS	39	21	..	...	230
Walpole, 7,443—Norfolk Pondville Hospital	Cancer	State	50	43	..	...	800
Waltham, 40,020—Middlesex Metropolitan State Hosp.	Ment	State	1,589	1,997	..	...	881
Middlesex County Sanat.	TB	County	380	261	..	...	285
Murphy General Hospital	Gen	Army	544	320	22	413	1,698
Waltham Hospital	Gen	NPAasn	174	115	37	1,028	4,460
Ware, 7,557—Hampshire Mary Lane Hospital	Gen	NPAasn	50	26	18	498	1,426
Wareham, 6,364—Plymouth Tobey Hospital	Gen	NPAasn	40	34	10	518	1,484
Waverley, 6,000—Middlesex McLean Hospital	N&M	NPAasn	232	103	..	...	819
Webster, 13,186—Worcester Webster District Hospital	Gen	NPAasn	33	32	14	505	1,052

Key to symbols and abbreviations is on page 37

MASSACHUSETTS—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Basinsets	Number of Births	Admissions †
Wellesley, 15,127—Norfolk	N&M	Corp	35	27	..	..	47
Channing Sanatorium	N&M	Indiv	30	26	..	..	15
Westboro, 6,403—Worcester							
Westboro State Hospital+▲..	Ment	State	1,799	1,676	..	..	588
Westfield, 18,703—Hampden							
Noble Hospital+▲	Gen	Corp	75	45	15	572	3,470
Westfield State Sanatorium+▲	Gen	State	239	152	..	..	602
.....	Gen	Corp	21	18	..	..	50
.....	Gen	NPAssn	117	94	40	1,291	4,228
Whitinsville, 7,000—Worcester							
Whitinsville Hospital	Gen	NPAssn	25	8	13	175	780
Winchendon, 6,570—Worcester							
Winchendon Hospital	Gen	NPAssn	25	24	8	295	851
Winchester, 15,081—Middlesex							
Winchester Hosp.	Gen	NPAssn	72	67	20	1,068	2,705
Wintrop, 16,768—Suffolk							
Wintrop (on)	osp.▲	Gen	64	47	20	747	2,009
Woburn, 19,751—Middlesex							
Charles Chaote Memorial Hospital+▲	Gen	NPAssn	51	42	18	490	1,897
Worcester, 193,694—Worcester							
Belmont Hospital+▲	TbIso	City	230	113	..	..	643
Fairlawn Hospital+▲	Gen	NPAssn	53	40	16	643	2,456
Harvard Private Hospital	Gen	Corp	25	9	5	44	820
Memorial Hospital+▲	Gen	NPAssn	269	207	34	1,183	8,636
St. Vincent Hospital+▲	Gen	Church	242	233	35	896	7,203
Worcester City Hospital+▲	Gen	City	480	377	53	1,634	10,366
Worcester County Sanat.	TB	County	130	94	..	..	79
Worcester Hahnemann Hospital+▲	Gen	NPAssn	118	100	45	1,165	4,354
Worcester State Hospital+▲	Ment	State	2,898	2,500	..	..	859

Related Institutions

Andover, 11,122—Essex							
Isham Infirmary	Inst	NPAssn	50	10	..	..	770
Belchertown, 3,503—Hampshire							
Belchertown State School+▲ ..	McDe	State	1,323	1,174	..	..	135
Boston, 770,816—Suffolk							
Bay State Hospital	Gen	NPAssn	30	21	5	278	1,290
Boston Home for Incurables	Incur	NPAssn	56	45	..	..	2
Florence Crittenton Maternity							
Home and Hospital	Mat	NPAssn	51	50	47	78	98
Hastings House	Mat	NPAssn	36	22	17	53	98
Prendergast Preventorium ..	TB	NPAssn	160	51	..	..	213
Washingtonian Hospital	Drug	NPAssn	45	32	..	..	1,012
Cambridge, 110,679—Middlesex							
Holy Ghost Hospital for Incurables	Incur	Church	260	260	..	..	280
Framingham, 23,214—Middlesex							
Woodside Cottages	N&M	Corp	20	19	..	..	26
Greenfield, 15,672—Franklin							
Greenfield Isolation Hospital	Iso	City	20	3	..	..	135
Haverhill, 46,732—Essex							
Glynn Memorial Hospital	Chr	City	82	76	..	..	161
Lynn, 98,123—Essex							
Lynn Health Department Hospital	Iso	City	50	10	25	..	200
Pittsfield, 49,634—Berkshire							
Pittsfield Anti-Tuberculosis Hospital	TB	NPAssn	12	9	..	..	19
Salem, 41,213—Essex							
Health Department Hosp. for Communicable Diseases	Iso	City	35	5	..	..	110
Springfield, 149,554—Hampden							
Buscall Nursing Home	Conv	Indiv	25	10	..	..	22
City of Springfield Infirmary	Inst	City	110	104	6	..	125
Waltham, 40,020—Middlesex							
Walter E. Fernald State School+▲	McDe	State	1,540	1,842	..	..	162
Wellesley, 15,127—Norfolk							
Simpson Infirmary of Wellesley College	Inst	NPAssn	29	18	..	..	1,013
Wellesley Hills, —Norfolk							
Convalescent Home for Children	Orth	NPAssn	75	40	..	..	341
West Concord, 3,500—Middlesex							
Massachusetts Reformatory Hospital	Inst	State	50	2	..	..	878
Williamstown, 4,294—Berkshire							
Williams College Infirmary ..	Inst	NPAssn	19	3	..	..	264
Wrentham, 4,674—Norfolk							
Wrentham State School	McDe	State	2,075	1,846	..	..	235

MICHIGAN

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Basinsets	Number of Births	Admissions †
Adrian, 14,230—Lenawee							
Emma L. Bixby Hospital	Gen	City	78	56	24	926	3,007
Albion, 8,345—Calhoun							
James W. Sheldon Memorial Hospital+▲	Gen	City	45	32	14	498	1,639
Allegan, 4,526—Allegan							
Allegan Health Center+▲	Gen	NPAssn	40	25	13	452	1,490
Alma, 7,202—Gratiot							
Carney-Wilcox-Miller Hospital	Gen	NPAssn	34	18	10	224	938
Michigan Masonic Home and Hospital	Inst	NPAssn	60	62	..	..	110
R. B. Smith Memorial Hosp. Gen	NPAssn		29	21	16	579	1,722

MICHIGAN—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Basinsets	Number of Births	Admissions †
Almont, 924—Lapeer							
Bishop Hospital	Gen	Indiv	14	8	5	197	511
Alpena, 12,608—Alpena							
Alpena General Hospital	Gen	City	78	65	21	810	3,856
Ann Arbor, 29,615—Washtenaw							
Mercywood Neuropsychiatric Hospital+▲	N&M	Church	40	40	..	..	520
Michigan Rapid Treatment Center	Ven	State	100	61	7	1	22,179
Neuropsychiatric Institute ..	Unit of University Hospital	Church	250	183	64	1,632	8,065
St. Joseph's Mercy Hosp.+▲ ..	Gen	State	929	796	35	879	17,348
University Hospital+▲	Gen						
Bad Axe, 2,624—Huron							
Hubbard Memorial Hospital ..	Gen	NPAssn	34	20	12	370	1,221
Battle Creek, 43,453—Calhoun							
American Legion Hospital+▲ ..	TB	NPAssn	275	211	..	..	253
Arthur S. Kimball Sanat.	TB	County	73	67	..	..	85
Battle Creek Sanatorium+▲ ..	Gen	NPAssn	307	191	..	..	4,172
Community Hospital+▲	Gen	NPAssn	100	77	25	1,271	5,489
Lella Y. Post Montgomery Hospital+▲	Gen	Church	175	117	25	812	7,401
Percy Jones General Hosp.+▲ ..	Gen	Army	1,700	1,278	15	211	5,981
Bay City, 47,956—Bay							
Bay City General Hospital+▲ ..	Gen	City	125	117	25	1,255	5,775
Bay City Samaritan Hospital ..	Gen	NPAssn	43	25	4	..	1,158
Mercy Hospital+▲	Gen	Church	320	126	30	982	5,763
Benton Harbor, 16,608—Berrien							
Mercy Hospital+▲	Gen	NPAssn	90	83	30	1,402	4,454
Berrien Center, 241—Berrien							
Berrien County Hospital	Gen	County	60	29	5	39	575
Big Rapids, 4,987—Mecosta							
Community Hospital	Gen	City	37	26	12	293	1,224
Brighton, 1,353—Livingston							
Mellus Memorial Hospital	Gen	NPAssn	13	7	6	81	340
Cadillac, 9,855—Wexford							
Mercy Hospital+▲	Gen	Church	125	60	25	596	3,217
Calumet, 1,400—Houghton							
Calumet and Hecla Hospital	Indus	NPAssn	24	13	..	..	560
Caro, 3,070—Tuscola							
Caro Community Hospital	Gen	City	16	8	9	232	741
Caro State Hospital for Epileptics	Epil	State	1,351	1,351	..	..	82
Cass City, 1,262—Tuscola							
Pleasant Home Hospital	Gen	Indiv	13	13	5	156	793
Charlevoix, 2,209—Charlevoix							
Charlevoix Hospital	Gen	NPAssn	29	19	7	185	1,025
Charlotte, 5,544—Eaton							
Hayes-Green-Beach County Memorial Hospital	Gen	County	24	14	10	273	938
Cheboygan, 5,673—Cheboygan							
Community Memorial Hosp. ..	Gen	NPAssn	48	36	12	328	2,065
Clare, 1,844—Clare							
Clare Hospital	Gen	NPAssn	25	10	6	85	440
Coldwater, 7,343—Branch							
Community Health Center+▲ ..	Gen	County	70	45	24	566	2,465
Crystal Falls, 2,641—Iron							
Crystal Falls Municipal Hosp. Gen	City		17	10	5	119	684
Dearborn, 63,584—Wayne							
Dearborn Diagnostic Hospital	Gen	NPAssn	65	10	20	33	467
Dearborn General Hospital ..	Gen	Indiv	15	3	14	263	476
Dearborn Medical Centre Hospital	Gen	NPAssn	65	37	16	1,058	2,332
St. Joseph's Retreat+▲	N&M	Church	325	292	..	..	1,083
Veterans Admin. Hospital+▲ ..	Gen	Vet	777	738	..	..	6,048
Detroit, 1,623,432—Wayne							
Alexander Blain Hospital+▲ ..	Gen	NPAssn	80	50	5	109	2,462
Bethesda Hospital+▲	TB	NPAssn	83	79	..	..	184
Charles Godwin Jennings Hospital+▲	Gen	NPAssn	83	54	25	349	2,530
Children's Hospital+▲	Chil	NPAssn	200	165	..	..	5,812
City of Detroit Receiving Hospital+▲	Gen	City	538	522	..	..	17,570
City of Detroit Receiving Hospital (Redford Branch)+▲	Gen	City	46	34	..	..	1,275
Delray General Hospital	Gen	NPAssn	72	51	20	699	2,532
Detroit Medical Hospital+▲ ..	N&M	NPAssn	102	87	..	..	1,309
Detroit Tuberculosis Sanat.	TB	NPAssn	200	182	..	..	869
Dorothy Rogers General Hosp. Gen	NPAssn		50	26	6	130	1,819
East Side General Hospital+▲ ..	Gen	NPAssn	79	63	45	1,391	4,351
Edyth K. Thomas Memorial Hospital+▲	Gen	NPAssn	125	17	12	174	540
Evangelical Deaconess Hospital+▲	Gen	Church	185	117	40	1,675	9,040
Fairview Sanatorium	TB	NPAssn	67	66	..	..	122
Florence Crittenton Hosp.+▲ ..	Gen	NPAssn	300	200	75	1,910	5,744
Grace Hospital+▲	Gen	NPAssn	641	532	116	5,088	25,178
Grace Hospital, Northwestern Branch+▲	Unit of Grace Hospital						
Harper Hospital+▲	Gen	NPAssn	546	448	91	2,664	20,937
Henry Ford Hospital+▲	Gen	NPAssn	580	577	61	2,073	17,224
Herman Kiefer Hosp.+▲	TbMatIso	City	1,200	994	68	2,939	7,927
Holy Cross Hospital	Gen	Church	100	93	55	2,201	5,518
Kretschmar Diagnostic Clinic and Hospital	Gen	NPAssn	12	5	4	63	296
Lincoln Hospital+▲	Gen	NPAssn	63	42	22	757	2,474
Lynn Hospital	Gen	NPAssn	40	...	8	Estab.	1948
Martin Place Hospital	Gen	NPAssn	20	5	6	28	202
McGregor Center-Hospital for Rehabilitation and Health Education	Conv	NPAssn	35	26	..	..	205
Mercy General Hospital	Gen	Indiv	35	16	10	12	251
Mercy Hall Hospital	Cancer	NPAssn	60	45	..	..	441

Key to symbols and abbreviations is on page 37

MICHIGAN—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Basinets	Number of Births	Admis- sions †
Ishpeming, 9,491—Marquette							
Ishpeming Hospital ¹	Gen	NPAssn	56	48	18	388	1,425
Jackson, 49,656—Jackson							
W. A. Foote Memorial Hos- pital ¹	Gen	City	150	144	30	1,064	6,512
Jackson County Sanatorium ²	TB	County	68	70	..	...	67
Mersey Hospital ¹	Gen	Church	141	100	25	1,345	5,479
Kalamazoo, 51,057—Kalamazoo							
Borgess Hospital ¹	Gen	Church	248	177	35	1,533	6,922
Bronson Methodist Hosp. ¹	Gen	Church	145	125	30	1,419	5,562
Fairmount Hospital ¹	TB	County	93	40	..	...	274
Kalamazoo State Hospital ²	Ment	State	3,350	3,362	..	...	576
Lakeview, 821—Montcalm							
Kelsey Hospital.....	Gen	State	20	11	5	210	748
Laings, 78,753—Ingham							
Edward W. Sparrow Hosp. ¹	Gen	NPAssn	228	170	53	2,567	9,201
Ingham Sanatorium ¹	TB	County	156	126	..	...	339
St. Lawrence Hospital ¹	Gen	Church	210	183	50	2,015	8,058
Lapeer, 5,365—Lapeer							
Lapeer City Hospital.....	Gen	Part	18	9	4	153	675
Lapeer State Home and Training School ¹	McDe	State	4,593	4,071	3	7	411
Laurium, 3,929—Houghton							
Calumet Public Hospital....	Gen	NPAssn	38	29	12	365	1,277
Ludington, 8,701—Mason							
Paulina Stearns Hospital....	Gen	NPAssn	46	32	10	427	1,865
Manistee, 8,691—Manistee							
Mersey Hospital and Sanit. ¹	Gen	Church	59	34	12	340	1,257
Manistee, 5,339—Schoolcraft							
Shaw General Hospital.....	Gen	Indiv	20	18	10	228	526
Marquette, 15,925—Marquette							
Morgan Height Sanit. ¹	TB	County	90	86	..	...	88
St. Luke's Hospital ¹	Gen	NPAssn	112	122	12	478	3,883
St. Mary's Hospital.....	Gen	Church	60	48	14	316	1,716
Marshall, 5,253—Calhoun							
Oakland Hospital.....	Gen	NPAssn	21	18	12	270	857
Mason, 2,567—Ingham							
Mason General Hospital.....	Gen	NPAssn	29	...	6	Estab.	1948
Menominee, 10,230—Menominee							
St. Joseph's Hospital.....	Gen	Church	71	57	13	570	2,823
Midland, 10,329—Midland							
Midland Hospital ¹	Gen	NPAssn	83	56	20	800	3,331
Millan, 2,310—Washtenaw							
Federal Correctional Insti- tution.....	Inst	USPHS	31	17	..	...	540
Monroe, 18,478—Monroe							
Mersey Hospital ¹	Gen	Church	46	33	27	874	3,293
Monroe Hospital.....	Gen	NPAssn	67	46	19	530	3,174
Morrel, 1,845—Lenawee							
Blanchard Hospital.....	Gen	NPAssn	14	8	6	90	417
Mount Clemens, 14,383—Macomb							
St. Joseph Hospital ¹	Gen	Church	128	140	42	1,579	6,089
Stanton Hospital.....	Gen	USAF	50	29	..	...	856
Mount Pleasant, 8,113—Isabella							
Central Michigan Community Hospital ¹	Gen	NPAssn	50	49	16	553	2,141
Mumfins, 4,900—Alcona							
Mumfins Hospital.....	Gen	NPAssn	25	12	5	120	165
Muskegon, 17,697—Muskegon							
Huckley Hospital ¹	Gen	NPAssn	182	145	34	1,898	6,998
Mersey Hospital ¹	Gen	Church	108	87	33	1,285	4,550
Muskegon County Sanit. ¹	TB	County	75	67	..	...	70
Newberry, 2,732—Lucas							
Newberry Clinic Hospital.....	Gen	Indiv	22	14	10	229	886
Newberry State Hospital ¹	Ment	State	1,750	1,676	..	...	754
Niles, 11,328—Berrien							
Pawling Hospital.....	Gen	NPAssn	72	54	20	765	3,196
Northville, 3,632—Wayne							
East Lawn Sanatorium.....	TB	Corp	94	89	..	...	157
Sessions Hospital.....	Gen	NPAssn	40	24	12	350	1,410
Wm. H. Maybury Sanatorium (Detroit Municipal Tubercu- losis Sanatorium) ¹	TB	City	844	714	..	...	776
Norway, 3,728—Dickinson							
Penn. Hospital.....	Gen	City	16	12	7	176	619
Onet, 295—Arenac							
Onet Hospital.....	Gen	Indiv	16	8	5	122	399
Ontonagon, 2,290—Ontonagon							
Ontonagon Memorial Hosp....	Gen	City	30	21	5	166	1,153
Oshkemo, 237—Kalamazoo							
Pine Crest State Sanatorium	TB	State	100	85	..	...	92
Owosso, 14,121—Shiawassee							
Memorial Hospital ¹	Gen	NPAssn	80	75	20	1,016	4,568
Paw Paw, 1,910—Van Buren							
Lake View Municipal Hospital	Gen	City	23	18	6	206	1,131
Petoskey, 6,919—Emmet							
Little Traverse Hospital ¹	Gen	NPAssn	103	83	10	407	3,680
Lewckwood General Hospital....	Gen	NPAssn	50	40	10	210	1,746
Pigeon, 949—Huron							
Scheurer Hospital.....	Gen	NPAssn	20	14	10	222	714
Plathwell, 2,124—Allegan							
Wm. Crispe Hospital.....	Gen	City	25	17	11	311	888
Pontiac, 66,626—Oakland							
Oakland County Contagious Hospital.....	YenIso	County	85	39	..	...	500
Oakland County Tuberculosis Sanatorium ¹	TB	County	210	188	..	...	288
Pontiac General Hospital ¹	TB	City	237	161	46	2,815	8,643
Pontiac State Hospital ¹	Ment	State	2,481	2,377	..	...	618
St. Joseph's Mercy Hosp. ¹	Gen	Church	257	162	77	1,978	9,100
Port Huron, 32,759—St. Clair							
Port Huron Hospital.....	GenIso	NPAssn	120	90	24	1,411	6,143

MICHIGAN—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Bassnets	Number of Births	Admissions †
Powers, 258—Menominee							
Plainerst Sanatorium.....	TB	Counties	145	124 ..	...	...	110
Reed City, 1,845—Oscoda							
Reed City Hospital.....	Gen	City	31	37 10	343	1,361	
River Rouge, 17,008—Wayne							
Sidney A. Sumbly Memorial Hospital	Gen	NPAssn	35	18 10	100	6.6	
Rochester, 3,750—Oakland							
Haven Sanitarium	N&M	Corp	43	37 ..	...	345	
Royal Oak, 25,087—Oakland							
Oakland Center Hospital.....	Gen	NPAssn	12	8 ..	...	273	
Royal Oak General Hospital.....	Gen	City	24	10 12	423	1,581	
Saginaw, 82,704—Saginaw							
Saginaw County Hospital.....	Thlso	County	175	169 ..	...	377	
Saginaw County Infirmary							
Hospital	Gen	County	43	40 ..	...	231	
Saginaw General Hosp.	Gen	NPAssn	204	183 50	1,527	9,406	
St. Luke's Hospital.....	Gen	Church	63	48 18	747	3,081	
St. Mary's Hospital.....	Gen	Church	170	139 35	1,309	6,909	
St. Clair, 3,471—St. Clair							
St. Clair Community Hosp....	Gen	City	20	13 8	414	932	
St. Johns, 4,422—Clinton							
Clinton Memorial Hospital.....	Gen	NPAssn	75	40 20	512	2,201	
St. Joseph, 8,963—Berrien							
St. Joseph Michigan Hosp.	Gen	NPAssn	35	27 12	288	1,749	
Sault Ste. Marie, 15,847—Chippewa							
Chippewa County War Memorial Hospital.....	Gen	County	130	105 21	826	4,669	
Sault Ste. Marie State Hosp. Ment		State	558	540 ..	...	105	
Shelby, 1,367—Oceana							
Shelby Hospital	Gen	City	20	7 10	90	900	
South Haven, 4,745—Van Buren							
South Haven Hospital.....	Gen	City	42	36 12	416	1,749	
Stambaugh, 2,081—Iron							
General Hospital Company of Iron River District.....	Gen	NPAssn	28	16 12	353	1,041	
Sturgis, 7,214—St. Joseph							
Sturgis Memorial Hospital.....	Gen	City	40	32 10	628	1,875	
Tecumseh, 2,921—Lenawee							
Tecumseh Hospital	Gen	City	34	27 16	389	1,204	
Three Rivers, 6,710—St. Joseph							
Three Rivers Hospital.....	Gen	City	34	26 8	377	1,455	
Traverse City, 14,455—Grand Traverse							
Boardman Valley Hospital.....	Gen	County	19	9 4	41	270	
James Decker Munson Hosp.	Gen	NPAssn	132	119 20	778	3,655	
Traverse City State Hosp.	Ment	State	2,861	2,737 ..	...	783	
Wakefield, 3,591—Gogebic							
Divine Infant of Prague Hosp. Gen		Church	23	12 7	175	554	
Wayne, 4,223—Wayne							
Wayne Clinic Hospital.....	Gen	Indiv	15	8 6	140	609	
Wayne General Hospital.....	Gen	NPAssn	23	15 7	304	1,136	
West Branch, 1,563—Ogemaw							
Tolfree Memorial Hospital.....	Gen	City	19	17 5	315	1,542	
Wyandotte, 30,618—Wayne							
Wyandotte General Hosp.	Gen	City	170	103 45	1,997	8,327	
Ypsilanti, 12,121—Washtenaw							
Beyer Memorial Hospital.....	Gen	NPAssn	155	103 44	1,598	5,863	
Leland Sanatorium.....	TB	NPAssn	125	71 ..	...	100	
Ypsilanti State Hospital.....	Ment	State	3,485	3,425 ..	...	918	
Zeland, 3,007—Ottawa							
Thomas G. Huizinga Memorial Hospital	Gen	NPAssn	15	8 8	304	626	
Related Institutions							
Ann Arbor, 29,815—Washtenaw							
Ann Arbor School.....	McDe	Indiv	40	35 ..	...	15	
Coldwater, 7,343—Branch							
Coldwater State Home and Training School	McDe	State	1,304	1,133 ..	...	149	
Detroit, 1,623,452—Wayne							
Barnett Clinic and Hospital.....	ENT	NPAssn	15	5 ..	...	445	
Central Hospital	Gen	Indiv	23	15 ..	...	272	
Denike Sanitarium	Alcoh	N&M	142	137 ..	...	132	
Doctors' Hospital	Conv	Indiv	35	25 ..	...	297	
General Hospital and Clinic.....	TB	Indiv	47	40 ..	...	117	
Good Samaritan Hospital.....	Conv	NPAssn	29	29 ..	...	26	
Michigan Memorial Hospital	Conv	Corp	45	...	Estab.	1948	
Douglas, 421—Allegan							
Community Hospital	Gen	NPAssn	16	8 6	62	405	
East Grand Rapids, 4,890—Kent							
O'Keefe Sanitarium	Conv	Corp	32	30 ..	...	43	
Farmington, 1,510—Oakland							
Children's Hospital Convalescent Home	Conv	NPAssn	190	57 ..	...	234	
Ferndale, 22,523—Oakland							
Ardmore Hospital	Gen	NPAssn	22	14 12	330	1,248	
Flint, 151,543—Genesee							
Genesee County Hospital and Infirmary	InstGen	County	100	80 10	...	203	
Grand Rapids, 164,292—Kent							
Kent County Receiving Hosp. Ment		County	28	15 ..	...	528	
Mary Free Bed Guild Convalescent Home and Orthopedic Center	Orth	NPAssn	96	65 ..	...	502	
Michigan Veterans' Facility	Inst	State	275	250 ..	...	270	
Salvation Army Evangeline Booth Home and Hospital.....	Mat	Church	40	28 30	174	185	
Jackson, 49,636—Jackson							
Florence Crittenton Home and Hospital	Mat	NPAssn	22	15 12	38	54	
Jackson County Isolation Hospital	Iso	County	45	9 ..	...	238	

MICHIGAN—Continued

Related Institutions	Type of Service	Ownership or Control	Beds	Average Census †	Bassnets	Number of Births	Admissions †
Southern Michigan Prison Hospital	Inst	State	200	145 ..	...	2,816	
Lansing, 78,753—Ingham							
Boys' Vocational School	Inst	State	30	9 ..	...	1,052	
Ingham County Convalescent Hospital	ConvIso	County	50	36 ..	...	256	
Marquette, 15,928—Marquette							
Marquette Branch Prison	Inst	State	24	5 ..	...	65	
Mount Clemens, 14,389—Macomb							
Sigma Gamma Hosp. School.....	Orth	NPAssn	50	41 ..	...	120	
Mount Pleasant, 8,413—Isabella							
Mount Pleasant State Home and Training School.....	MeDe	State	380	370 ..	...	32	
Northville, 3,032—Wayne							
Wayne County Training School	MeDe	County	835	689 ..	...	158	
Plainwell, 2,424—Allegan							
Del Vista Sanitarium.....	N&M	Corp	35	24 ..	...	292	
Plymouth, 5,360—Wayne							
Plymouth Hospital	Gen	Part	7	2 3	36	118	
Pontiac, 66,626—Oakland							
Oakland County Infirmary.....	Inst	County	210	206 ..	...	1,098	
Romulus, 755—Wayne							
Romulus Hospital	Gen	NPAssn	15	3 6	49	178	
Stockbridge, 852—Ingham							
Rowe Memorial Hospital.....	Gen	Indiv	10	5 5	183	420	
Trenton, 5,284—Wayne							
Trenton Hospital	Mat	Indiv	17	10 17	314	331	
Vicksburg, 1,774—Kalamazoo							
Franklin Memorial Hospital.....	Gen	City	12	7 8	108	662	

MINNESOTA

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Bassnets	Number of Births	Admissions †
Ada, 1,935—Norman							
Ada Municipal Hospital.....	Gen	City	33	20 8	202	744	
Adrian, 1,066—Nobles							
Adrian Hospital	Gen	NPAssn	17	14 6	169	704	
Ah-gwah-ching, 15—Cass							
Minnesota State Sanatorium.....	TB	State	355	247 ..	...	389	
Albert Lea, 12,200—Freeborn							
Naeve Hospital	Gen	NPAssn	85	85 25	1,112	5,634	
Alexandria, 5,051—Douglas							
Our Lady of Mercy Hosp.	Gen	Church	28	30 10	304	1,300	
St. Luke's Hospital.....	Gen	Church	33	22 12	155	1,001	
Anoka, 6,326—Anoka							
Anoka Hospital	Gen	NPAssn	16	8 8	159	390	
Anoka State Hospital.....	Ment	State	1,400	1,326 ..	...	100	
Appleton, 1,877—Swift							
Kaufman Hospital	Gen	Indiv	25	10 5	129	628	
Austin, 18,307—Mower							
St. Olaf Hospital.....	Gen	NPAssn	105	89 25	835	3,959	
Battle Lake, 623—Otter Tail							
Otter Tail County Sanatorium.....	TB	County	48	20 ..	...	13	
Bemidji, 9,427—Beltrami							
Lutheran Hospital	Gen	NPAssn	75	30 16	592	2,203	
Benson, 2,729—Swift							
Swift County Hospital.....	Gen	NPAssn	27	18 10	249	1,045	
Bertha, 578—Todd							
Thiel Hospital	Gen	NPAssn	19	14 8	215	761	
Bigfork, 382—Itasca							
Northern Itasca Hospital.....	Gen	City	11	9 4	56	440	
Biwabik, 1,304—St. Louis							
Biwabik Hospital	Gen	Indiv	10	6 7	100	316	
Braham, 578—Isanti							
Braham Community Hospital.....	Gen	NPAssn	26	15 7	201	1,050	
Brainerd, 12,071—Crow Wing							
St. Joseph's Hospital.....	Gen	Church	75	63 18	765	3,987	
Breckenridge, 2,745—Wilkin							
St. Francis Hospital.....	Gen	Church	90	82 15	737	4,167	
Buffalo, 1,695—Wright							
Catlin Hospital	Gen	Part	10	3 4	52	170	
Buhl, 1,600—St. Louis							
Range Hospital	Chr	County	46	44 ..	...	110	
Caledonia, 1,985—Houston							
Caledonia Community Hosp. Gen		NPAssn	14	12 6	121	666	
Cambridge, 1,592—Isanti							
Minnesota Colony for Epileptics	Epil	State	1,108	1,008 ..	...	54	
Cannon Falls, 1,544—Goodhue							
Mineral Springs Sanatorium.....	TB	Counties	100	103 ..	...	172	
Cass Lake, 1,904—Cass							
Cass Lake Indian Hospital.....	Gen	IA	36	11 4	110	755	
Chisholm, 7,457—St. Louis							
Mesaba Clinic Hospital.....	Gen	Part	18	14 5	133	542	
Cloquet, 7,304—Carlton							
Fond du Lac Indian Hospital.....	Gen	IA	22	13 4	62	472	
Raiter Hospital	Gen	NPAssn	36	22 12	174	1,401	
Cokato, 1,175—Wright							
Cokato Hospital	Gen	Indiv	19	10 6	72	471	
Crookston, 7,161—Polk							
Bethesda Hospital.....	Gen	Church	50	57 12	275	2,672	
St. Vincent's Hospital.....	Gen	Church	70	64 15	363	2,456	
Sunnyside Sanatorium	TB	Counties	60	36 ..	...	34	
Crosby, 2,934—Crow Wing							
Miner's Hospital	Gen	NPAssn	25	18 6	195	1,747	
Dawson, 1,646—Lac qui Parle							
Dawson Hospital	Gen	NPAssn	35	25 7	114	892	
Deer River, 987—Itasca							
Deer River Hospital.....	Gen	Corp	12	...	5	Estab. 1948	

MINNESOTA—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Basinets	Number of Births	Admissions †
Deerwood, 570—Crow Wing		Counties	26	16	..	..	23
Deerwood Sanatorium	TB						
Detroit Lakes, 5,015—Becker							
St. Mary's Hospital	Gen	Church	60	71	15	508	3,054
Duluth, 101,665—St. Louis							
Miller Memorial Hospital	Gen	City	78	75	..	..	1,158
St. Luke's Hospital	NPAssn		276	249	33	1,872	10,160
St. Mary's Hospital	Gen	Church	255	265	35	1,409	10,009
Ely, 5,970—St. Louis							
Shipman Hospital	Gen	Part	18	11	5	115	457
Eveleth, 6,887—St. Louis							
More Hospital and Clinic	Gen	NPAssn	30	18	10	121	710
Fairmont, 6,988—Martin							
Fairmont Community Hosp.	Gen	NPAssn	50	45	11	635	2,215
Faribault, 14,527—Rice							
Minnesota School for Feeble-minded	McDe	State	2,842	2,704	16	16	356
St. Lucas Deaconess Hosp.	Gen	Church	65	47	17	569	2,184
Farmington, 1,580—Dakota							
Sanford Hospital	Gen	NPAssn	30	13	4	110	558
Fergus Falls, 10,848—Otter Tail							
Fergus Falls State Hospital	Ment	State	2,000	1,847	..	..	446
George B. Wright Memorial Hospital	Gen	NPAssn	51	44	10	305	1,838
St. Luke's Hospital	Gen	NPAssn	67	51	15	452	2,052
Fosston, 1,271—Polk							
Fosston Community Hosp.	Gen	NPAssn	14	12	6	201	557
Glencoe, 2,387—McLeod							
Glencoe Municipal Hospital	Gen	City	38	42	12	538	1,822
Glenwood, 2,561—Pope							
Glenwood Community Hosp.	Gen	City	26	23	10	229	1,003
Greenville, 1,020—Big Stone							
Holy Trinity Hospital	Gen	Church	25	25	10	220	1,505
Grand Rapids, 4,875—Itasca							
Itasca County Hospital	Gen	County	67	50	20	747	2,678
Granite Falls, 2,388—Yellow Medicine							
Granite Falls Municipal Hosp.	Gen	City	39	17	12	101	357
Riverside Sanatorium	TB	Counties	48	32	..	..	29
Hallock, 1,353—Kittson							
Kittson War Veterans' Memorial Hospital	Gen	NPAssn	34	10	10	180	990
Hastings, 5,662—Dakota							
Hastings State Hospital	Ment	State	1,131	1,051	..	..	69
Hendricks, 740—Lincoln							
Hendricks Community Hosp.	Gen	NPAssn	50	27	8	170	1,961
Heron Lake, 852—Jackson							
Heron Lake Hospital	Gen	NPAssn	15	9	3	71	580
Hibbing, 16,385—St. Louis							
Hibbing General Hospital	Gen	Church	132	122	20	680	5,033
Hutchinson, 3,887—McLeod							
Hutchinson Community Hospital	Gen	NPAssn	45	37	12	406	1,631
International Falls, 5,626—Koochiching							
International Falls Memorial Hospital	Gen	NPAssn	62	..	14	Estab.	1918
Jackson, 2,640—Jackson							
Sisters of Charity Hospital	Gen	Church	20	12	5	154	688
Lake City, 3,204—Wabasha							
Lake City Hospital	Gen	City	32	31	8	153	931
Lake Park, 654—Becker							
Sand Beach Sanatorium	TB	Counties	42	26	..	..	18
Litchfield, 9,920—Meeker							
Litchfield Hospital	Gen	NPAssn	16	38	12	333	1,508
Little Falls, 6,047—Morrison							
St. Gabriel's Hospital	Gen	Church	94	71	20	694	3,912
Littlefork, 608—Koochiching							
Littlefork Hospital	Gen	NPAssn	22	20	8	211	954
Long Prairie, 2,311—Todd							
Long Prairie Hospital	Gen	NPAssn	20	12	8	177	623
Luverne, 3,114—Rock							
Luverne Municipal Hospital	Gen	City	15	4	10	316	815
Madison, 2,312—La c qui Parle							
Ebenezer Lutheran Hospital	Gen	Church	10	16	5	146	832
Mahnomen, 1,429—Mahnomen							
St. Anthony's Hospital	Gen	Church	10	9	6	162	559
Mankato, 15,651—Blue Earth							
Immanuel Hospital	Gen	Church	60	58	15	479	2,336
St. Joseph's Hospital	Gen	Church	116	81	26	722	3,966
Marshall, 4,590—Lyon							
Anna Maria Memorial Hosp.	Gen	Indiv	16	15	8	301	716
Marshall Hospital	Gen	NPAssn	35	15	5	120	497
Melrose, 2,015—Stearns							
Melrose Hospital	Gen	Corp	23	15	8	338	1,260
Milaca, 1,627—Mille Lacs							
Memorial Hospital	Gen	NPAssn	15	12	6	170	694
Minneapolis, 492,370—Hennepin							
Abbott Hospital	Gen	Church	126	125	24	1,071	6,351
Asbury Hospital	Gen	Church	148	128	25	740	5,885
Eitel Hospital	Gen	NPAssn	120	110	18	749	4,544
Elizabeth Kenny Institute	Orth	NPAssn	120	95	..	..	305
Fairview Hospital	Gen	Church	190	153	43	1,546	7,540
Franklin Hospital	ChrConv	Corp	60	69	..	..	70
Janney Children's Hospital	Unit of Abbott Hospital						
Lutheran Deaconess Home and Hospital	Gen	Church	160	143	40	1,297	6,163
Maternity Hospital	Mat	NPAssn	45	24	45	1,223	2,619
Minneapolis General Hospital	Gen	City	574	415	55	601	9,192
Minnesota General Hospital	See University of Minnesota Hospitals						
Northwestern Hospital	Gen	NPAssn	260	220	40	1,723	10,473
St. Andrew's Hospital	Gen	NPAssn	82	63	18	462	2,617
St. Barnabas Hospital	Gen	NPAssn	199	158	50	1,867	8,644
St. Mary's Hospital	Gen	Church	335	275	50	2,679	12,430
Sheltering Arms Hospital	Orth	NPAssn	49	43	..	..	199

MINNESOTA—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Basinets	Number of Births	Admissions †
Shriners Hospital for Crippled Children	Orth	NPAssn	60	55	..	..	122
Swedish Hospital	Gen	NPAssn	323	277	72	2,778	13,799
University of Minnesota Hospitals	Gen	State	450	380	25	289	9,423
Veterans Admin. Hospital	Gen	Vet	1,016	971	..	..	10,144
Montevideo, 5,220—Chippewa							
Montevideo Hospital	Gen	NPAssn	50	36	10	406	1,922
Moorhead, 4,491—Clay							
St. Ansgars Hospital	Gen	Church	52	39	12	401	1,604
Moore Lake, 1,432—Carlton							
Moore Lake Community Hos.	Gen	NPAssn	18	9	4	149	732
Moore Lake State Hospital	Ment	State	1,012	996	..	..	317
Mora, 1,091—Kanabec							
Kanabec Hospital	Gen	County	30	25	10	291	1,251
Morris, 3,214—Stevens							
Morris Hospital	Gen	Indiv	17	10	6	159	532
Stevens County Hospital	Gen	NPAssn	17	12	7	150	611
Mountain Lake, 1,715—Cottonwood							
Basinger Clinic Hospital	Gen	NPAssn	50	16	..	..	656
Bethel Hospital	Gen	NPAssn	21	11	8	141	617
New Prague, 1,645—Le Sueur							
New Prague Community Hos.	Gen	NPAssn	18	10	6	258	678
New Ulm, 8,743—Brown							
Loretto Hospital	Gen	Church	50	36	10	269	1,022
Union Hospital	Gen	NPAssn	69	51	12	257	1,038
Nopeming, 75—St. Louis							
Nopeming Sanatorium	TB	County	225	276	..	..	226
Northfield, 4,531—Rice							
Northfield City Hospital	Gen	City	33	28	12	287	1,283
Oak Terrace, 200—Hennepin							
Christian Memorial Tuberculosis Hospital	Unit of Glen Lake Sanatorium	Gen	600	551	..	..	469
Glen Lake Sanatorium	TB	County	600	551	..	..	469
Ortonville, 2,469—Big Stone							
Ortonville Municipal Hospital	Gen	City	20	14	8	191	703
Owatonna, 8,694—Steele							
Owatonna City Hospital	Gen	City	50	40	15	341	2,114
Parkers Prairie, 751—Otter Tail							
Lehold Hospital	Gen	NPAssn	14	4	6	100	262
Park Rapids, 2,613—Hubbard							
St. Joseph's Hospital	Gen	Church	42	18	12	280	1,076
Paynesville, 1,317—Stearns							
Myre Hospital	Gen	Part	9	4	3	53	231
Perham, 1,534—Otter Tail							
St. James' Hospital	Gen	Church	40	26	6	199	1,406
Pine City, 1,718—Pine							
Lakeside Memorial Hospital	Gen	NPAssn	30	23	6	64	305
Pipestone, 1,682—Pipestone							
Ashton Memorial Hospital	Gen	NPAssn	45	29	12	391	1,573
Preston, 1,447—Fillmore							
Preston Hospital	Gen	Indiv	13	8	6	179	292
Princeton, 1,865—Mille Lacs							
Community Hospital	Gen	NPAssn	25	17	9	265	1,039
Puposky, 75—Beltrami							
Lake Julia Tuberculosis Sanatorium	TB	Counties	52	38	..	..	52
Redlake, 150—Beltrami							
Redlake Indian Hospital	Gen	IA	23	18	6	145	1,301
Red Wing, 9,962—Goodhue							
Red Wing Hospital	Gen	City	40	29	9	149	1,048
St. John's Hospital	Gen	NPAssn	95	69	20	651	2,819
Redwood Falls, 3,270—Redwood							
Redwood Falls Municipal Hospital	Gen	City	23	14	8	200	1,225
Richmond, 614—Stearns							
Richmond Hospital	Gen	NPAssn	12	8	4	99	650
Rochester, 24,312—Olmsted							
Colonial Hospital	Gen	Corp	258	241	..	..	8,617
Kaiser Hospital	Gen	Corp	130	120	..	..	4,685
Rochester State Hospital	Ment	State	1,686	1,558	..	..	575
St. Mary's Hospital	Gen	Church	841	691	61	1,447	17,487
Worral Hospital	ENTS&Ca	Corp	186	160	..	..	7,244
Roseau, 1,775—Roseau							
Rudd Hospital	Gen	NPAssn	25	16	10	231	923
Rush City, 1,020—Chicago							
Rush City Hospital	Gen	City	21	21	7	261	912
St. Cloud, 21,175—Stearns							
Minnesota State Reformatory Hospital	Inst	State	30	9	..	..	350
St. Cloud Hospital	Gen	Church	276	224	51	2,053	10,949
Veterans Admin. Hospital	Ment	Vet	1,387	1,357	..	..	459
St. James, 3,400—Watsonwan							
St. James Hospital	Gen	Church	26	18	10	205	909
St. Paul, 287,736—Ramsey							
Ancker Hospital	GenTb	CyCo	850	551	55	266	7,539
Bethesda Hospital	Gen	Church	162	141	38	1,810	7,558
Charles T. Miller Hosp.	Gen	NPAssn	275	242	50	1,905	8,733
Children's Hospital	Chil	NPAssn	80	63	..	..	2,751
Gillette State Hospital for Crippled Children	Orth	State	225	152	..	..	686
Midway Hospital	Gen	Church	125	103	35	1,520	6,548
Mounds Park Hospital	Gen	Church	132	129	14	573	2,987
Northern Pacific Beneficial Association Hospital	Gen	NPAssn	135	80	..	..	3,068
Ramsey County Tuberculosis Pavilion	Unit of Ancker Hospital						
St. John's Hospital	Gen	Church	65	70	15	761	3,671
St. Joseph's Hospital	Gen	Church	256	230	50	2,087	9,016
St. Luke's Hospital	Gen	NPAssn	107	76	24	514	3,666

MINNESOTA—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Basinets	Number of Births	Admissions †
Salvation Army Booth Memorial Hospital	Mnt	Church	50	5	9	185	272
Samaritan Hospital	Gen	NPAssn	28	23	..	..	308
West Side General Hospital... Gen		Church	57	54	15	358	1,713
St. Peter, 5,570—Nicollet	Gen	City	30	18	11	316	1,100
Community Hospital	Gen	City	2,313	2,235	..	..	784
St. Peter State Hospital* Gen		State	..	..	..	..	..
Sandstone, 1,539—Pine	Inst	USPHS	28	1	..	..	98
Federal Correctional Institution*	Inst	USPHS	28	1	..	..	98
Shakopee, 2,418—Scott	Gen	Church	20	16	8	266	784
St. Francis Home and Hosp.. Gen		NPAssn	25	21	8	287	1,207
Slayton, 1,587—Murray	Gen	City	32	12	10	262	803
Home Hospital	Gen	Church	25	No data supplied	..	..	..
Sleepy Eye, 2,923—Brown	Gen	NPAssn	18	10	6	98	390
Sleepy Eye Municipal Hosp... Gen		City	25	17	8	125	1,210
Springfield, 2,61—Brown	Gen	NPAssn	15	11	4	74	406
St. John's Hospital	Gen	CyCo	32	31	8	338	1,989
Spring Grove, 667—Houston	Gen	State	66	31	..	..	375
Spring Grove Hospital	Gen	NPAssn	47	31	10	362	2,092
Staples, 2,952—Todd	Gen	Counties	65	41	..	..	20
Staples Municipal Hospital... Gen		NPAssn	46	36	6	243	1,630
Starbuck, 972—Pope	Gen	Corp	16	4	6	77	1,517
Minneaska Hospital	Gen	NPAssn	35	21	12	208	1,166
Stillwater, 7,016—Washington	Gen	NPAssn	33	21	8	107	654
Lakeview Memorial Hospital* Gen		City	35	29	10	245	1,291
Minnesota State Prison Hospital*	Inst	City	101	75	25	645	3,455
Thief Rv	Gen	Counties	30	28	..	..	53
Mercy	Gen	Church	74	38	10	268	1,218
Oakland Park Sanatorium... TB		Indiv	28	15	8	65	549
St. Luke's Hospital*	Gen	Counties	34	20	..	..	24
Tracy, 3,085—Lyon	Gen	NPAssn	48	35	12	501	1,600
Clinic Hospital	Gen	Indiv	12	3	4	52	161
Tracy Hospital	Gen	Church	40	29	8	215	1,512
Two Harbors, 4,046—Lake	Gen	City	25	13	6	124	780
Two Harbors Hospital	Gen	CyCo	25	6	9	335	1,099
Tyler, 1,065—Lincoln	Gen	IA	21	9	8	163	458
Tyler Hospital	Gen	City	95	90	18	892	3,516
Virginia, 12,364—St. Louis	Gen	State	1,450	1,392	..	..	333
Virginia Municipal Hospital* Gen		NPAssn	28	19	10	259	1,012
Wabasha, 2,368—Wabasha	Gen	NPAssn	12	9	4	130	433
Buena Vista Sanatorium.... TB		NPAssn	100	96	20	945	3,255
St. Elizabeth's Hospital	Gen	Counties	54	40	..	..	28
Waconia, 1,315—Carver	Gen	NPAssn	34	29	14	379	1,607
Nagel Hospital	Gen	City	15	8	5	243	59
Wadena, 2,916—Wadena	Gen	City	8	5	5	42	219
Fair Oaks Lodge Sanatorium TB		Gen	25	16	4	19	162
Wesley Hospital	Gen	City	15	5	4	67	412
Walker, 939—Cass	Gen	City	61	63	..	..	680
Walker Hospital	Gen	City	85	68	..	..	200
Warren, 1,639—Marshall	Gen	City	155	124	..	..	288
Warren Hospital*	Gen	City	19	17	..	..	234
Warroad, 1,509—Roseau	Gen	City	33	30	..	..	31
Warroad Municipal Hospital.. Gen		City	20	19	..	..	15
Waseca, 4,270—Waseca	Gen	City	50	12	..	..	506
Waseca Memorial Hospital... Gen		City	15	1	3	68	516
White Earth, 350—Becker	Gen	City	25	5	..	..	610
White Earth Indian Hospital Gen		City	80	65	..	..	79
Willmar, 7,623—Kandiyohi	Gen	City	30	27	..	..	359
Rice Memorial Hospital	Gen	City	..	..	..	..	..
Willmar State Hospital	Gen	City	..	..	..	..	..
Windom, 2,807—Cottonwood	Gen	City	..	..	..	..	..
Windom Hospital	Gen	City	..	..	..	..	..
Winona, 22,490—Winona	Gen	City	..	..	..	..	..
Winona General Hospital*	Gen	City	..	..	..	..	..
Worthington, 5,918—Nobles	Gen	City	..	..	..	..	..
Southwestern Minnesota Sanatorium	Gen	City	..	..	..	..	..
Worthington Hospital	Gen	City	..	..	..	..	..

Related Institutions

Blue Earth, 3,702—Faribault	Gen	City	15	8	5	243	59
Blue Earth Community Hosp. Gen		City	8	5	5	42	219
Comfrey, 555—Brown	Gen	City	15	5	4	67	412
Comfrey Hospital	Gen	City	61	63	..	..	680
Hastings, 5,662—Dakota	Gen	City	85	68	..	..	200
St. Francis Hospital	Gen	City	155	124	..	..	288
Madelia, 1,632—Watsonwan	Gen	City	19	17	..	..	234
Madelia Hospital	Gen	City	33	30	..	..	31
M'neapolis, 492,370—Hennepin	Gen	City	20	19	..	..	15
Glenwood Hills Hospital... N&M		City	50	12	..	..	506
Homewood Hospital	Gen	City	15	1	3	68	516
Minnesota Soldiers' Home Hospital	Inst	State	25	5	..	..	610
Rest Hospital	Gen	City	80	65	..	..	79
Vocational Nursing Home... Conv		City	30	27	..	..	359
Women's Welfare League Home for Convalescents	Conv	City	..	..	..	..	..
Owatonna, 8,694—Steele	Gen	City	..	..	..	..	..
Owatonna State School	Inst	State	..	..	..	..	..
Pelican Rapids, 1,560—Otter Tail	Gen	City	..	..	..	..	..
Pelican Valley Hospital	Gen	City	..	..	..	..	..
Red Wing, 9,962—Goodhue	Gen	City	..	..	..	..	..
Minnesota State Training School for Boys	Inst	State	..	..	..	..	..
St. Paul, 287,736—Ramsey	Gen	City	..	..	..	..	..
Children's Preventorium of Ramsey County	Gen	City	..	..	..	..	..
Summit Avenue Rest Hospital N&M		City	..	..	..	..	..

MINNESOTA—Continued

Related Institutions	Type of Service	Ownership or Control	Beds	Average Census †	Basinets	Number of Births	Admissions †
Shakopee, 2,418—Scott	Conv	Corp	75	37	..	..	1,686
Mudcura Sanitarium	Gen	NPAssn	14	8	4	94	375
Wayzata, 1,473—Hennepin	Gen	NPAssn	..	..	..	..	..
Minnetonka Hospital	Gen	NPAssn	..	..	..	..	..

MISSISSIPPI

Hospitals and Sanatoriums

Aberdeen, 4,746—Monroe	Gen	NPAssn	28	9	6	190	745
Aberdeen Hospital	Gen	NPAssn	24	16	6	218	1,223
Amory, 3,727—Monroe	Gen	NPAssn	16	11	4	167	570
G. Moore Sanitarium	Gen	NPAssn	100	35	20	745	2,848
Baldwyn, 1,279—Lee	Gen	Indiv	300	112	23	704	4,638
Baldwyn Hospital	Gen	Vet	233	200	..	..	2,448
Biloxi, 17,475—Harrison	Gen	NPAssn	40	31	9	384	1,580
New Biloxi Hospital	Gen	Corp	50	16	6	165	1,200
Station Hospital	Gen	USAF	64	34	26	659	3,803
Veterans Admin. Center*	Gen	Vet	15	..	..	..	Estab. 1948
Booneville, 1,893—Prentiss	Gen	NPAssn	42	16	8	256	1,410
North East Mississippi Hosp. Gen		NPAssn	..	..	..	..	..
Brandon, 1,184—Rankin	Gen	Indiv	..	..	..	..	..
Brandon Hospital	Gen	Indiv	..	..	..	..	..
Brookhaven, 6,232—Lincoln	Gen	NPAssn	..	..	..	..	..
Kings Daughters Hospital.... Gen		NPAssn	..	..	..	..	..
Byhalia, 543—Marshall	Gen	NPAssn	..	..	..	..	..
Leonard Wright Sanatorium N&M		Indiv	..	..	..	..	..
Canton, 6,011—Madison	Gen	NPAssn	..	..	..	..	..
C	Gen	Counties	28	21	8	166	1,109
C	Gen	Indiv	35	20	6	140	1,188
Clarksdale, 12,168—Coahoma	Gen	NPAssn	42	19	14	329	1,634
Clarksdale Hospital	Gen	NPAssn	25	18	12	305	1,178
Cleveland, 4,169—Bolivar	Gen	City	65	21	12	254	1,735
City Hospital	Gen	NPAssn	30	24	11	263	1,487
Columbia, 6,061—Marion	Gen	NPAssn	38	27	11	151	1,740
Columbia Clinic Hospital ... Gen		NPAssn	..	..	..	..	..
Columbus, 13,643—Lowndes	Gen	NPAssn	..	..	..	..	..
Columbus Hospital	Gen	NPAssn	..	..	..	..	..
Doster Hospital and Clinic* Gen		NPAssn	..	..	..	..	..
Corinth, 7,818—Alcorn	Gen	City	75	..	12	..	Estab. 1948
Community Hospital*	Gen	Indiv	30	12	9	210	816
Corinth Hospital	Gen	Indiv	..	..	..	..	..
Greenville, 20,892—Washington	Gen	NPAssn	118	93	24	470	4,201
Kings Daughters Hospital* Gen		NPAssn	..	..	..	..	..
Greenwood, 14,767—Leflore	Gen	State	250	172	..	..	7,728
Delta Medical Center	Gen	Indiv	25	11	4	20	866
Greenwood Colored Hospital.. Gen		CyCo	58	48	25	551	2,446
Greenwood-Leflore Hospital* Gen		CyCo	..	..	..	..	..
Grenada, 5,831—Grenada	Gen	Indiv	75	33	10	297	2,441
Grenada General Hospital*	Gen	Indiv	..	..	..	..	..
Gulfport, 15,195—Harrison	Gen	CyCo	100	53	25	840	4,093
Memorial Hospital	Gen	CyCo	1,098	1,034	..	..	1,045
Veterans Admin. Hospital*	Gen	Vet	..	..	..	..	..
Hattiesburg, 21,026—Forrest	Gen	Church	75	67	18	928	3,631
Methodist Hospital*	Gen	Indiv	70	36	15	326	2,030
South Mississippi Infirmary.. Gen		NPAssn	50	40	8	179	1,863
Houston, 1,729—Chickasaw	Gen	NPAssn	..	..	..	..	..
Houston Hospital*	Gen	NPAssn	..	..	..	..	..
Indianola, 3,694—Sunflower	Gen	NPAssn	28	16	8	148	1,140
Kings Daughters Hospital.... Gen		NPAssn	..	..	..	..	..
Jackson, 62,107—Hinds	Gen	Church	255	223	47	1,651	11,317
Mississippi Baptist Hosp.*	Gen	Church	103	68	4	50	1,720
Mississippi State Charity Hospital	Gen	Church	79	60	13	507	4,705
St. Dominic's Hospital*	Gen	Vet	650	435	..	..	5,307
Veterans Admin. Hospital.... Gen		NPAssn	25	10	10	93	454
Dr. Willis Walley Hospital... Gen		NPAssn	..	..	..	..	..
Kosciusko, 4,291—Attala	Gen	City	30	33	15	475	2,270
Montfort Jones Memorial Hospital	Gen	City	60	45	8	287	3,369
Laurel, 20,598—Jones	Gen	Indiv	30	..	8	..	Estab. 1948
Laurel General Hospital*	Gen	NPAssn	110	55	15	491	2,578
Masonite Hospital	Gen	State	..	..	..	..	..
South Mississippi Charity Hospital	Gen	State	..	..	..	..	..
Leland, 3,700—Washington	Gen	City	18	..	5	..	Estab. 1948
Leland City Hospital	Gen	City	..	..	..	..	..
Lexington, 2,930—Holmes	Gen	County	25	14	6	150	978
Holmes County Community Hospital	Gen	Corp	23	17	6	87	960
Macon, 2,261—Noxubee	Gen	NPAssn	30	14	7	123	1,003
Macon Hospital	Gen	NPAssn	28	21	10	401	2,074
Magee, 1,221—Simpson	Gen	Part	25	9	4	128	707
Magee General Hospital	Gen	NPAssn	15	6	5	116	108
Magnolia, 2,125—Pike	Gen	Indiv	..	..	..	..	..
Beacham Memorial Hospital Gen		NPAssn	..	..	..	..	..
Marks, 1,818—Quitman	Gen	Indiv	..	..	..	..	..
Marks Hospital	Gen	Indiv	..	..	..	..	..
McComb, 9,898—Pike	Gen	NPAssn	28	27	7	277	1,814
McComb City Hospital*	Gen	NPAssn	50	30	6	31	1,727
McComb Infirmary*	Gen	NPAssn	..	..	..	..	..
Meridian, 35,481—Lauderdale	Gen	NPAssn	68	52	14	463	3,209
Anderson Infirmary*	Gen	State	800	717	..	..	165
East Mississippi State Hosp. Ment		Indiv	37	12	..	..	373
Hoye's Sanitarium	Gen	NPAssn	..	..	..	..	..

MISSISSIPPI—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Bassnets	Number of Births	Admissions †
Lewis Hospital.....	Gen	Indiv	12	7	5	83	577
Matty Hersee Hospital.....	Gen	State	85	60	10	306	1,821
Meridian Public Health Treatment Center.....	Ven	State	600	242	10	5	10,101
Riley's Hospital.....	Gen	NPAasn	45	30	10	215	2,115
Rush Memorial Hospital.....	Gen	NPAasn	92	63	10	163	3,413
St. Joseph's Hospital.....	Gen	Church	40	28	11	203	1,722
Morton, 934—Scott							
Scott County Hospital.....	Gen	Part	20	9	6	232	910
Natchez, 15,296—Adams							
Natchez Charity Hospital.....	Gen	State	100	66	16	373	2,925
Natchez General Hospital.....	Gen	Part	60	32	10	185	2,012
Natchez Sanatorium.....	Gen	NPAasn	60	21	11	222	1,140
New Albany, 3,602—Union							
Mayes Hospital.....	Gen	NPAasn	60	27	11	431	1,985
New Albany Hosp. and Clinic	Gen	NPAasn	14	6	2	30	361
Newton, 1,600—Newton							
Newton Hospital.....	Gen	NPAasn	25	14	6	181	1,102
Oxford, 3,435—Lafayette							
Bramlett Hospital.....	Gen	Indiv	48	21	10	83	1,000
Oxford Hospital.....	Gen	Corp	30	26	6	262	1,411
Pascagoula, 5,900—Jackson							
Jackson County Hospital.....	Gen	County	85	41	25	773	2,893
Philadelphia, 3,711—Neshoba							
Choctaw-Mississippi Indian Hospital.....	Gen	IA	35	16	7	83	477
Picayune, 5,129—Pearl River							
Marlin Sanatorium.....	Gen	NPAasn	29	20	8	219	1,135
Pontotoc, 1,832—Pontotoc							
Pontotoc Clinic Hospital.....	Gen	Part	21	12	3	219	1,015
Poplarville, 1,664—Pearl River							
Poplarville Hospital.....	Gen	Indiv	25	5	4	181	1,038
Rosedale, 2,663—Bollivar							
Dr. Nobles' Clinic Hospital.....	Gen	Indiv	25	20	1	40	770
Rosedale-Bollivar County Hospital.....	Gen	City	16	5	4	31	318
Sanatorium, 200—Simpson							
Mississippi State Tuberculosis Sanatorium.....	TB	State	457	291	..	..	413
Starkville, 4,900—Oktibbeha							
J. W. Eckford Memorial Clinic Hospital.....	Gen	Indiv	15	7	8	351	799
State College, 300—Oktibbeha							
James Z. George Memorial Hospital.....	Inst	State	45	2	..	..	609
Tupelo, 8,212—Lee							
North Mississippi Community Hospital.....	Gen	NPAasn	49	63	10	785	4,278
Tylertown, 1,376—Walshall							
Pittman Hospital.....	Gen	Corp	28	20	8	261	1,775
Walshall Hospital.....	Gen	NPAasn	23	16	4	391	1,475
Union, 1,543—Newton							
Laird's Hospital.....	Gen	NPAasn	30	22	12	232	1,314
Vicksburg, 24,460—Warren							
Mercy Hospital-Street Memorial.....	Gen	Church	125	97	20	387	3,013
Mississippi State Charity Hospital.....	Gen	State	75	49	8	153	1,788
Vicksburg Hospital.....	Gen	NPAasn	90	89	15	153	3,312
Vicksburg Infirmary.....	Gen	NPAasn	65	31	17	150	1,221
Water Valley, 3,340—Yalobusha							
Water Valley Hospital.....	Gen	Part	25	12	5	63	560
West Point, 5,627—Clay							
Flowers Hospital.....	Gen	Part	21	14	8	293	919
Whitfield, 300—Rankin							
Mississippi State Hospital.....	Ment	State	3,000	3,726	..	..	1,789
Winona, 2,533—Montgomery							
Winona Infirmary.....	Gen	NPAasn	35	17	5	169	672
Yazoo City, 7,258—Yazoo							
Kings Daughters Hospital.....	Gen	NPAasn	31	11	12	261	1,062
Yazoo Clinic and Hospital.....	Gen	Part	20	8	3	9	151

Related Institutions

Bay St. Louis, 4,138—Hancock							
Kings Daughters and Sons Hospital.....	Gen	NPAasn	17	No data supplied			
Ellisville, 2,607—Jones							
Ellisville State School.....	MeDe	State	375	361	..	..	8
Greenville, 20,892—Washington							
Colored Kings Daughters Hospital.....	Gen	Indiv	75	52	2	31	1,388
Jackson, 62,107—Hinds							
Schmid Sanitarium.....	N&M	Corp	20	13	..	..	303
Z. T. Hubert Health Center of Jackson College.....	Gen	NPAasn	24	8	4	95	381

MISSOURI

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Bassnets	Number of Births	Admissions †
Aurora, 4,056—Lawrence							
Aurora Hospital.....	Gen	City	20	11	5	245	669
Bethany, 2,682—Harrison							
Bethany Hospital and Clinic	Gen	Part	20	8	7	165	611
Bonne Terre, 3,730—St. Francois							
Bonne Terre Hospital.....	Gen	NPAasn	44	32	15	631	2,524
Boonville, 6,089—Cooper							
St. Joseph's Hospital.....	Gen	Church	75	40	23	381	2,061
Butler, 2,958—Bates							
Butler Memorial Hospital.....	Gen	City	85	20	8	256	1,182
Californa, 2,525—Monteau							
Latham Sanitarium.....	Gen	Indiv	33	15	9	161	624

MISSOURI—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Bassnets	Number of Births	Admissions †
Cape Girardeau, 19,426—Cape Girardeau							
St. Francis Hospital.....	Gen	Church	115	85	30	1,127	4,021
Southeast Missouri Hospital	Gen	NPAasn	65	65	20	494	3,163
Carrollton, 4,070—Carroll							
Indes Hospital.....	Gen	Indiv	12	8	6	98	412
Carthage, 10,585—Jasper							
McCune-Brooks Hospital.....	Gen	City	50	35	14	497	1,976
Cassville, 1,214—Barry							
Barry County Hospital and Clinic.....	Gen	Indiv	20	11	4	97	742
Clayton, 13,663—St. Louis							
St. Louis County Hosp. + A.....	Gen	County	216	131	32	560	3,279
Clinton, 6,041—Henry							
Clinton General Hospital.....	Gen	Corp	32	24	4	164	853
Columbia, 18,599—Boone							
Boone County General Hosp. + A	Gen	County	52	35	10	430	1,791
Ellis Fischel State Cancer Hospital.....	Cancer State		103	89	..	..	1,371
Noyes Hospital.....	Unit of University Hospitals						
Parker Memorial Hospital.....	Unit of University Hospitals						
State Hospital for Crippled Children.....	Unit of University Hospitals						
University Hospitals + A.....	Gen	State	105	58	10	208	3,773
Excelsior Springs, 4,261—Clay							
Excelsior Springs Sanitarium and Hospital.....	Gen	NPAasn	40	38	12	290	980
Veterans Admin. Hospital + A.....	TB	Vet	252	225	..	..	339
Farlington, 3,734—St. Francois							
State Hospital No. 4A.....	Ment	State	1,620	1,821	..	..	606
Fayette, 2,678—Howard							
Lee Hospital.....	Gen	Part	32	32	6	101	1,217
Fulton, 820—Callaway							
State Hospital No. 1 + A.....	Ment	State	2,500	2,525	..	..	561
Hannibal, 20,565—Marion							
Levering Hospital.....	Gen	City	150	100	21	453	4,278
St. Elizabeth's Hospital.....	Gen	Church	100	53	26	453	3,810
Harri-conville, 2,222—Cass							
Memorial Hospital.....	Gen	NPAasn	27	20	6	149	954
Independence, 16,166—Jackson							
Independence Sanitarium and Hospital.....	Gen	Church	141	110	26	1,226	4,692
Rural Jackson County Emergency Hospital.....	Gen	County	25	29	9	80	632
Ironton, 1,983—Iron							
Arcadia Valley Hospital.....	Gen	Church	25	31	12	462	1,608
Jefferson Barracks, 512—St. Louis							
Veterans Admin. Hospital + A.....	Gen	Vet	707	614	..	..	7,735
Jefferson City, 24,265—Cole							
Missouri State Penitentiary Hospital.....	Inst	State	203	74	..	..	1,474
St. Mary's Hospital.....	Gen	Church	115	95	20	848	4,176
Joplin, 37,141—Jasper							
Freeman Methodist Hospital	Gen	Church	90	57	20	459	3,070
St. John's Hospital.....	Gen	Church	150	100	26	789	4,622
Kansas City, 30,178—Jackson							
Children's Mercy Hospital + A.....	Chil	NPAasn	115	117	..	..	1,916
Fairmount Maternity Hosp.....	Mat	Corp	60	33	36	147	169
Kansas City General Hospital No. 1 + A.....	Gen	City	550	406	50	758	11,074
Kansas City General Hospital No. 2 + A.....	Gen	City	260	213	26	735	4,626
Kansas City Municipal Tuberculosis Hospital + A.....	TB	City	232	172	..	..	361
Major Clinic and Hospital.....	N&M	Indiv	35	14	..	..	106
Memorial Hospital + A.....	Gen	NPAasn	160	155	26	689	6,899
Municipal Contagious Disease Hospital.....	Unit of Kansas City General Hospital No. 1						
Neurological Hospital.....	N&M	NPAasn	55	61	..	..	935
Ralph Sanitarium.....	Drug	Part	22	12	..	..	255
Research Hospital.....	Gen	NPAasn	211	232	40	1,310	8,029
St. Joseph Hospital + A.....	Gen	Church	221	220	42	1,865	12,484
St. Luke's Hospital + A.....	Gen	Church	375	319	53	2,663	11,232
St. Mary's Hospital + A.....	Gen	Church	170	158	40	1,184	6,751
St. Vincent's Hospital.....	Mat	Church	36	16	30	577	713
Trinity Lutheran Hospital.....	Gen	Church	130	100	25	902	4,720
Wheatley-Provident Hosp. + A.....	Gen	NPAasn	67	27	5	68	897
Whitlows Maternity Sanitarium	Mat	Corp	75	67	55	218	265
Kennett, 6,335—Dunklin							
Presnell Hospital.....	Gen	Part	45	24	18	313	1,883
Kirksville, 10,680—Adair							
Grim-Smith Memorial Hosp.....	Gen	Corp	52	41	15	342	1,975
Stickler Hospital.....	Gen	Corp	25	12	6	21	397
Kirkwood, 12,132—St. Louis							
Oakland Park Hospital.....	N&M	Corp	12	8	..	..	16
U. S. Marine Hospital.....	USPHS	Corp	160	110	..	..	1,243
Koch, 900—St. Louis							
Robert Koch Hospital + A.....	TB	City	650	448	..	..	399
Lebanon, 5,025—Laclede							
Louise G. Wallace Hospital.....	Gen	NPAasn	57	30	20	415	1,717
Louisiana, 4,669—Pike							
Pike County Hospital.....	Gen	County	50	40	15	251	1,382
Marcelline, 3,200—Linn							
St. Francis Hospital.....	Gen	Church	17	7	8	99	580
Marshall, 8,533—Saline							
Georgia Brown Blosser Home for Crippled Children.....	Orth	NPAasn	30	16	..	..	102
John Fitzgibbon Memorial Hospital.....	Gen	NPAasn	45	34	12	194	1,686
Maryville, 5,700—Nodaway							
St. Francis Hospital.....	Gen	Church	100	64	15	612	3,458
Mexico, 9,033—Audrain							
Audrain Hospital.....	Gen	County	51	45	14	502	1,919

Key to symbols and abbreviations is on page 37

MISSOURI—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Buildings	Number of Births	Admissions †
Moberly, 12,920—Randolph							
Wabash Employes' Hospital	Indus	NPAssn	35	19	...	650	
Woodland Hosp. and Clinic	Gen	Corp	40	30	10	252	1,044
Monett, 4,395—Barry							
St. Vincent Hospital	Gen	Church	20	12	8	311	942
Mount Vernon, 1,982—Lawrence							
Missouri State Sanatorium	TB	State	650	570	..	...	690
Neosho, 5,318—Newton							
Sale Memorial Hospital	Gen	Indiv	40	24	18	291	1,616
Nevada, 8,181—Vernon							
Nevada City Hospital	Gen	City	35	32	7	363	1,513
State Hospital No. 3A	Ment	State	2,100	2,088	..	...	345
Ozark, 961—Christian							
Haguewood Hospital	Gen	Indiv	10	6	7	100	175
Poplar Bluff, 11,163—Butler							
Brandon Hospital	Gen	Indiv	40	14	4	61	311
Lucy Lee Hospital	Gen	Indiv	63	51	24	442	3,649
Poplar Bluff Hospital	Gen	Part	75	69	20	603	3,762
Princeton, 1,584—Mercer							
Lambert Hospital	Gen	Indiv	15	8	4	48	424
Robertson, 500—St. Louis							
Jewish Sanatorium	Chr	NPAssn	81	79	..	...	49
Rolla, 5,141—Phelps							
Missouri Trachoma Hospital	Trach	State	55	41	..	...	614
St. Charles, 10,803—St. Charles							
St. Joseph's Hospital	Gen	Church	95	76	20	754	3,410
St. Joseph, 75,711—Buchanan							
Missouri Methodist Hosp.	Gen	Church	225	180	25	725	6,582
St. Joseph's Hospital	Gen	Church	149	108	35	1,095	6,243
State Hospital No. 2A	Ment	State	2,600	2,471	..	...	440
St. Louis, 816,048—St. Louis City							
Alexian Brothers Hosp.	Gen	Church	175	143	..	...	2,065
Barnard Free Skin and Cancer Hospital	SkCancer	NPAssn	42	37	..	...	1,019
Barnes Hospital	Gen	NPAssn	583	517	..	...	10,462
Bethesda General Hospital	Gen	NPAssn	100	63	20	456	1,924
Christian Hospital	Gen	NPAssn	125	101	35	1,032	3,860
De Paul Hospital	Gen	Church	275	234	64	2,244	9,022
Evangelical Deaconess Hospital	Gen	Church	250	231	40	1,402	8,443
Faith Hospital	Gen	NPAssn	35	23	12	224	1,225
Firmin Desloge Hosp.	Unit of St. Mary's Group of Hospitals						
Frisco Employes' Hospital	Indus	NPAssn	80	51	..	...	2,107
Homer G. Phillips Hosp.	Gen	City	694	562	73	2,343	15,715
Jewish Hospital	Gen	NPAssn	298	251	42	1,211	8,488
Josephine Heltkamp Memorial Hospital	Gen	Church	46	42	20	503	2,063
Lutheran Hospital	Gen	Church	165	151	50	1,191	5,899
McMillan Hospital	Unit of Barnes Hospital						
Midwestern Medical Center	Gen	USPHS	174	88	9	...	3,583
Missouri Baptist Hosp.	Gen	Church	450	367	50	1,045	11,114
Missouri Pacific Hospital	Indus	NPAssn	325	245	..	...	7,546
Mount St. Rose Sanat.	Unit of St. Mary's Group of Hospitals						
Park Lane Memorial Hosp.	Gen	NPAssn	125	79	50	445	2,398
Peoples Hospital	Gen	NPAssn	83	64	20	349	1,961
St. Ann's Maternity Hospital	Mat	Church	26	3	34	76	76
St. Anthony's Hospital	Gen	Church	250	223	60	2,026	8,299
St. John's Hospital	Gen	Church	343	291	60	1,953	9,517
St. Louis Children's Hosp.	Chil	NPAssn	126	103	..	...	3,443
St. Louis City Hospital	Gen	City	1,125	994	66	1,045	17,714
St. Louis Maternity Hospital	Gen	NPAssn	199	114	125	3,703	4,943
St. Louis State Hospital	Ment	State	5,300	3,415	..	...	617
St. Luke's Hospital	Gen	Church	184	164	36	997	5,212
St. Mary's Group of Hospitals							
St. Mary's Hospital	Gen	Church	673	678	73	3,855	16,316
St. Mary's Infirmary	Gen	Church	146	114	33	1,047	3,777
St. Vincent's Sanitarium	N&M	Church	250	228	..	...	429
Shriners Hospital for Crippled Children	Orth	NPAssn	120	90	..	...	350
Salem, 3,151—Dent							
Hart Clinic Hospital	Gen	Indiv	17	...	6	Estab. 1948	
Sedalia, 20,428—Pettis							
John H. Bothwell Memorial Hospital	Gen	City	93	60	20	387	2,840
Sikeston, 7,944—Scott							
Sikeston General Hospital	Gen	NPAssn	24	20	11	...	969
Smithville, 772—Clay							
Smithville Community Hosp.	Gen	NPAssn	24	15	10	105	563
Springfield, 61,238—Greene							
Burge Hospital	Gen	Church	100	68	26	807	3,476
City Hospital	Gen	City	20	12	6	180	946
Medical Center for Federal Prisoners	Inst	Fed	1,192	720	..	...	1,024
St. John's Hospital	Gen	Church	140	122	33	1,504	5,830
Springfield Baptist Hosp.	Gen	NPAssn	100	93	14	508	4,500
Veterans Admin. Hospital	TB	Vet	500	370	..	...	1,064
Trenton, 7,046—Grundy							
Cullers Hospital	Gen	Indiv	25	13	7	186	1,539
Wright Memorial Hospital	Gen	NPAssn	19	12	4	137	836
Warrensburg, 5,868—Johnson							
Warrensburg Clinic and Hosp.	Gen	Corp	30	24	6	288	1,276
Washington, 6,756—Franklin							
St. Francis Hospital	Gen	Church	120	60	20	777	3,642
Waynesville, 468—Pulaski							
Waynesville General Hosp.	Gen	State	46	29	13	350	1,654
Webb City, 7,033—Jasper							
Jasper County Tuberculosis Hospital	TB	County	110	72	..	...	140
Webster Groves, 18,391—St. Louis							
Glenwood Sanatorium	N&M	Corp	65	63	..	...	156
West Plains, 4,026—Howell							
Christa Hogan Hospital	Gen	Indiv	18	9	9	141	454

MISSOURI—Continued

Related Institutions	Type of Service	Ownership or Control	Beds	Average Census †	Buildings	Number of Births	Admissions †
Humansville, 786—Polk							
George Dimmitt Memorial Hospital	Gen	NPAssn	19	8	7	96	497
Independence, 10,060—Jackson							
Valle Sanitarium	N&M	Indiv	23	14	..	...	9
Kansas City, 399,178—Jackson							
Florence Crittenton Home	Mat	NPAssn	15	16	20	53	59
Florence Home for Colored Girls	Mat	NPAssn	34	10	21	29	40
Trowbridge Training School for Nervous and Backward Children	MeDe	Indiv	35	31	..	...	33
Liberty, 3,598—Clay							
Missouri Odd Fellows Home	Inst	NPAssn	50	32	..	...	406
Marshall, 8,533—Saline							
Missouri State School	MeDe	State	1,845	1,719	..	...	142
Marthasville, 321—Warren							
Evangelical Emmaus Home for Epileptics and Feeble-minded	MeDe	Church	100	90	..	...	4
Rolla, 5,141—Phelps							
Missouri School of Mines	Inst	State	21	1	..	...	215
St. Charles, 10,803—St. Charles							
Evangelical Emmaus Home for Epileptics and Feeble-minded	MeDe	Church	150	145	..	...	10
St. James, 1,812—Phelps							
State Federal Soldiers Home	Inst	State	50	25	..	...	122
St. Louis, 816,048—St. Louis City							
Booth Memorial Hospital	Gen	Church	60	34	40	499	744
City Infirmary	Chr	City	1,432	1,381	..	...	456
Hotel of Good Counsel Home and Hospital	Chr	Church	80	80	..	...	95
St. Louis State Training School	MeDe	State	525	431	..	...	76
Webster Groves, 18,391—St. Louis							
Miriam Rose Bry Convalescent Home	Conv	NPAssn	41	30	..	...	263

MONTANA

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Buildings	Number of Births	Admissions †
Anaconda, 11,004—Deer Lodge							
St. Ann's Hospital	Gen	Church	75	61	12	351	2,159
Bozeman, 8,655—Gallatin							
Bozeman Deaconess Hosp.	Gen	Church	82	64	15	598	3,004
Browning, 1,825—Glacier							
Blackfeet Indian Hospital	Gen	IA	45	30	8	141	1,007
Butte, 37,081—Silver Bow							
Murray Hospital	Gen	Corp	100	88	20	362	3,133
St. James Hospital	Gen	Church	100	127	30	753	4,299
Silver Bow County Hosp.	Gen	County	125	86	8	10	450
Choteau, 1,181—Teton							
Choteau Hospital	Gen	Indiv	20	14	5	13	128
Conrad, 1,471—Pondera							
St. Mary's Hospital	Gen	Church	55	40	10	203	1,665
Crow Agency, 900—Big Horn							
Crow Indian Hospital	Gen	IA	36	25	4	115	1,495
Deer Lodge, 3,278—Powell							
Montana State Tuberculosis Sanitarium	TB	State	225	215	..	...	251
St. Joseph Hospital	Gen	Church	40	30	10	135	702
Forsyth, 1,036—Rosebud							
Rosebud Community Hosp.	Gen	Church	23	12	6	59	668
Fort Benton, 1,227—Chouteau							
St. Clare Hospital	Gen	Church	42	33	7	80	455
Fort Harrison, 300—Lewis and Clark							
Veterans Admin. Hospital	Gen	Vet	248	186	..	...	1,858
Glasgow, 3,789—Valley							
Frances Mahon Deaconess Hospital	Gen	Church	60	27	15	321	1,475
Glendive, 4,524—Dawson							
Glendive General Hospital	Gen	County	40	10	6	70	248
Northern Pacific Hospital	Gen	NPAssn	57	41	12	294	2,141
Great Falls, 29,928—Cascade							
Columbia Hospital	Gen	Church	250	203	50	881	6,447
Montana Deaconess Hospital	Gen	Church	190	135	40	795	5,261
Hamilton, 2,432—Ravalli							
Marcus Daly Memorial Hosp.	Gen	NPAssn	40	26	12	265	2,156
Harlem, 1,166—Blaine							
Fort Belknap Indian Hospital and Sanatorium	Gen	IA	47	19	8	117	1,007
Havre, 6,427—Hill							
Kennedy Deaconess Hospital	Gen	Church	62	38	14	275	1,547
Sacred Heart Hospital	Gen	Church	125	60	20	366	3,239
Helena, 15,056—Lewis and Clark							
St. John's Hospital	Gen	Church	85	48	20	276	2,310
St. Peter's Hospital	Gen	NPAssn	50	51	12	315	2,257
Shodair Crippled Children's Hospital	Orth	NPAssn	23	29	15	...	324
Jordan, 500—Garfield							
Good Samaritan Hospital	Gen	Church	18	11	4	72	276
Kalispell, 8,245—Flathead							
Kalispell General Hospital	Gen	Church	48	36	12	550	2,199

MONTANA—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Basinsets	Number of Births	Admissions †
Lewistown, 5,874—Fergus							
St. Joseph's Hospital*.....	Gen	Church	120	67	18	416	3,096
Libby, 1,837—Lincoln							
St. John Lutheran Hospital..	Gen	Church	15	14	4	160	582
Livingston, 6,642—Park							
Park Hospital	Gen	Part	30	21	6	107	912
Miles City, 7,313—Custer							
Miles City Hospital (Holy Rosary Hospital)*.....	Gen	Church	135	122	15	487	4,963
Missoula, 18,449—Missoula							
Memorial Hospital*.....	Gen	NPAasn	47	33	12	325	2,021
Northern Pacific Hospital*.....	Indus	NPAasn	55	66	..	..	2,122
St. Patrick Hospital*.....	Gen	Church	156	141	23	796	5,990
Plentywood, 1,574—Sheridan							
Sheridan Memorial Hospital..	Gen	NPAasn	18	11	16	110	618
Poplar, 1,442—Roosevelt							
Port Peck Indian Agency Hospital	Gen	IA	23	12	7	91	1,020
Roundup, 2,614—Musselshell							
Musselshell Valley Hospital..	Gen	Indiv	20	7	4	63	360
St. Ignatius, 703—Lake							
Holy Family Hospital.....	Gen	Church	50	29	6	183	1,400
Terry, 1,012—Prairie							
Lutheran Good Samaritan Hospital	Gen	Church	13	5	6	59	438
Townsend, 1,309—Broadwater							
Broadwater Hospital	Gen	Corp	25	21	7	114	780
Warm Springs, 1,900—Deer Lodge							
Montana State Hospital*.....	Ment	State	1,856	1,832	..	..	429
Whitefish, 2,632—Flathead							
John B. Simons Hospital.....	Gen	Corp	35	21	12	253	1,256
Wolf Point, 1,960—Roosevelt							
Lutheran Trinity Hospital... Gen		NPAasn	18	12	8	180	614

Related Institutions

Columbus, 602—Stillwater							
Stillwater Community Hosp..	Gen	Church	17	6	4	67	568
Great Falls, 29,928—Cascade							
City-County Isolation Hosp. Iso	CyCo		25	No data supplied			
Hardin, 1,886—Big Horn							
Big Horn County Community Hospital	Gen	NPAasn	18	14	5	140	420
Helena, 15,036—Lewis and Clark							
Lewis and Clark County Hospital	InstGen	County	100	59	3	1	152
Polson, 2,156—Lake							
Hotel Dieu Hospital.....	Gen	Church	21	19	7	170	732
Scobey, 1,311—Daniels							
Clinic Hospital	Gen	Indiv	15	11	4	45	170

NEBRASKA

Hospitals and Sanatoriums

Albion, 1,833—Brown							
Albion Clinic and Hosp... Gen		Part	23	13	5	174	1,098
Alliance, 6,254—Box Butte							
St. Joseph's Hospital*.....	Gen	Church	105	76	22	471	2,553
Auburn, 3,639—Nemaha							
Auburn Hospital	Gen	Indiv	16	9	6	122	508
Tushla General Hospital.....	Gen	Indiv	15	6	5	48	274
Aurora, 2,419—Hamilton							
Aurora Hospital	Gen	Part	28	16	10	104	565
Bassett, 931—Rock							
Bassett Hospital	Gen	Part	26	7	9	50	493
Beatrice, 10,883—Gage							
Lutheran Hospital	Gen	Church	75	51	18	391	1,898
Mennonite Deaconess Home and Hospital	Gen	Church	22	29	10	178	939
Benkelman, 1,448—Dundy							
Morehouse Hospital	Gen	Indiv	10	10	4	102	619
Blair, 3,289—Washington							
Blair Hospital	Gen	Indiv	14	8	3	182	490
Broken Bow, 2,908—Custer							
Broken Bow Hospital.....	Gen	Indiv	35	27	7	84	953
Cambridge, 1,084—Furnas							
Republican Valley Hospital... Gen		Indiv	18	11	5	36	273
Chadron, 4,262—Dawes							
Chadron Municipal Hospital Gen		City	28	14	8	198	789
Columbus, 7,632—Platte							
Lutheran Hospital	Gen	Church	30	19	7	261	989
St. Mary Hospital*.....	Gen	Church	138	67	15	419	2,474
Bellevue, 258—Cheyenne							
Bellevue Hospital	Gen	Indiv	16	10	5	71	338
Bellevue Hospital	Gen	NPAasn	22	13	8	109	917
Fairbury, 6,304—Jefferson							
Fairbury Hospital	Gen	Indiv	40	25	12	212	1,702
Falls City, 6,146—Richardson							
Our Lady of Perpetual Help Hospital	Gen	Church	27	21	8	265	969
Fort Crook, —Sapry							
Station Hospital	Gen	USAF	85	27	13	173	1,071
Fremont, 11,862—Dodge							
Dodge County Community Hospital	Gen	County	85	53	20	560	2,119
Friend, 1,169—Saline							
Warren Memorial Hospital... Gen		City	32	29	6	110	209
Genoa, 1,231—Nance							
Emergency Hospital	Gen	Indiv	9	3	3	69	253
Genoa Hospital	Gen	Indiv	12	7	3	59	251

NEBRASKA—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Basinsets	Number of Births	Admissions †
Gordon, 1,967—Sheridan							
Gordon Hospital	Gen	Part	14	7	8	110	450
Grand Island, 19,130—Hall							
Grand Island Lutheran Hosp. Gen		Church	40	23	14	340	1,477
St. Frances Hospital*.....	Gen	Church	141	133	21	552	4,901
Hastings, 15,145—Adams							
Mary Lanning Memorial Hos- pital*.....	Gen	NPAasn	135	86	25	956	2,521
Hebron, 1,900—Thayer							
Thayer County Memorial Hospital	Gen	NPAasn	22	..	11	Estab. 1918	
Holdrege, 3,369—Phelps							
Brewster Hospital	Gen	Corp	61	31	15	266	1,635
Holdrege Hospital	Gen	Indiv	22	14	6	161	667
Humboldt, 1,356—Richardson							
Humboldt Hospital	Gen	Indiv	17	14	7	126	695
Imperial, 1,195—Chase							
Imperial Community Hospital Gen		Corp	15	10	5	127	450
Ingleside, 1,629—Adams							
Hastings State Hospital*.....	Ment	State	1,723	1,725	..	..	507
Kearney, 9,613—Buffalo							
Good Samaritan Hospital*.....	Gen	Church	68	44	20	684	2,694
Nebraska Hospital for the Tuberculous*.....	TB	State	200	162	..	..	170
Levellan, 532—Garden							
Levellan Community Hospital Gen		NPAasn	16	10	4	103	571
Lexington, 3,688—Dawson							
Lexington Community Hosp. Gen		NPAasn	15	14	8	265	1,090
Lincoln, 81,984—Lancaster							
Bryan Memorial Hospital*.....	Gen	Church	125	97	20	595	3,415
Dr. Benj. F. Bailey Sanat... N&M		Corp	115	112	..	..	427
Lincoln General Hospital*.....	Gen	NPAasn	183	144	40	1,620	6,372
Lincoln State Hospital*.....	Ment	State	1,509	1,496	..	..	347
Nebraska Orthopedic Hosp.*.....	Orth	State	110	54	..	..	830
St. Elizabeth Hospital*.....	Gen	Church	220	184	40	1,343	8,487
Veterans Admin. Hospital*.....	Gen	Vet	320	290	..	..	3,186
Loup City, 1,675—Sherman							
Sacred Heart Hospital.....	Gen	Church	29	18	10	241	879
Lynch, 487—Boyd							
Sacred Heart Hospital.....	Gen	Church	24	14	8	119	645
McCook, 6,212—Red Willow							
St. Catherine of Siena Hos- pital*.....	Gen	Church	109	45	28	592	2,672
Nebraska City, 7,323—Otoe							
St. Mary's Hospital*.....	Gen	Church	60	52	15	398	2,169
Norfolk, 19,490—Madison							
Lutheran Hospital	Gen	Church	69	46	29	591	2,409
Norfolk State Hospital*.....	Ment	State	1,120	1,182	..	..	187
Our Lady of Lourdes Hosp. Gen		Church	31	35	12	510	1,810
North Platte, 12,429—Lincoln							
North Platte Memorial Hosp. Gen		NPAasn	33	21	10	167	1,091
St. Mary Hospital*.....	Gen	Church	74	56	17	418	2,300
Oakland, 1,350—Burt							
Oakland Community Hosp... Gen		Part	12	6	5	102	414
Ogallala, 401—Gage							
Ogallala General Hospital.....	Gen	Indiv	11	7	5	69	836
Ogallala Hospital	Gen	Indiv	16	8	5	142	393
Omaha, 223,844—Douglas							
Bishop Clarkson Memorial Hospital*.....	Gen	Church	161	129	18	605	5,455
Children's Memorial Hosp.*.....	Chil	NPAasn	91	36	12	..	987
Creighton Memorial St. Joseph's Hospital*.....	Gen	Church	460	466	50	2,140	12,529
Doctors Hospital	Gen	NPAasn	107	94	16	431	6,674
Douglas County Hospital*.....	Gen	County	314	292	..	..	3,377
Douglas County Psychiatric Hospital	Unit of Douglas County Hospital						
Immanuel Deaconess Insti- tute*.....	Gen	Church	125	103	40	1,115	5,169
Lutheran Hospital*.....	Gen	Church	130	108	16	352	3,656
Nebraska Methodist Hospi- tal*.....	Gen	Church	167	149	24	869	7,406
St. Catherine's Hospital*.....	Gen	Church	165	146	36	934	5,918
University of Nebraska Hos- pital*.....	Gen	State	212	166	20	470	3,094
Ord, 2,240—Valley							
Ord Hospital	Gen	Indiv	20	10	4	62	345
Osmond, 736—Pierce							
St. Joseph Hospital.....	Gen	Church	18	9	10	198	573
Pawnee City, 1,647—Pawnee							
Pawnee County Hospital.....	Gen	County	27	16	8	139	525
Pender, 1,135—Thurston							
Logan Valley Hospital.....	Gen	Indiv	13	8	6	104	392
Scottsbluff, 12,057—Scotts Bluff							
St. Mary Hospital.....	Gen	Church	41	36	15	520	2,182
West Nebraska Methodist Hospi- tal*.....	Gen	Church	65	65	20	648	3,897
Seward, 2,826—Seward							
Seward Hospital	Gen	Indiv	10	7	8	127	298
Sidney, 3,388—Cheyenne							
Roche Hospital	Gen	Part	19	8	5	95	649
Station Hospital	Gen	Army	25	2	6	3	47
Taylor Hospital	Gen	Indiv	18	5	10	278	1,637
Stratton, 630—Hitchcock							
Dr. Stewart's Private Hosp.. Gen		Indiv	12	6	3	42	260
Superior, 1,177—Dodge							
Superior Hospital	Gen	Indiv	20	12	8	124	520
Clark Hospital	Gen	Indiv	17	7	3	49	179
Superior, 2,650—Nuckolls							
Brodstone Memorial Hospital Gen		NPAasn	18	14	8	174	709

Key to symbols and abbreviations is on page 37

NEBRASKA—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Bassinets	Number of Births	Admissions †
Tecumseh, 2,101—Johnson	Gen	Indiv	13	8	8	121	370
Tecumseh Hospital	Gen	Indiv	25	15	7	224	1,174
Valentine, 2,188—Cherry	Gen	Indiv	25	15	7	224	1,174
General Hospital	Gen	Indiv	25	15	7	224	1,174
Wahoo, 2,648—Saunders	Gen	Part	20	12	10	123	612
Wahoo Community Hospital	Gen	Part	20	12	10	123	612
Wayne, 2,719—Wayne	Gen	Indiv	25	12	8	146	545
Bentback Hospital	Gen	Indiv	25	12	8	146	545
Winnebago, 800—Thurston	Gen	IA	54	24	9	117	768
Winnebago Indian Hospital	Gen	IA	54	24	9	117	768
York, 5,383—York	Gen	NPAssn	47	33	12	383	1,711
York General Hospital	Gen	NPAssn	47	33	12	383	1,711

Related Institutions

Bentrice, 10,883—Gage	MeDe	State	1,682	1,595	..	...	117
Bentrice State Home	MeDe	State	1,682	1,595	..	...	117
Lincoln, 81,984—Lancaster	Inst	State	20	8	..	...	640
Nebraska State Penitentiary	Inst	State	22	5	..	...	418
Hospital	Inst	State	22	5	..	...	418
Student Health Center	Inst	State	22	5	..	...	418
Millford, 759—Seward	Inst	State	8	3	12	75	81
Nebraska Industrial Home	Inst	State	8	3	12	75	81
Omaha, 223,844—Douglas	Conv	Church	54	33	..	...	30
Bramwell Booth Convalescent	Conv	Church	54	33	..	...	30
Hospital	Conv	Church	54	33	..	...	30
Hattie B. Munroe Home for	Orth	NPAssn	30	21	..	...	60
Convalescent Crippled	Orth	NPAssn	30	21	..	...	60
Children	Orth	NPAssn	30	21	..	...	60
Dr. M. L. Rich Memorial	N&M	Indiv	18	10	..	...	114
Hospital	N&M	Indiv	18	10	..	...	114
Salvation Army Booth Memo-	Mat	Church	45	31	25	117	145
rial Hospital	Mat	Church	45	31	25	117	145
Orchard, 493—Antelope	Gen	Indiv	10	1	3	33	99
Orchard Hospital	Gen	Indiv	10	1	3	33	99
Oshkosh, 910—Garden	Gen	City	10	8	3	48	482
Oshkosh Hospital	Gen	City	10	8	3	48	482
Plainview, 1,411—Pierce	Gen	Corp	10	4	5	150	466
Plainview General Hospital	Gen	Corp	10	4	5	150	466
Red Cloud, 1,610—Webster	Gen	City	17	8	7	104	362
Maynard Municipal Hospital	Gen	City	17	8	7	104	362
Sutherland, 662—Lincoln	Gen	NPAssn	17	11	8	96	540
Sutherland Hospital	Gen	NPAssn	17	11	8	96	540
Wakefield, 961—Dixon	Gen	NPAssn	12	8	6	90	295
Wakefield Community Hosp.	Gen	NPAssn	12	8	6	90	295
Walshill, 1,204—Thurston	Gen	Part	12	4	4	23	50
Dr. Picotte Memorial Hosp.	Gen	Part	12	4	4	23	50
Westpoint, 2,510—Cumling	InstGen	Church	22	10	6	314	915
St. Joseph's Home-Hosp.	InstGen	Church	22	10	6	314	915

NEVADA

Hospitals and Sanatoriums

Boulder City, 3,000—Clark	Gen	USPHS	23	11	6	126	791
Boulder City Hospital	Gen	USPHS	23	11	6	126	791
Calliente, 1,800—Lincoln	Gen	County	27	11	7	43	377
Lincoln County Hospital	Gen	County	27	11	7	43	377
East Ely, 750—White Pine	Gen	NPAssn	35	14	7	149	642
Stepetoe Valley Hospital	Gen	NPAssn	35	14	7	149	642
Elko, 4,064—Elko	Gen	County	50	24	12	244	1,087
Elko General Hospital	Gen	County	50	24	12	244	1,087
Henderson, 6,500—Clark	Gen	Church	37	22	12	197	1,924
Rose de Lima Hospital	Gen	Church	37	22	12	197	1,924
Las Vegas, 8,422—Clark	Gen	Part	55	26	12	180	1,924
Las Vegas Hospital	Gen	Part	55	26	12	180	1,924
Owyhee, 100—Elko	Gen	IA	20	9	6	18	108
Western Shoshone Hospital	Gen	IA	20	9	6	18	108
Reno, 21,317—Washoe	Gen	County	63	26	14	140	1,226
Nevada State Hospital for	Gen	County	63	26	14	140	1,226
Mental Diseases	Gen	County	63	26	14	140	1,226
St. Mary's Hospital	Gen	Church	75	72	20	833	3,684
Veterans Admin. Center	Gen	Vet	166	104	..	..	1,218
Washoe County General Hosp.	Gen	County	247	211	18	600	5,244
Schurz, 100—Mineral	Gen	IA	35	24	6	86	678
Walker River Indian Hosp.	Gen	IA	35	24	6	86	678
Winnemucca, 2,485—Humboldt	Gen	County	63	26	14	140	1,226
Humboldt County General	Gen	County	63	26	14	140	1,226
Hospital	Gen	County	63	26	14	140	1,226

Related Institutions

Pioche, 1,535—Lincoln	Gen	Indiv	20	6	4	71	630
Dr. Fortier's Pioche Hospital	Gen	Indiv	20	6	4	71	630

NEW HAMPSHIRE

Hospitals and Sanatoriums

Berlin, 19,084—Coos	Gen	Church	88	65	17	457	2,477
St. Louis Hospital	Gen	Church	88	65	17	457	2,477
Claremont, 12,144—Sullivan	Gen	NPAssn	59	38	20	392	1,940
Claremont General Hospital	Gen	NPAssn	59	38	20	392	1,940
Concord, 27,171—Merrimack	Gen	NPAssn	165	118	24	989	5,102
Concord Hospital	Gen	NPAssn	165	118	24	989	5,102
Margaret Pillsbury General	Unit of Concord Hospital						
Hospital	Unit of Concord Hospital						
New Hampshire Memorial	Unit of Concord Hospital						
Hospital	Unit of Concord Hospital						
New Hampshire State	State		2,561	2,445	..	..	1,029
Hospital	State		2,561	2,445	..	..	1,029
Pembroke Sanatorium	TB	Corp	50	37	..	..	90

NEW HAMPSHIRE—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Bassinets	Number of Births	Admissions †
Dover, 14,900—Strafford	Gen	City	60	49	15	446	2,972
Wentworth Hospital	Gen	City	60	49	15	446	2,972
East Derry,—Rockingham	Gen	NPAssn	21	12	6	200	625
Alexander-Eastman Hospital	Gen	NPAssn	21	12	6	200	625
Epping, 1,618—Rockingham	InstGen	County	20	13	..	...	140
Rockingham County Home	InstGen	County	20	13	..	...	140
and Hospital	InstGen	County	20	13	..	...	140
Exeter, 5,398—Rockingham	Gen	NPAssn	76	45	22	553	2,303
Exeter Hospital	Gen	NPAssn	76	45	22	553	2,303
Franklin, 6,749—Merrimack	Gen	NPAssn	50	31	15	272	1,443
Franklin Hospital	Gen	NPAssn	50	31	15	272	1,443
Glencroft, 200—Grafton	State		88	80	..	...	69
New Hampshire State Sanat.	State		88	80	..	...	69
Grasmere, 200—Hillsboro	Gen	County	100	55	16	193	1,679
Hillsborough County General	Gen	County	100	55	16	193	1,679
Hospital	Gen	County	100	55	16	193	1,679
Hanover, 3,425—Grafton	Gen	NPAssn	207	212	18	556	5,574
Mary Hitchcock Memorial	Gen	NPAssn	207	212	18	556	5,574
Hospital	Gen	NPAssn	207	212	18	556	5,574
Keene, 13,832—Cheshire	Gen	NPAssn	116	71	28	682	2,780
Elliot Community Hospital	Gen	NPAssn	116	71	28	682	2,780
Laconia, 13,484—Belknap	Gen	NPAssn	126	93	21	532	3,840
Laconia Hospital	Gen	NPAssn	126	93	21	532	3,840
Lancaster, 3,095—Coos	Gen	NPAssn	31	19	9	187	975
Beatrice D. Weeks Memorial	Gen	NPAssn	31	19	9	187	975
Hospital	Gen	NPAssn	31	19	9	187	975
Lebanon, 7,590—Grafton	Gen	NPAssn	30	18	10	404	660
Alice Peck Day Memorial	Gen	NPAssn	30	18	10	404	660
Hospital	Gen	NPAssn	30	18	10	404	660
Littleton, 4,571—Grafton	Gen	NPAssn	50	20	10	212	929
Littleton Hospital	Gen	NPAssn	50	20	10	212	929
Manchester, 77,685—Hillsboro	Unit of Elliot Hospital		127	86	32	1,198	3,654
Balch Hospital	Unit of Elliot Hospital		127	86	32	1,198	3,654
Elliot Hospital	Unit of Elliot Hospital		127	86	32	1,198	3,654
Notre Dame de Lourdes	Gen	Church	100	84	20	750	4,044
Hospital	Gen	Church	100	84	20	750	4,044
Our Lady of Perpetual Help	Unit of Sacred Heart Hospital		150	122	24	480	6,491
Maternity Hospital	Unit of Sacred Heart Hospital		150	122	24	480	6,491
Sacred Heart Hospital	Unit of Sacred Heart Hospital		150	122	24	480	6,491
Nashua, 32,927—Hillsboro	Gen	NPAssn	84	78	16	792	3,456
Nashua Memorial Hospital	Gen	NPAssn	84	78	16	792	3,456
St. Joseph's Hospital	Gen	Church	95	83	18	576	3,012
New London, 1,039—Merrimack	Gen	NPAssn	25	15	6	63	567
New London Hospital	Gen	NPAssn	25	15	6	63	567
Newport, 5,304—Sullivan	Gen	NPAssn	26	15	12	154	627
Carrie F. Wright Hospital	Gen	NPAssn	26	15	12	154	627
North Conway, 900—Carroll	Gen	NPAssn	35	29	12	241	1,214
Memorial Hospital	Gen	NPAssn	35	29	12	241	1,214
Peterborough, 2,470—Hillsboro	Gen	NPAssn	36	30	9	261	1,567
Monadnock Community	Gen	NPAssn	36	30	9	261	1,567
Hospital	Gen	NPAssn	36	30	9	261	1,567
Plymouth, 2,533—Grafton	Gen	NPAssn	35	25	8	213	1,090
Seave Spear Memorial Hosp.	Gen	NPAssn	35	25	8	213	1,090
Portsmouth, 14,821—Rockingham	Gen	NPAssn	109	61	28	708	3,144
Portsmouth Hospital	Gen	NPAssn	109	61	28	708	3,144
U. S. Naval Hospital	Navy		150	70	10	143	1,086
Rockeater, 12,012—Strafford	Gen	NPAssn	60	50	20	832	3,031
Ernie Memorial Hospital	Gen	NPAssn	60	50	20	832	3,031
West Stewartstown, 850—Coos	Gen	County	35	19	10	148	941
Coos County Hospital	Gen	County	35	19	10	148	941
Whitefield, 1,834—Coos	Gen	NPAssn	35	16	6	48	266
Morrison Hospital	Gen	NPAssn	35	16	6	48	266
Wolfeboro, 2,636—Carroll	Gen	NPAssn	36	34	7	109	1,179
Huggins Hospital	Gen	NPAssn	36	34	7	109	1,179
Woodsville, 1,900—Grafton	Gen	NPAssn	25	22	10	212	1,444
Cottage Hospital	Gen	NPAssn	25	22	10	212	1,444
Grafton County Hospital	InstGen	County	29	21	4	1	113

Related Institutions

Exeter, 5,398—Rockingham	Inst	NPAssn	51	9	..	...	876
Lamont Infirmary	Inst	NPAssn	51	9	..	...	876
Laconia, 13,484—Belknap	McDe	State	720	737	..	...	59
Laconia State School	McDe	State	720	737	..	...	59
Manchester, 77,685—Hillsboro	Iso	City	60	9	..	...	145
Manchester Isolation Hosp.	Iso	City	60	9	..	...	145

NEW JERSEY

Hospitals and Sanatoriums

Allentown, 766—Monmouth	Gen	Indiv	41	21	11	101	801
Dr. Farmer's Private Hosp.	Gen	Indiv	41	21	11	101	801
Allenwood, 150—Monmouth	Gen	County	100	99	..	...	130
Allenwood Sanatorium (Mon-	Gen	County	100	99	..	...	130
mouth County Hospital for	Gen	County	100	99	..	...	130
Tuberculosis)	Gen	County	100	99	..	...	130
Atlantic City, 64,094—Atlantic	Gen	NPAssn	250	199	40	1,690	8,814
Atlantic City Hospital	Gen	NPAssn	250	199	40	1,690	8,814
Children's Seashore House at	Orth	NPAssn	146	80	..	...	362
Atlantic City for Invalid	Orth	NPAssn	146	80	..	...	362
Children	Orth	NPAssn	146	80	..	...	362
Bayonne, 79,198—Hudson	Gen	NPAssn	250	153	30	1,320	5,992
Bayonne Hospital and Dis-	Gen	NPAssn	250	153	30	1,320	5,992
pensary	Gen	NPAssn	250	153	30	1,320	5,992
Swiney Sanatorium	Gen	Part	15	8	8	136	430
Bellemend, 51—Somerset	Gen	Corp	65	50	..	...	86
Belle Mead Sanatorium	Gen	Corp	65	50	..	...	86

NEW JERSEY—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Basinsets	Number of Births	Admissions †
Camden County Hospital for Mental Diseases	Ment	County	750	732	..	...	161
Camden County Tuberculosis Hospital	TB	County	180	145	..	...	221
Bound Brook, 7,010—Somerset	Gen	NPAasn	35	18	10	75	596
Bound Brook Hospital	Gen	NPAasn	94	61	21	807	2,615
Bridgeton, 15,992—Cumberland	Conv	NPAasn	52	40	..	...	80
Ivy Hall Sanitarium	Gen	NPAasn	117	111	..	...	92
Browns Mills, 500—Burlington	Gen	NPAasn	30	20	14	606	1,050
Deborah Sanatorium	TB	NPAasn	37	22	65	2,038	10,346
Camden, 117,536—Camden	Gen	NPAasn	100	25	..	...	341
Camden General Hospital	Gen	NPAasn	230	231	50	1,062	9,983
Cooper Hospital	Gen	NPAasn	2,615	2,517	..	...	773
Municipal Hospital for Contagious Diseases	Gen	City	109	78	26	906	3,207
West Jersey Hospital	Gen	NPAasn	120	109	30	1,031	3,118
Cedar Grove, 2,000—Essex	Gen	NPAasn	150	115	..	...	2,632
Essex County Overbrook Hospital	Ment	County	191	145	40	1,718	6,144
Dover, 10,491—Morris	Gen	NPAasn	229	170	45	1,613	7,094
Dover General Hospital	Gen	NPAasn	190	181	48	1,810	8,118
East Orange, 68,045—Essex	Gen	NPAasn	1,478	1,385	22	561	11,300
East Orange General Hosp.	Gen	NPAasn	300	183	15	262	4,911
Elizabeth, 109,912—Union	Gen	NPAasn	37	24	7	251	1,181
Alexian Brothers Hospital	Gen	Church	319	257	..	...	213
Elizabeth General Hospital and Dispensary	Gen	Church	5,723	5,627	..	...	1,792
St. Elizabeth Hospital	Gen	Church	250	205	50	2,170	10,193
St. Elizabeth Hospital	Gen	Church	27	22	..	...	861
Tilton General Hospital	Gen	Army	420	364	30	374	6,957
Fort Monmouth—Monmouth	Gen	Army	115	82	20	712	3,075
Station Hospital	Gen	Army	550	385	..	...	854
Franklin, 4,000—Sussex	Gen	NPAasn	206	179	41	1,025	6,024
Franklin Hospital	Gen	NPAasn	50	42	15	325	2,001
Glen Gardner, 530—Hunterdon	Gen	NPAasn	60	52	16	210	1,204
New Jersey Sanatorium for Tuberculous Diseases	TB	State	1,500	1,118	..	...	23,819
Greystone Park, —Morris	Ment	State	315	217	385	5,618	10,371
New Jersey State Hosp.	Ment	State	230	140	..	...	4,123
Hackensack, 26,270—Bergen	Gen	NPAasn	62	48	20	515	2,511
Hackensack Hospital	Gen	NPAasn	44	6	12	107	629
Hasbrouck Heights, 6,716—Bergen	Orth	NPAasn	75	49	12	479	2,251
Hasbrouck Heights Hospital	Orth	NPAasn	70	33	20	250	1,082
Hoboken, 50,115—Hudson	Gen	Church	253	203	53	1,706	7,318
St. Mary's Hospital	Gen	Church	2,559	2,372	..	...	1,301
Irrington General Hospital	Gen	City	2,955	2,763	..	...	1,111
Jersey City, 301,173—Hudson	Gen	City	221	199	..	...	271
Berthold S. Pollak Hospital for Chest Diseases	TB	County	52	31	14	376	1,110
Christ Hospital	Gen	Church	51	35	20	410	1,851
Fairmount Hospital	Gen	NPAasn	514	212	61	1,537	7,628
Greenville Hospital	Gen	NPAasn	50	50	12	402	1,838
Jersey City Hospital	Gen	City	24	20	..	...	51
Margaret Hague Maternity Hospital	Mat	County	123	86	36	1,009	3,498
St. Francis Hospital	Gen	Church	122	85	24	566	3,763
Kearny (Arlington P O), 39,467—Hudson	Gen	NPAasn	70	53	..	...	61
West Hudson Hospital	Gen	NPAasn	151	132	36	1,362	5,508
Lakehurst, 827—Ocean	Gen	NPAasn	35	27	15	239	1,575
U. S. Naval Air Station Dispensary	Gen	Navy	83	35	..	...	2,235
Lakewood, 8,000—Ocean	Gen	NPAasn	75	71	35	1,320	5,443
Paul Kimball Hospital	Gen	NPAasn	24	10	6	142	332
Long Branch, 17,468—Monmouth	Gen	NPAasn	95	42	..	...	510
Dr. E. C. Hazard Hospital	Gen	NPAasn	123	86	36	1,009	3,498
Monmouth Memorial Hospital	Gen	NPAasn	514	212	61	1,537	7,628
Lyons, 3,000—Somerset	Gen	NPAasn	50	50	12	402	1,838
Veterans Admin. Hospital	Ment	Vet	24	20	..	...	51
Marlboro, 500—Monmouth	Gen	NPAasn	123	86	36	1,009	3,498
New Jersey State Hospital	Ment	State	122	85	24	566	3,763
Metuchen, 6,557—Middlesex	TB	County	70	53	..	...	61
Roosevelt Hospital	Gen	NPAasn	151	132	36	1,362	5,508
Millville, 14,806—Cumberland	Gen	NPAasn	35	27	15	239	1,575
Millville Hospital	Gen	NPAasn	83	35	..	...	2,235
Montclair, 39,807—Essex	Gen	NPAasn	75	71	35	1,320	5,443
Montclair Community Hosp.	Gen	NPAasn	24	10	6	142	332
Mountainside Hospital	Gen	NPAasn	95	42	..	...	510
St. Vincent's Hospital	Gen	Church	123	86	36	1,009	3,498
Morris Plains, 2,018—Morris	Card	NPAasn	122	85	24	566	3,763
Children's Heart Unit of Victoria Foundation	Card	NPAasn	70	53	..	...	61
Morristown, 15,270—Morris	Gen	Church	151	132	36	1,362	5,508
All Souls Hospital	Gen	Church	35	27	15	239	1,575
Aurora Institute	Conv	Corp	83	35	..	...	2,235
Morristown Memorial Hosp.	Gen	NPAasn	75	71	35	1,320	5,443
Shongum Mountain Sanat.	TB	County	24	10	6	142	332
Mount Holly, 6,573—Burlington	Gen	NPAasn	95	42	..	...	510
New Jersey State Hosp.	Gen	NPAasn	123	86	36	1,009	3,498
Newark, 429,760—Essex	Gen	NPAasn	35	27	15	239	1,575
American Legion Memorial Hospital	Gen	NPAasn	83	35	..	...	2,235
Babies' Hospital—Colt Memorial	Chil	NPAasn	75	71	35	1,320	5,443
Columbus Hospital	Gen	NPAasn	24	10	6	142	332
Community Hospital	Gen	NPAasn	95	42	..	...	510
Hospital for Crippled Children	Orth	NPAasn	35	27	15	239	1,575

NEW JERSEY—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Basinsets	Number of Births	Admissions †
Hospital of St. Barnabas and for Women and Children	Gen	Church	211	173	41	1,776	7,481
Lutheran Memorial Hosp.	Gen	NPAasn	121	90	21	590	4,120
Newark Beth Israel Hosp.	Gen	NPAasn	365	257	70	2,928	11,702
Newark City Hospital	Gen	City	700	589	40	1,432	12,076
Newark Eye and Ear Infirmary	ENT	NPAasn	65	40	..	...	2,751
Presbyterian Hospital	Gen	NPAasn	275	223	65	2,074	9,262
St. James Hospital	Gen	Church	125	99	21	563	4,061
St. Michael's Hospital	Gen	Church	401	322	75	2,606	11,072
New Brunswick, 33,180—Middlesex	Gen	NPAasn	115	86	25	1,096	3,453
Middlesex General Hosp.	Gen	NPAasn	242	147	48	1,813	8,052
St. Peter's General Hosp.	Gen	Army	690	309	15	231	8,474
Station Hospital	Gen	Army	690	309	15	231	8,474
New Lisbon, 213—Burlington	Gen	NPAasn	112	81	..	...	83
Marcus W. Newcomb Hospital for Chest Diseases	TB	County	42	42	9	577	1,763
Newton, 5,533—Sussex	Gen	NPAasn	475	375	..	...	141
Newton Memorial Hosp.	Gen	NPAasn	56	43	..	...	77
Northfield, 2,815—Atlantic	Ment	County	41	37	..	...	782
Atlantic County Hospital for Mental Diseases	Ment	County	409	244	75	1,470	9,131
Atlantic County Hospital for Tuberculous Diseases	TB	County	118	88	26	823	3,593
Orange, 35,717—Essex	Gen	NPAasn	77	51	22	531	2,386
New Jersey Orthopaedic Hospital	Orth	NPAasn	237	162	65	2,619	6,732
Orange Memorial Hosp.	Gen	NPAasn	120	170	50	1,170	6,485
St. Mary's Hospital	Gen	Church	425	118	..	...	141
Passaic, 61,591—Passaic	Gen	NPAasn	122	95	28	1,027	3,560
Beth Israel Hospital	Gen	NPAasn	372	230	84	2,619	9,611
Passaic General Hosp.	Gen	Church	265	205	57	1,003	8,205
St. Mary Hospital	Gen	Church	225	220	..	...	227
Paterson, 129,656—Passaic	Chr	County	225	170	45	1,416	7,537
Hope Dell Hospital	Chr	County	109	74	25	688	4,009
Nathan and Miriam Barnert Memorial Hospital	Gen	NPAasn	270	211	60	2,257	8,822
Paterson General Hosp.	Gen	NPAasn	48	33	10	273	1,258
St. Joseph Hospital	Gen	Church	55	14	..	...	928
Valley View Sanatorium	TB	County	88	74	18	636	2,748
Perth Amboy, 41,242—Middlesex	Gen	NPAasn	40	6	..	...	314
Perth Amboy General Hospital	Gen	NPAasn	80	74	20	797	2,721
Phillipsburg, 18,311—Warren	Gen	NPAasn	59	45	15	416	1,657
Warren Hospital	Gen	NPAasn	227	181	..	...	512
Plainfield, 37,463—Union	Gen	NPAasn	35	23	15	438	1,196
Muhlenberg Hospital	Gen	NPAasn	60	56	20	673	2,291
Point Pleasant, 2,062—Ocean	Gen	NPAasn	228	295	..	...	302
Point Pleasant Hospital	Gen	NPAasn	120	19	..	...	430
Princeton, 7,710—Mercer	Inst	State	224	185	..	...	113
Isabella McCosh Infirmary of Princeton University	Inst	NPAasn	2,072	1,810	..	...	518
Princeton Hospital	Gen	NPAasn	1,479	1,484	..	...	128
Railway, 17,198—Union	Inst	State	65	42	11	416	2,111
New Jersey State Reformatory	Inst	State	150	113	40	1,512	5,029
Railway Hospital	Gen	NPAasn	35	33	15	449	1,425
Red Bank, 10,974—Monmouth	Gen	NPAasn	50	45	..	...	510
Riverview Hospital	Gen	NPAasn	123	86	36	1,009	3,498
Ridgewood, 14,918—Bergen	Gen	NPAasn	35	27	15	239	1,575
Bergen Pines, Bergen County Hospital	Thiso	County	83	35	..	...	2,235
Riverside, 4,000—Burlington	Gen	NPAasn	75	49	12	479	2,251
Zurbrugg Memorial Hospital	Gen	NPAasn	70	33	20	250	1,082
Salem, 8,618—Salem	Gen	NPAasn	253	203	53	1,706	7,318
Salem County Memorial Hospital	Gen	NPAasn	2,559	2,372	..	...	1,301
Scotch Plains, 3,500—Union	Gen	NPAasn	2,955	2,763	..	...	1,111
Bonnie Burn Sanatorium	TB	County	221	199	..	...	271
Secaucus, 9,751—Hudson	Gen	NPAasn	52	31	14	376	1,110
Hudson County Contagious Disease Hospital	Gen	County	51	35	20	410	1,851
Hudson County General Hospital	InstGen	County	514	212	61	1,537	7,628
Hudson County Hospital for Mental Diseases	Ment	County	50	50	12	402	1,838
Skilman, 23—Somerset	Gen	NPAasn	24	20	..	...	51
New Jersey State Village for Epileptics	Epil	State	123	86	36	1,009	3,498
Somers Point, 1,992—Atlantic	Gen	NPAasn	122	85	24	566	3,763
Shore Memorial Hospital	Gen	NPAasn	70	53	..	...	61
Somerville, 8,720—Somerset	Gen	NPAasn	151	132	36	1,362	5,508
Somerset Hospital	Gen	NPAasn	35	27	15	239	1,575
South Amboy, 7,802—Middlesex	Gen	NPAasn	83	35	..	...	2,235
South Amboy Memorial Hosp.	Gen	NPAasn	75	71	35	1,320	5,443
Summit, 16,165—Union	N&M	Corp	115	106	41	1,186	4,478
Fair Oaks Sanatorium	N&M	Corp	50	45	..	...	314
Overlook Hospital	Gen	NPAasn	80	74	20	797	2,721
Sussex, 1,478—Sussex	Gen	NPAasn	22	15	8	188	709
Alexander Linn Hospital	Gen	NPAasn	185	190	50	1,851	7,672
Tenacoe, 25,275—Bergen	Gen	Church	123	86	36	1,009	3,498
Holy Name Hospital	Gen	Church	123	86	36	1,009	3,498
Trenton, 124,697—Mercer	Thiso	City	403	334	..	...	500
F. W. Donnelly Memorial Hospital	Thiso	City	28	23	..	...	86
Glenwood Sanitarium	N&M	Indiv	246	175	44	2,077	7,732
Mercer Hospital	Gen	NPAasn	3,400	3,409	..	...	1,514
New Jersey State Hosp.	Ment	State	43	33	..	...	885
New Jersey State Prison Hospital	Inst	State	45	32	..	...	293
Orthopaedic Hospital and Dispensary	Orth	NPAasn	45	32	..	...	293

Key to symbols and abbreviations is on page 37

NEW JERSEY—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Basinets	Number of Births	Admissions †
St. Francis Hospital*†*•••••	Gen	Church	300	218	33	1,458	8,489
Trenton General Hospital....	Gen	NPAasn	60	55	15	302	1,413
William McKinley Memorial Hospital*•••••	Gen	NPAasn	118	96	18	1,091	3,982
Verona, 8,957—Essex							
Essex County Sanatorium*†•••	TB	County	444	312	..	..	377
Vineland, 7,914—Cumberland							
Newcomb Hospital*†•••••	Gen	NPAasn	93	54	32	592	2,493
Weehawken (Union City P.O.), 14,363—Hudson							
North Hudson Hospital*†•••••	Gen	NPAasn	166	90	25	423	3,422
Westfield, 18,458—Union							
Children's Country Home*••••	Orth	NPAasn	30	23	..	..	31
Woodbury, 8,306—Gloucester							
Underwood Hospital*†•••••	Gen	NPAasn	70	54	30	581	3,606
Wyckoff, 500—Bergen							
Christian Sanatorium	Ment	NPAasn	185	156	..	..	115
Related Institutions							
Atlantic City, 64,094—Atlantic							
Municipal Hospital	Iso	City	64	...	4	...	...
Caldwell, 4,932—Essex							
Theresa Grotta Home for Convalescents	Conv	NPAasn	40	22	..	..	251
Farmingdale, 609—Monmouth							
Tuberculosis Preventorium for Children	TB	NPAasn	250	140	..	..	422
Haddonfield, 9,742—Camden							
Rancroft School	McDe	NPAasn	110	98	..	..	23
Jamesburg, 2,128—Middlesex							
New Jersey State Home for Boys	Inst	State	25	12	..	..	722
Jersey City, 301,173—Hudson							
Salvation Army Door-of-Hope Home and Hospital.....	Mat	Church	54	31	6	57	106
Little Falls, 3,000—Passaic							
North Jersey Training School	McDe	State	57	32	..	..	1,035
Longport, 303—Atlantic							
Betty Baeharuch Home for Afflicted Children	Orth	NPAasn	100	60	..	..	110
Menlo Park, 400—Middlesex							
New Jersey Home for Disabled Soldiers	Inst	State	83	80	..	..	37
Metuchen, 6,557—Middlesex							
Middlesex Nursing Home.....	Conv	Corp	60	58	..	..	160
Newark, 429,760—Essex							
Florence Crittenton Home....	Mat	NPAasn	30	28	25	76	110
Ivy Haven	Inst	City	90	86	..	..	223
Newark Convalescent Hosp....	Conv	City	155	136	..	..	62
New Brunswick, 33,180—Middlesex							
Mary Kingsland Macy Willets Infirmary	Inst	NPAasn	22	2	..	..	269
Rutgers University Infirmary	Inst	NPAasn	13	2	..	..	192
New Lisbon, 213—Burlington							
Burlington County Mental Hospital	Ment	County	300	254	..	..	31
New Jersey State Colony.....	McDe	State	900	799	..	..	92
Park Ridge, 2,519—Bergen							
Meyers Sanitarium	Conv	Indiv	73	50	..	..	75
Paterson, 139,656—Passaic							
Paterson City Hospital.....	ChrIs	City	110	34	..	..	177
Roseland, 1,556—Essex							
Mountain View Rest	N&M	Corp	22	20	..	..	17
Sea Isle City, 773—Cape May							
Sea Isle Hospital and Training School	McDe	Corp	81	58	..	..	25
Trenton, 124,697—Mercer							
State Home for Girls.....	Inst	State	70	54	3	33	334
Upper Montclair, —Essex							
Montclair Sanitarium	Conv	Part	10	8	..	..	13
Vineland, 7,914—Cumberland							
New Jersey Memorial Home for Disabled Soldiers, Sailors, Marines and Their Wives and Widows	Inst	State	65	24	..	..	140
Training School at Vineland (Chandler Hospital)	McDe	NPAasn	40	9	..	..	469
Vineland State School.....	McDe	State	1,750	1,710	..	..	65
Westfield, 18,458—Union							
Brookside Nursing Home.....	Conv	Indiv	30	29	..	..	20
Woodbine, 2,111—Cape May							
Woodbine Colony for Feeble-minded Males	McDe	State	950	792	..	..	105

NEW MEXICO

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Basinets	Number of Births	Admissions †
Albuquerque, 35,449—Bernalillo							
Albuquerque Indian Hospital Gen	IA		60	42	10	165	1,819
Albuquerque Indian Sanat.*••	TB	IA	100	92	..	..	212
Acheson, Topeka and Santa Fe Hospital	Indus	NPAasn	54	35	..	..	1,103
Methodist Sanatorium	TB	Church	65	52	..	..	52
Nazareth Sanatorium	N&M	Church	30	18	..	..	238
St. Joseph Sanatorium and Hospital*•••••	GenTb	Church	201	150	40	1,431	5,609
Southwestern Presbyterian Sanatorium*•••••	GenTb	Church	158	130	22	681	3,149
Veterans Admin. Hospital*†•	Gen	Vet	293	274	..	..	2,583
Artesia, 4,071—Eddy							
Artesia Municipal Hospital... Gen	Church		25	15	8	296	1,189

NEW MEXICO—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Basinets	Number of Births	Admissions †
Black Rock (Zuni P.O.), 85—McKinley							
Zuni Indian Hospital.....	Gen	IA	35	18	8	41	741
Carlsbad, 7,116—Eddy							
Carlsbad Memorial Hospital....	Gen	NPAasn	27	19	9	201	1,727
St. Francis Xavier Hospital... Gen	Church		45	39	12	512	2,315
Clayton, 3,188—Union							
St. Joseph Hospital.....	Gen	Church	25	9	8	108	484
Clovis, 10,065—Curry							
Acheson, Topeka and Santa Fe Hospital	Indus	NPAasn	37	29	..	..	...
Clovis Memorial Hospital....	Gen	City	70	43	20	672	3,843
Crownpoint, 90—McKinley							
Eastern Navajo Hospital....	Gen	IA	35	37	10	84	1,190
Dulce, 150—Rio Arriba							
Jicarilla Apache Hospital....	Gen	IA	28	...	5	...	...
Embudo, 6—Rio Arriba							
Embudo Presbyterian Hosp... Gen	Church		25	17	12	235	635
Espanola, 643—Rio Arriba							
Espanola Hospital	Gen	Church	39	...	15	Estab.	1948
Farmington, 2,161—San Juan							
Davis Hospital and Clinic....	Gen	Part	22	10	6	37	520
San Juan Episcopal Indian Mission Hospital	Gen	Church	22	17	5	127	584
San Juan Hospital	Gen	NPAasn	20	10	8	160	552
Fort Bayard, 750—Grant							
Veterans Admin. Hospital*••	TB	Vet	223	190	..	..	849
Fort Stanton, 490—Lincoln							
U. S. Marine Hospital*†•••••	TB	USPHS	237	164	..	..	226
Gallup, 7,041—McKinley							
St. Mary's Hospital*•••••	Gen	Church	90	35	12	296	1,836
Hobbs, 10,619—Lea							
Hobbs General Hospital.....	Gen	Indiv	21	15	9	490	1,637
Hot Springs, 2,940—Sierra							
Carrie Tingley Hospital for Crippled Children*†•••••	Orth	State	100	68	..	..	340
Las Vegas, 5,941—San Miguel							
Las Vegas Hospital.....	Gen	NPAasn	37	15	9	150	1,079
New Mexico State Hospital... Ment	State		1,029	1,023	..	..	268
St. Anthony's Hospital.....	Gen	Church	65	47	15	341	2,434
Los Alamos, 100—Sandoval							
Los Alamos Hospital*•••••	Gen	NPAasn	95	35	11	214	1,881
Mescalero, 200—Otero							
Mescalero Apache Indian Hospital	Gen	IA	32	10	4	43	480
Portales, 5,104—Roosevelt							
Lehman Hospital	Gen	Indiv	10	4	4	161	353
Raton, 7,607—Colfax							
New Mexico Miners' Hosp.*••	Gen	State	31	20	11	293	1,639
Roswell, 13,482—Chaves							
St. Mary's Hospital.....	Gen	Church	97	76	20	892	3,838
Station Hospital*•••••	Gen	USAF	125	36	..	..	3,035
Santa Fe, 20,325—Santa Fe							
St. Vincent Hospital*•••••	GenTb	Church	75	62	15	378	2,964
Santa Fe Indian Hospital.....	Gen	IA	56	29	6	71	958
Santa Rita, 2,000—Grant							
Santa Rita Hospital.....	Gen	NPAasn	45	26	10	183	1,099
Shiprock, 125—San Juan							
Northern Navajo Hospital... Gen	IA		43	29	5	86	1,302
Silver City, 5,044—Grant							
Silver City General Hospital... Gen	Corp		31	27	12	428	1,614
Socorro, 3,712—Socorro							
Lehmann Hospital	Gen	Indiv	10	3	6	72	1,072
State Tuberculosis Sanat.....	TB	State	152	73	..	..	89
Taos, 965—Taos							
Holy Cross Hospital.....	Gen	Church	30	17	10	138	875
Valmora, 125—Mora							
Valmora Sanatorium	TB	NPAasn	75	39	..	..	156

Related Institutions

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Basinets	Number of Births	Admissions †
Albuquerque, 35,449—Bernalillo							
Lodge of the Turquoise Trail N&M	Indiv		8	...	..	Estab.	1948
Sandia Ranch Sanatorium ... N&M	Indiv		15	6	..	..	45
Ennice, 1,227—Lea							
Barzune Hospital	Gen	Indiv	8	4	3	69	279
Lordsburg, 3,101—Hidalgo							
Lordsburg Hospital	Gen	Corp	20	5	3	54	235
Los Lunas, 686—Valencia							
Los Lunas Mental Hospital... McDe	State		120	90	..	..	10
Taos, 965—Taos							
Taos Indian Hospital.....	Gen	IA	17	...	3	...	...

NEW YORK

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Basinets	Number of Births	Admissions †
Albany, 130,577—Albany							
Albany Hospital*†•••••	GenTb	NPAasn	541	548	30	1,662	15,099
Anthony N. Brady Maternity Home*†•••••	Mat	Church	70	58	86	2,242	2,862
Child's Hospital	Chil	Church	65	38	..	..	1,450
Memorial Hospital*†•••••	Gen	NPAasn	137	133	20	639	3,863
St. Peter's Hospital*†•••••	Gen	Church	139	137	..	..	4,366
Albion, 4,660—Orleans							
Arnold Gregory Memorial Hospital	Gen	NPAasn	24	17	11	279	944
Amityville, 5,058—Suffolk							
Brunswick General Hospital... Gen	Corp		70	...	27	Estab.	1948
Louden-Knickerbocker Hall .. N&M	Corp		175	169	..	..	297
South Oaks, Long Island							
Home*•••••	N&M	Corp	206	199	..	..	492

NEW YORK—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Basins	Number of Births	Admissions †
Far Rockaway, —Queens							
Hospital for Joint Diseases, Country Branch	Unit of Hosp. for Joint Diseases, N. Y. C.						
St. Joseph Hospital*+.....	Gen	Church	129	87	36	766	3,759
Fillmore, 518—Allegany							
Genesee County Memorial Hospital	Gen	NPAssn	16	7	6	97	310
Flushing, —Queens							
Flushing Hospital and Dispensary*+*.....	Gen	NPAssn	266	215	110	2,906	9,586
Parsons Hospital	Gen	Corp	60	41	20	691	2,893
Fort Totten, —Queens							
Totten General Hospital.....	Gen	Army	100	44	20	253	1,201
Freeport, 20,410—Nassau							
Freeport Hospital	Gen	Corp	32	20	20	625	1,684
Fulton, 13,362—Oswego							
Albert Lindley Lee Memorial Hospital	Gen	City	61	38	16	621	3,375
Gabriels, 300—Franklin							
Sanatorium Gabriels*.....	TB	Church	146	97	..	..	72
Geneva, 15,555—Ontario							
Geneva General Hospital*.....	Gen	NPAssn	102	78	25	689	3,334
Glen Cove, 12,415—Nassau							
North County Community Hospital*.....	Gen	NPAssn	100	82	20	910	3,835
Glens Falls, 18,836—Warren							
Glens Falls Hospital*.....	Gen	NPAssn	150	152	51	1,697	6,816
Westmount Sanatorium	TB	County	48	44	..	..	37
Gloversville, 23,329—Fulton							
Nathan Littauer Hospital*.....	Gen	NPAssn	133	108	30	914	4,309
Goshen, 3,073—Orange							
Goshen Hospital	Gen	NPAssn	40	25	12	304	1,120
Interplines Sanitarium	N&M	Indiv	50	38	..	..	78
Gouverneur, 4,478—St. Lawrence							
Edward John Noble Hosp.*.....	Gen	NPAssn	34	24	12	427	910
Governors Island, —New York							
Station Hospital*.....	Gen	Army	350	172	..	..	3,604
Gowanda, 3,156—Cattaraugus							
Tri-County Memorial Hosp... Gen	NPAssn		26	15	10	375	1,368
Granville, 3,173—Washington							
Emma Laing Stevens Hosp... Gen	NPAssn		22	7	8	192	457
Greenport, 3,259—Suffolk							
Eastern Long Island Hosp... Gen	NPAssn		47	33	13	389	1,681
Harrison, 8,500—Westchester							
St. Vincent's Retreat..... N&M	Church		200	172	..	..	124
Helmuth, 100—Erie							
Gowanda State Homeopathic Hospital*+.....	Ment	State	3,000	2,994	..	..	692
Hempstead, 20,856—Nassau							
Meadowbrook Hospital*+.....	Gen	County	230	224	24	593	5,868
Herkimer, 9,617—Herkimer							
Herkimer Memorial Hospital Gen	NPAssn		52	47	18	440	1,811
Holtsville, 200—Suffolk							
Suffolk Sanatorium	TB	County	104	89	..	..	76
Hornell, 15,649—Steuben							
Bethesda Hospital*.....	Gen	NPAssn	44	32	12	267	1,450
St. James Mercy Hospital*.....	Gen	Church	112	100	23	598	4,050
Hudson, 11,517—Columbia							
Hudson City Hospital*.....	Gen	NPAssn	108	109	18	653	3,143
Huntington, 11,250—Suffolk							
Huntington Hospital*.....	Gen	NPAssn	90	57	22	925	2,300
Iilon, 8,927—Herkimer							
Iilon Hospital	Gen	NPAssn	51	35	16	368	1,646
Ivington, 3,272—Westchester							
Ivington House*.....	ChilCard	NPAssn	115	100	..	..	100
Ithaca, 19,730—Tompkins							
Cornell Univ. Infirmary*+.....	Inst	NPAssn	154	19	..	..	1,696
Hermann M. Biggs Memorial Hospital*+.....	TB	State	250	195	..	..	236
Hopkins County Memorial Hospital*.....	Gen	NPAssn	143	108	28	1,239	4,763
Jackson Heights, —Queens							
Physicians Hospital	Corp		127	120	44	1,777	6,219
Jamaica, —Queens							
Jamaica Hospital*+.....	Gen	NPAssn	185	181	40	1,795	6,136
Mary Immaculate Hosp.*+*.....	Gen	Church	273	292	60	2,186	9,051
Memorial Hospital	Gen	Indiv	75	50	9	1,015	3,065
Queens General Hosp.*+*.....	Gen	City	705	671	52	1,666	14,557
Triboro Hospital*+.....	TB	City	557	549	..	..	692
Jamestown, 42,638—Chautauqua							
Jamestown General Hospital* Gen	City		137	110	22	595	4,439
Woman's Christian Association Hospital*.....	Gen	NPAssn	155	120	33	1,280	5,944
Johnson City, 18,039—Broome							
Charles S. Wilson Memorial Hospital*+.....	Gen	NPAssn	300	285	40	1,500	9,241
Katonah, 1,800—Westchester							
Four Winds	N&M	Corp	37	30	..	..	50
Pinewood Sanitarium*.....	N&M	Part	86	52	..	..	207
Kew Gardens, —Queens							
Kew Gardens General Hosp... Gen	Corp		164	118	58	1,329	6,249
Kings Park, 2,500—Suffolk							
Kings Park State Hosp.*+*.....	Ment	State	7,675	7,070	..	..	2,246
Kingston, 28,589—Ulster							
Benedictine Hospital (Our Lady of Victory Sanitarium)*+.....	Gen	Church	92	74	18	457	2,714
Kingston Hospital*+.....	Gen	NPAssn	118	84	15	650	3,957
Ulster County Tuberculosis Hospital*.....	TB	County	56	54	..	..	72
Lackawanna, 24,058—Erie							
Moses Taylor Hospital*.....	Indus	NPAssn	28	12	..	..	266
Our Lady of Victory Hosp.*+*.....	Gen	Church	175	130	40	1,444	5,224
Lake Kusaqua, 200—Franklin							
Stony Wold Sanatorium*.....	TB	NPAssn	140	83	..	..	71

NEW YORK—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Basins	Number of Births	Admissions †
Lake Placid, 3,136—Essex							
Lake Placid General Hosp.... Gen	City		20	13	6	85	473
Liberty, 3,788—Sullivan							
Maimonides Hospital	Gen	NPAssn	38	28	6	200	1,002
Workmen's Circle Sanatorium TB	NPAssn		75	42	..	..	79
Little Falls, 10,163—Herkimer							
Little Falls Hospital*.....	Gen	NPAssn	85	59	19	582	2,975
Livingston, 406—Columbia							
Potts Memorial Institute*.....	TB	NPAssn	56	43	..	..	41
Lockport, 24,370—Niagara							
Lockport City Hospital.....	Gen	City	142	111	30	916	4,662
Niagara Sanatorium*+.....	TB	County	200	174	..	..	169
Long Beach, 9,036—Nassau							
Long Beach Memorial Hospital*.....	Gen	NPAssn	53	38	7	176	1,581
Long Island City, —Queens							
Astoria Sanatorium	Indiv		27	18	10	697	1,472
Boulevard Hospital	Gen	Corp	125	89	38	1,745	7,842
River Crest Sanitarium*.....	N&M	Corp	132	103	..	..	658
St. John's Long Island City Hospital*+.....	Gen	Church	230	181	39	1,069	5,987
Lowville, 3,578—Lewis							
Lewis County General Hosp. Gen	StateCo		46	37	18	383	1,761
Lyons, 3,863—Wayne							
Edward J. Barber Hospital.. Gen	Indiv		25	19	4	156	775
Lyons Hospital	Gen	Corp	25	16	6	158	654
Malone, 8,743—Franklin							
Alice Hyde Memorial Hosp.* Gen	NPAssn		80	61	16	520	2,623
Marcy, 800—Oneida							
Marcy State Hospital*+.....	Ment	State	2,812	2,901	..	..	659
Margaretville, 812—Delaware							
Margaretville Hospital	Gen	NPAssn	52	31	12	206	1,643
Massena, 11,328—St. Lawrence							
Massena Memorial Hospital.. Gen	City		49	34	20	522	2,250
Medina, 3,871—Orleans							
Medina Memorial Hospital*.....	Gen	NPAssn	36	27	10	378	1,170
Middle Grove, 100—Saratoga							
Saratoga County Tuberculosis Hospital*.....	TB	County	60	54	..	..	60
Middletown, 21,908—Orange							
Elizabeth A. Horton Memorial Hospital*.....	Gen	NPAssn	108	87	20	413	2,770
Middletown Sanitarium and Hospital	Gen	Part	54	38	10	402	1,492
Middletown State Homeopathic Hospital*+.....	Ment	State	3,405	3,257	..	..	471
Mineola, 10,064—Nassau							
Nassau Hospital*+.....	Gen	NPAssn	227	180	50	1,623	7,769
Mineville, 600—Essex							
Mineville Hospital	Indus	NPAssn	18	12	1	2	364
Mitchell Field, —Nassau							
Station Hospital*.....	Gen	USAF	250	84	10	353	2,638
Monticello, 3,737—Sullivan							
Hamilton Avenue Hospital... Gen	Indiv		25	20	4	172	707
Monticello Hospital	Gen	NPAssn	26	28	5	141	1,248
Montour Falls, 1,345—Schuyler							
Shepard Relief Hospital.....	Gen	NPAssn	34	24	10	256	1,087
Mount Kisco, 5,941—Westchester							
Northern Westchester Hosp.* Gen	NPAssn		140	91	20	624	3,416
Mount Morris, 3,530—Livingston							
Mount Morris Tuberculosis Hospital*+.....	TB	State	250	169	..	..	166
Mount Vernon, 67,362—Westchester							
Mount Vernon Hospital*+*.....	Gen	NPAssn	217	178	40	1,440	7,665
Newark, 9,046—Wayne							
Newark Hospital	Gen	Indiv	27	21	6	190	1,063
Newburgh, 31,882—Orange							
Estelle and Walter C. Odell Memorial Sanatorium	TB	County	50	42	..	..	60
St. Luke's Hospital*+.....	Gen	NPAssn	186	133	32	1,010	5,927
Station Hospital	Gen	USAF	118	8	6	..	537
New Rochelle, 55,405—Westchester							
New Rochelle Hospital*+*.....	Gen	NPAssn	312	266	60	1,381	8,814
New York City, 4,552,869—New York							
Babes Hospital*+.....	Unit of Presbyterian Hospital						
Beebe-Downtown Hosp.*+.....	Gen	NPAssn	96	72	..	..	1,798
Bellevue Hospital*+*.....	Gen	City	3,049	2,759	83	2,392	58,182
Beth David Hospital*+.....	Gen	NPAssn	160	125	27	101	4,457
Beth Israel Hospital*+*.....	Gen	NPAssn	326	263	60	2,714	9,174
Bronx Eye and Ear Infirmary*+.....	ENT	NPAssn	54	26	..	..	3,698
Bronx Hospital*+.....	Gen	NPAssn	308	241	84	2,700	9,125
Bronx Maternity and Woman's Hospital	MatGyn	NPAssn	34	14	40	630	742
Charles B. Towns Hospital, Drug Corp	Corp		35	29	..	..	1,399
Columbus Hospital*+.....	Gen	Church	260	190	40	590	5,414
Columbus Hospital Extension See Mother Cabrini Memorial Hospital							
Doctors Hospital*+.....	Gen	NPAssn	272	224	70	1,605	6,743
Endaural Hospital	ENT	Indiv	33	20	..	..	757
Flower and Fifth Avenue Hospitals*+*.....	Gen	NPAssn	337	304	62	1,876	9,525
Fordham Hospital*+*.....	Gen	City	414	611	32	930	10,486
French Hospital*+.....	Gen	NPAssn	251	188	62	1,838	6,465
Goldwater Memorial Hospital*+.....	Chr	City	1,500	1,543	..	..	1,571
Gotham Hospital	Gen	Corp	101	70	24	928	3,683
Gouverneur Hospital*+.....	Gen	City	172	167	..	..	3,881
Harkness Pavilion	Unit of Presbyterian Hospital						
Harlem Eye and Ear Hosp.*+.....	ENT	NPAssn	33	12	..	..	2,498
Harlem Hospital*+*.....	Gen	City	676	846	129	3,958	21,667
Home and Hospital of the Daughters of Jacob.....	InstGen	NPAssn	541	238	..	..	116
Home for Aged and Infirm Hebrews	Inst	NPAssn	69	61	..	..	98

Key to symbols and abbreviations is on page 37

NEW YORK—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Bassinets	Number of Births	Admissions †
Hosp. for Joint Diseases**††	GenOrth	NPAssn	362	321	..	..	5,621
Hosp. for Special Surgery**††	Orth	NPAssn	235	180	..	..	3,215
Hospital of the Rockefeller Institute for Medical Research**	Gen	NPAssn	50	18	..	..	171
Jewish Memorial Hospital**††	Gen	NPAssn	185	145	44	1,809	5,810
Kniekerbocker Hospital**††	Gen	NPAssn	182	146	..	..	1,159
Lebanon Hospital**††	Gen	NPAssn	207	181	29	1,358	6,216
Left-Central Maternity Hosp.	Mat	Indlv	39	30	39	1,509	1,701
Lenox Hill Hospital**††	Gen	NPAssn	530	469	68	1,881	12,975
Le Roy Sanitarium.....	Gen	Corp	51	39	20	522	1,715
Lexington Hospital.....	Gen	Corp	78	50	14	319	2,591
Lincoln Hospital**††	Gen	City	391	471	66	2,056	14,097
Lutheran Hospital**††	Gen	NPAssn	120	72	30	738	2,965
Lying-In Hospital**††	Unit of New York Hospital						
Manhattan Eye, Ear and Throat Hospital**††	ENT	NPAssn	210	129	..	..	12,238
Manhattan General Hospital	Gen	Corp	360	169	50	1,850	7,691
Manhattan Maternity and Dispensary.....	Unit of New York Hospital						
Manhattan State Hospital**††	Ment	State	3,981	3,919	..	..	1,409
Medial Arts Center Hospital	Gen	Corp	141	63	..	..	2,652
Memorial Hospital**††	Cancer	NPAssn	250	230	..	..	6,583
Metropolitan Hospital**††	Gen	City	1,060	1,069	40	1,713	12,512
Midtown Hospital**††	Gen	NPAssn	61	43	..	..	2,158
Allerica Hospital**††	Gen	Church	181	130	55	1,512	5,226
Montefiore Hospital for Chronic Diseases**††	GenTb	NPAssn	599	531	..	..	4,027
Morrisania City Hosp.**††	Gen	City	466	525	45	1,453	13,518
Morris Cabrin Memorial Hospital**††	Gen	Church	175	160	30	773	3,493
Mount Eden Hospital.....	Gen	Indlv	39	31	17	511	1,925
Mount Sinai Hospital**††	Gen	NPAssn	803	674	..	..	15,916
Neurological Institute**††	Unit of Presbyterian Hospital						
New York City Cancer Institute Hospital**††	Cancer	City	210	201	..	..	775
New York City Hospital**††	Gen	City	821	731	44	1,361	12,019
New York Eye and Ear Infirmary**††	ENT	NPAssn	169	118	..	..	6,292
New York Foundling Hosp.*	Chil	Church	245	76	20	..	5-5
New York Hospital**††	Gen	NPAssn	1,011	851	121	4,616	29,743
New York Infirmary**††	Gen	NPAssn	121	76	40	1,104	3,116
New York Nursery and Childs Hospital.....	Unit of New York Hospital						
New York Orthopaedic Dispensary and Hospital**††	Unit of Presbyterian Hospital						
New York Polyclinic Medical School and Hospital**††	Gen	NPAssn	374	236	37	1,203	9,552
New York Skin and Cancer Hospital.....	Unit of University Hospital						
New York State Psychiatric Institute**††	Ment	State	150	113	..	..	227
Park East Hospital.....	Gen	Corp	119	115	30	1,049	5,706
Parkway Hospital.....	Gen	NPAssn	75	37	15	387	1,839
Park West Hospital.....	Gen	Corp	85	55	12	506	3,931
Payne Whitney Psychiatric Clinic.....	Unit of New York Hospital						
Presbyterian Hospital**††	Gen	NPAssn	1,422	1,159	144	3,093	30,220
Psychiatric Pavilion.....	Unit of Bellevue Hospital						
Reconstruction Hospital.....	Unit of University Hospital						
Riker's Island Hospital**††	Inst	City	236	144	..	..	2,215
Roosevelt Hospital**††	Gen	NPAssn	410	312	..	..	9,092
St. Ann's Maternity Hosp.	Unit of New York Foundling Hospital						
St. Barnabas Hospital for Chronic Diseases**††	Chr	NPAssn	470	455	..	..	391
St. Clare's Hospital**††	Gen	Church	411	294	65	1,502	9,513
St. Elizabeth's Hospital**††	Gen	Church	175	136	33	1,121	4,661
St. Francis' Hospital**††	Gen	Church	350	220	45	1,917	7,460
St. Joseph's Hospital for Chest Diseases**††	TB	Church	300	297	..	..	741
St. Luke's Hospital**††	Gen	NPAssn	520	418	..	..	9,829
St. Vincent's Hospital**††	Gen	Church	514	428	100	1,758	11,887
Seton Hospital**††	TB	City	529	427	..	..	203
Sloane Hosp. for Women**††	Unit of Presbyterian Hospital						
Square Sanitarium.....	Gen	Corp	175	140	60	2,810	7,032
Sydenham Hospital**††	Gen	NPAssn	202	151	42	955	5,014
Union Hospital.....	Gen	NPAssn	101	73	20	438	2,687
U. S. Marine Hospital**††	USPHS	454	329	..	..	..	5,012
University Heights Sanitarium	Gen	Corp	60	39	..	..	2,327
University Hospital**††	Gen	NPAssn	406	327	..	..	9,129
Veterans Admin. Hospital**††	Gen	Yet	1,610	1,499	..	..	9,977
West Hill Sanitarium.....	N&M	Indlv	114	99	..	..	727
Willard Parker Hospital**††	Gen	City	433	271	..	..	5,409
Wm. Booth Memorial Hosp.*	Gen	Church	48	30	21	516	1,345
Woman's Hospital**††	GynOb	NPAssn	212	116	116	2,851	5,622
Niagara Falls, 78,029—Niagara							
Mount St. Mary's Hosp.*	Gen	Church	185	147	41	1,210	6,311
Niagara Falls Memorial Hospital**††	Gen	NPAssn	265	188	35	1,515	8,651
Northport, 3,093—Suffolk							
Veterans Admin. Hospital**††	Ment	Vet	2,714	2,609	..	..	1,111
North Tonawanda, 20,254—Niagara							
De Graff Memorial Hospital..	City	87	51	35	893	2,659	
Norwich, 8,049—Chenango							
Chenango Memorial Hospital	Gen	NPAssn	81	49	15	455	1,937
Nyack, 5,266—Rockland							
Nyack Hospital**††	Gen	Corp	91	70	22	656	2,798
Ogdensburg, 16,346—St. Lawrence							
A. Barton Hepburn Hosp.*	Gen	NPAssn	160	143	30	602	4,638
St. Lawrence State Hosp.*	Ment	State	2,277	2,202	..	..	411
Olean, 21,506—Cattaraugus							
Mountain Clinic Hospital....	Gen	Part	33	20	6	161	895
Olean General Hospital.....	Gen	NPAssn	87	70	24	613	2,715

NEW YORK—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Bassinets	Number of Births	Admissions †
Rocky Crest Sanatorium**††	TB	County	41	38	..	..	23
St. Francis Hospital**††	Gen	Church	100	76	24	551	2,691
Onelda, 10,291—Madison							
Main Street Hospital.....	Gen	Indlv	16	No data supplied			
Onelda City Hospital**††	Gen	City	60	63	19	751	2,974
Oneonta, 11,731—Otsego							
Aurelia Osborn Fox Memorial Hospital.....	Gen	NPAssn	87	60	18	637	2,731
Homers Folks Tuberculosis Hospital**††	TB	State	270	220	..	..	218
Orangeburg, 759—Rockland							
Rockland State Hospital**††	Ment	State	7,573	6,375	..	..	1,782
Ossining, 15,916—Westchester							
Ossining Hospital**††	Gen	NPAssn	65	56	12	426	2,421
Song Sang Prison Hospital**††	Inst	State	81	42	..	..	971
Stony Lodge Sanitarium**††	N&M	Indlv	34	24	..	..	81
Oswego, 22,662—Oswego							
Oswego Hospital.....	Gen	NPAssn	76	65	13	773	2,577
Otisville, 829—Orange							
Municipal Sanatorium**††	TB	City	420	401	..	..	516
Peekskill, 17,311—Westchester							
Peekskill Hospital.....	Gen	NPAssn	70	57	25	627	2,476
Penn Yan, 5,308— Yates							
Soldiers and Sailors Memorial Hospital.....	Gen	NPAssn	50	31	10	310	1,431
Perryburg, 475—Cattaraugus							
J. N. Adam Memorial Hosp.*	TB	State	442	381	..	..	215
Philmont, 1,679—Columbia							
Columbia County Tuberculosis Sanatorium.....	TB	County	72	31	..	..	58
Plattsburg, 16,351—Clinton							
Champlain Valley Hospital**††	Gen	NPAssn	106	91	15	511	3,727
Physicians Hospital**††	Gen	NPAssn	132	102	26	753	4,787
Pomona, 50—Rockland							
Summit Park Sanatorium**††	TB	County	91	85	..	..	56
Port Chester, 23,073—Westchester							
Brooklyn Farm.....	N&M	Indlv	18	15	..	..	32
Mary Harkness Convalescent Home.....	Unit of Presbyterian Hosp., New York City						
St. Luke's Convalescent Hosp. See Greenwich, Conn.							
United Hospital**††	Gen	NPAssn	182	149	32	1,279	6,107
Port Jefferson, 3,500—Suffolk							
John T. Mather Memorial Hospital.....	Gen	NPAssn	70	75	24	697	3,061
St. Charles Hospital for Crippled Children**††	Orth	Church	175	155	..	..	219
Wharton Memorial Institute..	Unit of St. Charles Hospital for Crippled Children						
Port Jervis, 9,749—Orange							
St. Francis Hospital**††	Gen	Church	68	43	11	351	1,855
Potsdam, 4,821—St. Lawrence							
Potsdam Hospital**††	Gen	NPAssn	77	74	25	777	3,233
Poughkeepsie, 40,478—Dutchess							
Hudson River State Hosp.*	Ment	State	4,974	4,743	..	..	911
St. Francis Hospital**††	Gen	Church	166	81	25	557	2,823
Samuel and Nettie Bowne Hospital.....	TB	NPAssn	51	45	..	..	100
Samuel W. Bowne Memorial Hospital**††	TB	CyCo	131	91	..	..	65
Vassar Brothers Hospital**††	Gen	NPAssn	207	165	43	1,079	6,535
Queens Village, —Queens							
Creedmoor State Hospital**††	Ment	State	5,160	5,059	..	..	1,090
Ray Brook, 550—Essex							
Ray Brook State Tuberculosis Hospital**††	TB	State	350	309	..	..	301
Rhinebeck, 1,697—Dutchess							
Northern Dutchess Health Service Center**††	Gen	NPAssn	35	35	10	229	1,147
Richland, 300—Oswego							
Oswego County Tuberculosis Hospital.....	TB	County	95	49	..	..	68
Rochester, 324,973—Monroe							
Genesee Hospital**††	Gen	NPAssn	226	201	86	1,357	7,850
Highland Hospital**††	Gen	NPAssn	200	161	60	1,784	6,906
Iola-Monroe County Tuberculosis Sanatorium**††	TB	County	350	326	..	..	830
Monroe County Infirmary**††	Gen	County	509	472	20	..	2,240
Park Avenue Hospital**††	Gen	NPAssn	92	78	20	730	3,355
Rochester General Hosp.*	Gen	NPAssn	321	287	63	2,625	14,963
Rochester Municipal Hosp.**††	See Strong Memorial-Rochester Municipal Hospitals						
Rochester State Hospital**††	Ment	State	3,264	3,167	..	..	748
St. Mary's Hospital**††	Gen	Church	325	295	65	2,398	12,322
Strong Memorial-Rochester Municipal Hospitals**††	Gen	NPAssnCy	746	645	84	2,014	17,524
Rockaway Beach, —Queens							
Rockaway Beach Hospital**††	Gen	NPAssn	100	73	15	635	3,476
U. S. Marine Hospital.....	TB	USPHS	300	270	..	..	400
Rockville Centre, 18,613—Nassau							
Mercy Hospital**††	Gen	Church	130	118	60	2,756	5,975
South Nassau Communities Hospital.....	Gen	NPAssn	115	97	40	1,815	5,140
Rome, 34,211—Onelda							
Onelda County Hospital.....	Gen	County	180	191	5	148	2,035
Rome Hospital and Murphy Memorial Hospital**††	Gen	City	122	72	28	1,108	3,631
Rome State School.....	MeDe	State	4,098	3,748	6	10	302
Roslyn, 972—Nassau							
St. Francis Sanatorium for Cardiac Children.....	Card	Church	157	146	..	..	110
Roslyn Heights, 3,600—Nassau							
Roslyn Park Hospital.....	Gen	Corp	48	22	16	410	1,720

Key to symbols and abbreviations is on page 37

NEW YORK—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Basinets	Number of Births	Admissions †
St. Albans—Queens							
U. S. Naval Hospital**	Gen	Navy	1,500	1,134	25	6	7,253
Salamanca, 9,011—Cattaraugus							
City Hospital	Gen	City	51	40	14	459	2,704
Salisbury Center, 331—Herkimer							
Plum Crest Sanatorium	TB	County	65	57	..	..	45
Saranac Lake, 7,135—Franklin							
General Hospital	Gen	NPAasn	49	32	10	220	1,494
Northwoods Sanatorium	TB	NPAasn	26	24	..	..	20
Prescott House	TB	NPAasn	21	20	..	..	12
Will Rogers Memorial Hosp.	TB	NPAasn	80	63	..	..	25
Saratoga Springs, 13,705—Saratoga							
Saratoga Hospital	Gen	NPAasn	80	72	17	576	2,636
Veterans Admin. Hospital	Gen	Vet	50	41	..	..	633
Schenectady, 57,549—Schenectady							
Eastern New York Orthopedic Hosp.—School "Sunny View"	Orth	NPAasn	35	35	..	..	80
Ellis Hospital**	Gen	NPAasn	423	238	82	1,526	13,654
Schenectady County Tuberculosis Hospital	TB	County	131	117	..	..	114
Seneca Falls, 6,452—Seneca							
Seneca Falls Hospital	Gen	City	31	23	8	257	804
Sidney, 3,012—Delaware							
The Hospital	Gen	City	30	26	13	242	1,220
Sodus, 1,515—Wayne							
J. F. Myers Hospital	Gen	Indiv	25	17	7	213	524
Sonyea, 500—Livingston							
Craig Colony	Epil	State	2,288	2,231	..	..	211
Southampton, 3,818—Suffolk							
Southampton Hospital	Gen	NPAasn	124	66	23	538	2,531
Stamford, 1,688—Delaware							
Bathgate Hospital	Gen	NPAasn	18	5	6	125	646
Stapleton (Staten Island P.O.)—Richmond							
U. S. Marine Hospital**	Gen	USPHS	1,033	779	17	323	12,602
Staten Island, 17,441—Richmond							
Richmond Borough Hospital	Iso	City	49	10	..	..	190
Richmond Memorial Hosp.	TB	NPAasn	100	72	18	545	2,496
St. Vincent's Hospital**	Gen	Church	211	204	35	1,586	7,396
Sea View Hospital	TB	City	1,764	1,436	10	1	1,598
Staten Island Hospital**	Gen	NPAasn	221	155	62	1,909	5,755
Veterans Admin. Hospital	Gen	Vet	1,125	993	..	..	5,290
Suffern, 3,768—Rockland							
Good Samaritan Hospital	Gen	Church	92	71	32	939	3,805
Sunmount, 50—Franklin							
Veterans Admin. Hospital	TB	Vet	564	485	..	..	833
Syracuse, 205,967—Onondaga							
City Hospital	Iso	City	73	23	..	..	764
Crouse-Irving Hospital**	Gen	NPAasn	215	194	35	1,909	7,969
General Hospital**	Gen	NPAasn	127	112	43	1,538	4,843
Hospital of the Good Shepherd**	Gen	NPAasn	204	157	..	..	4,371
Onondaga General Hospital	Gen	NPAasn	63	43	10	50	1,274
Onondaga Sanatorium	TB	State	224	195	..	..	235
Peoples Hospital	Gen	NPAasn	25	17	6	84	534
St. Joseph's Hospital	Gen	Church	205	180	45	1,469	7,915
St. Mary's Maternity Hospital and Children's Home	Mat	Church	37	18	29	631	707
Syracuse Memorial Hosp.	Gen	NPAasn	276	202	60	2,503	11,423
Syracuse Psychopathic Hospital	Ment	State	60	55	..	..	658
Twins Elm	N&M	Part	15	16	..	..	127
Tarrytown, 6,674—Westchester							
Tarrytown Hospital	Gen	NPAasn	57	32	13	338	1,649
Thiells, 700—Rockland							
Letchworth Village	McDe	State	3,781	4,283	6	12	487
Tiencroft, 3,402—Essex							
Moses-Ludington Hospital	Gen	NPAasn	55	36	12	345	1,371
Troy, 70,301—Rensselaer							
Leonard Hospital	Gen	NPAasn	133	135	35	955	3,864
Marshall Sanitarium	N&M	NPAasn	66	55	..	..	250
Prince Memorial Hospital	Unit of Samaritan Hospital						
St. Joseph's Maternity Hosp.	Mat	Church	32	14	24	472	542
St. Mary's Hospital	Gen	Church	244	180	28	628	6,168
Samaritan Hospital	Gen	NPAasn	188	139	27	1,237	5,323
Trudeau, 600—Essex							
Trudeau Sanatorium	TB	NPAasn	200	172	..	..	191
Tupper Lake, 5,451—Franklin							
Mercy General Hospital	Gen	Church	35	25	11	195	821
Tuxedo Park, 2,500—Orange							
Tuxedo Memorial Hospital	Gen	NPAasn	33	18	7	116	659
Utica, 100,518—Oneida							
Broadacres Sanatorium	TB	State	182	109	..	..	129
Children's Hospital Home	Orth	NPAasn	40	36	..	..	172
Faxon Hospital	Gen	NPAasn	128	95	27	916	4,394
Masonic Soldiers and Sailors Memorial Hospital	Gen	NPAasn	170	127	..	..	429
Oneida County Hospital	Gen	County	125	55	14	138	3,169
St. Elizabeth Hospital	Gen	Church	179	161	23	1,118	8,216
St. Luke's Home and Hosp.	Gen	Church	108	84	27	874	3,942
Utica Memorial Hospital	Gen	NPAasn	86	67	16	509	2,857
Utica State Hospital	Ment	State	1,995	1,845	..	..	630
***	Gen	County	800	525	15	185	4,424
Wyoming County Community Hospital	Gen	StateCo	122	84	20	569	3,175
Warwick, 2,534—Orange							
St. Anthony's Hospital	Gen	Church	50	23	12	127	1,152
Waterloo, 4,010—Seneca							
Waterloo Memorial Hospital	Gen	NPAasn	26	23	8	194	874
Watertown, 33,385—Jefferson							
House of the Good Samaritan	Gen	NPAasn	159	130	31	974	4,922

NEW YORK—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Basinets	Number of Births	Admissions †
Jefferson County Sanat.	TB	County	86	73	..	..	414
Mercy Hospital	Gen	Church	137	113	23	629	4,323
Waverly, 5,450—Tioga							
Tioga County General Hosp.	Gen	NPAasn	70	59	15	439	2,274
Wayland, 1,795—Steuben							
Wayland Hospital	Gen	Indiv	18	12	4	157	553
Wellsville, 5,942—Allegany							
Memorial Hospital of Wm. F. and Gertrude F. Jones	Gen	City	55	39	10	529	1,895
West Brentwood—Suffolk							
Pilgrim State Hospital	Ment	State	9,859	9,150	..	..	2,809
Westfield, 3,434—Chautauqua							
Westfield Memorial Hospital	Gen	NPAasn	24	16	10	253	816
West Haverstraw, 2,533—Rockland							
Rehabilitation Hospital	Orth	State	282	179	..	..	312
West Point, 1,500—Orange							
Station Hospital	Gen	Army	253	101	15	313	3,013
White Plains, 40,327—Westchester							
Burke Convalescent Home	Conv	NPAasn	240	171	..	..	2,904
New York Hospital—Westchester Division	N&M	NPAasn	301	258	..	..	330
St. Agnes Hospital	Gen	Church	138	92	39	609	3,676
White Plains Hospital	Gen	NPAasn	188	142	30	839	6,188
Willard, 600—Seneca							
Willard State Hospital	Ment	State	3,089	2,901	..	..	504
Wingdale, 500—Dutchess							
Harlem Valley State Hosp.	Ment	State	4,600	4,435	..	..	700
Woodhaver,—Queens							
St. Anthony's Hospital	TB	Church	350	367	..	..	556
Wynantskill, 200—Rensselaer							
Pawling Sanatorium	TB	County	118	74	..	..	73
Yaphank, 350—Suffolk							
Suffolk Home and Infirmary	Chr	County	263	200	..	..	98
Yonkers, 142,589—Westchester							
Gray Oaks Hospital	TB	City	45	37	..	..	62
House of Rest at Sprain Ridge	TB	NPAasn	76	66	..	..	111
St. John's Riverside Hosp.	Gen	NPAasn	188	159	32	1,059	5,822
St. Joseph's Hospital	Gen	Church	184	133	26	488	3,442
Yonkers General Hospital	Gen	NPAasn	143	117	36	1,124	5,190
Yonkers Professional Hosp.	Gen	Corp	164	96	36	723	3,965
Related Institutions							
Albany, 130,577—Albany							
Albany's Hospital for Incurables	Incur	NPAasn	100	95	..	..	63
St. Margaret's House and Hospital for Babies	Inst	NPAasn	40	41	15	..	79
Albion, 4,660—Orleans							
Albion State Training School	McDe	State	494	239	3	12	77
Alden, 954—Erie							
Erie County Penitentiary Hospital	Inst	County	27	8	..	..	110
Alexandria Bay, 1,748—Jefferson							
Noble Foundation Hospital	Gen	City	14	7	4	132	572
Bainbridge, 1,450—Chenango							
Bainbridge Hospital	Gen	Indiv	14	5	6	42	166
Bedford Hills, 2,000—Westchester							
Westfield State Farm	Inst	State	48	45	40	..	1,115
Binghamton, 78,309—Broome							
Binghamton Training School	McDe	Indiv	55	55	..	..	15
Brooklyn, 2,638,283—Kings							
Bensonhurst Nursing Home	Conv	Part	32	..	..	..	Estab. 1948
Esplanade Private Home for Chronics and Convalescents	ConvChr	Part	46	44	..	..	109
Menorah Home and Hospital for Aged and Infirm	Chr	NPAasn	50	50	..	..	88
Buffalo, 555,901—Erie							
Crippled Children's Guild Hospital	Orth	NPAasn	65	48	..	..	1,751
Ingleside Home and Hosp.	Mat	NPAasn	40	40	20	155	196
Salvation Army Home and Hospital	Mat	Church	12	2	18	73	86
Corinth, 3,654—Saratoga							
Corinth Hospital	Gen	NPAasn	26	13	6	146	751
Eastview, 1,000—Westchester							
Solomon and Betty Loeb Memorial Home for Convalescents	Conv	NPAasn	110	79	..	..	1,318
Elmira, 45,106—Chemung							
Elmira Reformatory Hospital	Inst	State	97	17	..	..	1,027
Far Rockaway,—Queens							
Wave Crest Convalescent Home	OrthChil	NPAasn	47	47	..	..	135
Hawthorne, 2,000—Westchester							
Rosary Hill Home	Cancer	Church	100	83	..	..	279
Industry, 530—Monroe							
Hospital of State Agriculture and Industrial School	Inst	State	50	17	..	..	1,028
Iroquois, 40—Erie							
Thomas Indian School Hosp.	Inst	State	40	8	..	..	406
Ithaca, 19,730—Tompkins							
Reconstruction Home	Orth	NPAasn	100	70	..	..	84
Johnson City, 18,039—Broome							
Springer Private Hospital	Mat	Indiv	26	16	6	99	133
Keene Valley, 511—Essex							
Keene Valley Neighborhood House and Hospital	Gen	NPAasn	11	5	5	60	168
Lake Ronkonkoma, 1,000—Suffolk							
Gary de Vabre Academy	McDe	Indiv	18	17	..	..	18
Millbrook, 1,340—Dutchess							
Cardinal Hayes Memorial Convalescent Home for Children	Chil	Church	70	59	..	..	423

Key to symbols and abbreviations is on page 37

NEW YORK—Continued

Related Institutions	Type of Service	Ownership or Control	Beds	Average Census †	Basinets	Number of Births	Admissions †
Mount McGregor, 300—Saratoga New York State Veterans' Camp	Conv	State	610	343	..	..	2,808
Napanoch, 750—Ulster Institution for Male Defective Delinquents	McDe	State	27	10	..	..	740
Newark, 9,646—Wayne Newark State School	McDe	State	2,768	2,622	..	..	240
New York City, 4,582,269—New York Beth Abraham Home for Incurables	Incur	NPAssn	316	315	..	..	70
Hebrew Convalescent Home	Conv	NPAssn	81	70	..	..	602
Home and Hospital of the Daughters of Israel	Inst	NPAssn	129	120	..	..	320
Home for Dependents	Inst	City	1,853	1,773	..	..	912
House of Calvary	Cancer	Church	146	111	..	..	265
House of the Holy Comforter	Chr	Church	91	70	..	..	22
National Hospital for Speech Disorders	Speech	NPAssn	..	250	..	..	4,319
St. Mary's Hospital for Children	Conv	Church	60	54	..	..	463
St. Rose's Free Home for Incurable Cancer	Cancer	Church	85	79	..	..	318
Niagara Falls, 78,029—Niagara Niagara Falls Municipal Hospital	Iso	Chr City	36	12	..	..	100
Oceanside (Rockville Centre P.O.), 600—Nassau Oceanside Gardens Sanitarium N & M Corp	..	..	19	19	..	..	78
Ogdensburg, 16,346—St. Lawrence St. John's Hospital	Conv	Church	35	31	..	..	41
Onondaga, 325—Onondaga	Ital..	Inst	242	222	..	..	481
Corps Home	Relief	Inst	71	70	..	..	163
Pelham, 1,018—Westchester Pelham Home for Children	Card	NPAssn	20	14	..	..	40
Pleasantville, 4,454—Westchester Pleasantville Cottage School	Inst	NPAssn	24	3	..	..	273
Poughkeepsie, 40,478—Dutchess Baldwin House (Vassar College Infirmary)	Inst	NPAssn	35	12	..	..	818
Poughkeepsie City Home	Inst	City	48	38	..	..	24
Queens Village—Queens Queens Village Sanatorium	Mut	Indlv	12	5	10	221	210
Rochester, 324,975—Monroe Convalescent Hospital for Children	Conv	NPAssn	52	34	..	..	75
Feld Sanitarium	Conv	Indlv	27	25	..	..	39
Knorr Sanitarium	Conv	Indlv	35	25	..	..	63
Rye, 9,566—Westchester Halcyon Rest Sanitarium	N & M	Indlv	62	No data supplied	..	..	..
Saranac Lake, 7,138—Franklin Franklin Manor	TB	Indlv	15	10	..	..	27
Owens Private Sanatorium	TB	Indlv	18	16	..	..	25
Schenectady, 87,549—Schenectady Bellevue Maternity Home	Mut	Indlv	50	36	51	1,872	1,381
Schenectady City Hospital	Iso	City	33	16	..	..	651
Schenectady County Home and Hospital	Inst	County	70	65	..	..	271
Springville, 2,849—Erie Bertrand Chaffee Hospital	Gen	NPAssn	28	12	12	294	701
Staten Island, 174,441—Richmond New York City Farm Colony	Inst	City	1,173	1,117	..	..	750
Sailors' Snug Harbor Hosp	Gen	NPAssn	165	94	..	..	303
State School—Orange Hospital of New York State Training School for Boys	Inst	State	25	6	..	..	560
Syracuse, 269,967—Onondaga Syracuse State School	McDe	State	1,175	967	..	..	115
Tupper Lake, 5,451—Franklin American Legion Mountain Camp	Conv	NPAssn	75	50	..	..	122
Valhalla, 2,200—Westchester Blythedale Convalescent Home	Orth	NPAssn	62	50	..	..	80
Walkill, 800—Ulster Walkill State Prison Hosp	Inst	State	18	5	..	..	327
Wassale, 350—Dutchess Wassale State School	McDe	State	4,419	4,045	6	11	390
Williamsville, 3,614—Erie Josephine Goodyear Convalescent Home	Chil	NPAssn	60	58	..	..	107
Woodbourne, 500—Sullivan Woodbourne Institution for Defective Delinquents	McDe	State	708	701	..	..	360

NORTH CAROLINA

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Basinets	Number of Births	Admissions †
Albemarle, 4,060—Stanly Stanly General Hospital	Gen	NPAssn	45	34	10	103	1,724
Yadkin Hospital	Gen	NPAssn	49	36	24	723	2,673
Asheville, 51,310—Buncombe Appalachian Hall	N & M	Corp	175	97	..	..	1,128
Asheville Colored Hospital	Gen	NPAssn	37	21	8	167	802
Aston Park Hospital	Gen	NPAssn	45	35	..	..	1,619
Biltmore Hospital	Gen	NPAssn	65	40	16	605	2,500
Highland Hospital	N & M	NPAssn	80	80	..	..	208

NORTH CAROLINA—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Basinets	Number of Births	Admissions †
Memorial Mission Hospital	Gen	NPAssn	184	125	35	1,175	5,612
Norburn Hospital	Gen	NPAssn	112	56	20	372	2,893
St. Joseph's Hospital	Gen	Church	117	70	38	1,307	4,185
Zephyr Hill Sanatorium	TB	Indlv	21	21	..	..	21
Banner Elk, 344—Avery Grace Hospital	Gen	Church	60	43	15	419	2,132
Black Mountain, 1,012—Buncombe Fellowship Sanatorium of the Royal League	TB	NPAssn	18	7	..	..	21
Western North Carolina Sanatorium	TB	State	369	271	..	..	370
Brevard, 3,061—Transylvania Transylvania Community Hospital	Gen	NPAssn	25	11	5	177	572
Burlington, 21,530—Alamance Alamance County Sanatorium	TB	County	24	22	..	..	23
Alamance General Hospital	Gen	NPAssn	48	39	6	18	2,083
Butner, Granville State Hospital	Ment	State	2,400	1,089	..	..	1,350
Camp Lejeune, Craven U. S. Naval Hospital	Gen	Navy	329	215	18	443	3,629
Charlotte, 100,829—Mecklenburg Charlotte Eye, Ear and Throat Hospital	ENT	Part	33	22	..	..	2,850
Charlotte Memorial Hosp.	NPAssn	Church	371	255	32	1,073	10,297
Good Samaritan Hospital	Gen	Church	60	45	20	1,110	3,660
Mercy Hospital	Church	230	173	115	1,591	7,613	..
Presbyterian Hospital	Gen	Church	250	213	33	1,423	7,376
Western Medical Center	Ven	State	200	93	..	..	8,623
Cherokee, 500—Swain Eastern Cherokee Indian Hospital	Gen	IA	25	16	7	104	622
Cherry Point, Craven U. S. Marine Corps Air Station Dispensary	Gen	Navy	327	25	14	332	1,757
Columbia, 1,000—Tyrrell Columbia Hospital	Gen	Indlv	23	6	6	121	763
Concord, 15,572—Cabarrus Cabarrus County Hospital	Gen	County	175	157	40	1,678	8,051
Crossnore, 240—Avery Garrett Memorial Hospital	Gen	NPAssn	19	11	6	100	502
Durham, 60,155—Durham Duke Hospital	Gen	NPAssn	519	429	53	1,410	13,862
Durham County Tuberculosis Sanatorium	TB	County	60	50	..	..	49
Eastern Medical Center	Ven	State	175	150	..	..	4,171
Lincoln Hospital	Gen	NPAssn	109	73	23	487	2,732
McPherson Hospital	ENT	Indlv	39	16	..	..	1,471
Watts Hospital	Gen	NPAssn	200	190	25	1,505	8,628
Elizabeth City, 11,564—Pasquotank Albemarle Hospital	Gen	CyCo	87	62	16	252	2,395
Elkin, 2,734—Surry Hugh Chatham Memorial Hospital	Gen	Church	74	41	24	733	2,704
Fayetteville, 17,425—Cumberland Cumberland County Tuberculosis Sanatorium	TB	County	52	31	..	..	48
Hickory, 13,487—Catawba Hickory Memorial Hospital	Gen	NPAssn	120	109	24	674	5,184
High Point, 33,493—Guilford Piedmont Memorial Hosp.	Gen	NPAssn	61	42	17	347	2,836
L. Richardson Memorial Hospital	Gen	NPAssn	85	58	17	599	2,757
St. Leo's Hospital	Gen	Church	93	76	24	1,020	3,864
Sternberger Hospital for Women and Children	Gen	NPAssn	49	34	13	305	1,746
Wesley Long Hospital	Gen	NPAssn	100	87	20	720	4,571
Greensboro, 59,310—Guilford Greensboro, 59,310—Guilford Piedmont Memorial Hosp.	Gen	NPAssn	61	42	17	347	2,836
L. Richardson Memorial Hospital	Gen	NPAssn	85	58	17	599	2,757
St. Leo's Hospital	Gen	Church	93	76	24	1,020	3,864
Sternberger Hospital for Women and Children	Gen	NPAssn	49	34	13	305	1,746
Wesley Long Hospital	Gen	NPAssn	100	87	20	720	4,571
Greenville, 12,674—Pitt Pitt General Hospital	Gen	NPAssn	63	41	11	389	3,016
Hannet, 5,111—Richmond Hannet Hospital	Gen	NPAssn	100	68	16	524	2,752
Henderson, 7,617—Vance Jubilee Hospital	Gen	Church	37	27	5	158	1,308
Marla Parham Hospital	Gen	NPAssn	60	43	17	501	2,562
Hendersonville, 5,381—Henderson Patton Memorial Hospital	Gen	NPAssn	47	31	20	568	2,857
Hickory, 13,487—Catawba Hickory Memorial Hospital	Gen	NPAssn	52	37	18	444	2,784
Richard Baker Hospital	Gen	Indlv	80	43	24	715	2,834
High Point, 33,493—Guilford High Point Memorial Hosp.	Gen	NPAssn	131	100	37	1,512	5,987
Huntersville, 763—Mecklenburg Mecklenburg Sanatorium	TB	County	160	115	..	..	177
Jacksonville, 673—Onslow Onslow County Hospital	Gen	County	42	25	17	482	1,983

NORTH CAROLINA—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Basinsets	Number of Births	Admissions †
Jamestown, 800—Gulford							
Gulford County Sanatorium* TB	County		126	104	..	...	185
Jefferson, 304—Ashe							
Ashe County Memorial Hosp. Gen	NPAssn		31	23	12	477	1,890
Kinston, 15,388—Lenoir							
Memorial General Hospital* Gen	NPAssn		73	62	12	692	3,075
Parrott Memorial Hospital... Gen	NPAssn		50	39	12	614	2,934
Laurinburg, 5,685—Scotland							
Scotland County Memorial Hospital	Gen	NPAssn	75	63	12	303	3,137
Leaksville, 1,886—Rockingham							
Leaksville General Hosp.*... Gen	NPAssn		45	31	5	530	2,284
Lenoir, 7,598—Caldwell							
Blackwelder Hospital*... Gen	NPAssn		30	26	10	582	2,431
Dula Hospital... Gen	Indiv		27	19	5	155	1,237
Lenoir Hospital*... Gen	Corp		30	26	8	287	1,284
Lexington, 10,550—Davidson							
Lexington Memorial Hospital Gen	NPAssn		80	50	30	704	3,477
Lincolnton, 4,525—Lincoln							
Gordon Crowell Memorial Hospital*... Gen	Corp		55	33	14	412	1,872
Reeves Gamble Hospital... Gen	NPAssn		35	16	11	283	1,050
Lumberton, 5,893—Robeson							
Baker-Thompson Memorial Hospital*... Gen	NPAssn		160	104	35	1,018	6,470
Marion, 2,889—McDowell							
Marion General Hospital... Gen	NPAssn		42	34	18	757	2,749
McCain, 4—Hoke							
North Carolina Sanatorium for the Treatment of Tuberculosis*... TB	State		600	538	..	...	623
Monroe, 6,475—Union							
Ellen Fitzgerald Hospital*... Gen	NPAssn		60	45	14	560	4,100
Mooreville, 4,682—Iredell							
Lowrance Hospital*... Gen	NPAssn		78	54	15	712	3,978
Morehead City, 3,695—Carteret							
Morehead City Hospital... Gen	City		52	30	16	484	1,827
Morganton, 7,670—Burke							
Brondons Sanatorium... N&M	Part		75	47	..	...	82
Grace Hospital*... Gen	NPAssn		108	68	17	729	4,467
State Hospital... Ment	State		2,708	2,579	..	...	457
Mount Airy, 6,286—Surry							
Martin Memorial Hospital*... Gen	NPAssn		75	70	15	636	3,364
Murphy, 1,573—Cherokee							
Petrie Hospital... Gen	NPAssn		25	21	12	242	725
Nashville, 1,171—Nash							
Nash County Tuberculosis Sanatorium... TB	County		33	20	..	...	75
New Bern, 11,815—Craven							
Good Shepherd Hospital... Gen	Church		58	18	8	129	641
St. Luke's Hospital... Gen	Church		65	29	20	397	1,696
Newton, 5,407—Catawba							
Catawba Hospital... Gen	NPAssn		100	60	12	609	3,158
North Wilkesboro, 4,478—Wilkes							
Wilkes Hospital*... Gen	NPAssn		59	40	16	629	2,487
Oteen, 1,200—Buncombe							
Veterans Admin. Hospital*... TB	Vet		1,500	1,280	..	...	4,090
Oxford, 3,991—Granville							
Granville Hospital... Gen	NPAssn		37	27	14	233	1,407
Susie Clayton Cheatham Memorial Hospital... Gen	NPAssn		19	15	1	153	980
Pinebluff, 330—Moore							
Pine Bluff Sanitarium... N&M	Corp		50	45	..	...	283
Pinehurst, 1,630—Moore							
Moore County Hospital*... Gen	NPAssn		80	74	20	485	3,354
Raleigh, 46,897—Wake							
Central Prison Hospital... Inst	State		134	60	..	...	1,367
Mary Elizabeth Hospital*... Gen	Corp		50	45	10	421	1,995
Rex Hospital*... Gen	NPAssn		294	263	42	1,614	10,977
Royster Medical Center*... Unit of State Hospital			114	81	20	563	3,224
St. Agnes Hospital*... Gen	Church		2,512	2,542	..	...	875
State Hospital*... Ment	State						
Wake County Tuberculosis Sanatorium... TB	CyCo		58	55	..	...	49
Reidsville, 10,387—Rockingham							
Annie Penn Memorial Hosp... Gen	NPAssn		74	54	16	767	3,781
Roanoke Rapids, 8,515—Halifax							
Roanoke Rapids Hospital*... Gen	NPAssn		110	86	30	951	4,865
Rocky Mount, 25,508—Nash							
Atlantic Coast Line Hosp.*... Indus	NPAssn		50	30	..	...	986
Park View Hospital*... Gen	NPAssn		110	72	20	569	3,578
Rocky Mount Sanitarium*... Gen	NPAssn		75	51	12	496	2,768
Speight-Stone-Bell Clinic-Hospital... Gen	Part		22	14	7	266	1,106
Roseboro, 939—Sampson							
Brewer-Stirling Clinic-Hosp... Gen	Part		9	5	5	270	332
Roxboro, 4,599—Person							
Community Hospital... Gen	NPAssn		26	16	6	313	1,320
Rutherfordton, 2,326—Rutherford							
Rutherford Hospital*... Gen	NPAssn		64	50	11	523	2,842
Salisbury, 19,037—Rowan							
Rowan Memorial Hospital*... Gen	NPAssn		120	121	40	1,322	6,679
Sanford, 4,860—Lee							
Lee County Hospital*... Gen	County		50	No data supplied			
Shelby, 14,037—Cleveland							
Shelby Hospital*... Gen	County		102	75	26	926	4,707
Siler City, 2,197—Chatham							
Chatham Hospital... Gen	NPAssn		18	10	6	216	820
Smithfield, 3,678—Johnston							
Johnston County Hospital... Gen	NPAssn		35	25	10	430	1,455
Southport, 1,700—Brunswick							
J. Arthur Dosher Memorial Hospital... Gen	CyCo		50	29	7	182	1,332

NORTH CAROLINA—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Basinsets	Number of Births	Admissions †
Statesville, 11,440—Iredell							
Davis Hospital*... Gen	NPAssn		130	103	22	721	4,407
H. F. Long Hospital*... Gen	NPAssn		68	52	14	445	3,169
Swannanoa, 2,500—Buncombe							
Veterans Admin. Hospital... Unit of Veterans Admin. Hosp., Oteen, N. C.							
Sylva, 1,403—Jackson							
C. J. Harris Community Hospital... Gen	NPAssn		26	16	10	303	984
Tarboro, 7,148—Edgecombe							
Bass Memorial Hospital... Gen	Indiv		8	4	5	29	121
Edgecombe General Hospital*... Gen	NPAssn		66	44	14	343	2,147
Thomasville, 11,041—Davidson							
City Memorial Hospital... Gen	NPAssn		52	40	18	483	1,807
Tryon, 2,043—Polk							
St. Luke's Hospital... Gen	NPAssn		30	16	8	188	792
Valdese, 2,015—Burke							
Valdese General Hospital... Gen	NPAssn		49	32	12	263	2,452
Wadesboro, 3,587—Anson							
Anson Sanatorium... Gen	NPAssn		40	30	10	326	1,358
Washington, 8,550—Beaufort							
Fowle Memorial Hospital... Gen	Indiv		16	12	6	149	607
Tayloe Hospital... Gen	NPAssn		75	50	16	754	3,533
Waynesville, 2,940—Haywood							
Haywood County Hospital... Gen	County		72	54	15	1,064	3,750
Whiteville, 3,011—Columbus							
Columbus County Hospital... Gen	NPAssn		62	47	17	695	3,133
Williamston, 3,966—Martin							
Brown Community Hospital Gen	Indiv		35	16	7	95	794
Wilmington, 33,407—New Hanover							
Babies Hospital*... Chil	NPAssn		40	23	10	...	1,363
Bulluck Hospital-Clinic... Gen	NPAssn		25	18	..	...	680
Community Hospital*... Gen	CyCo		92	53	27	470	1,749
James Walker Memorial Hospital*... Gen	NPAssn		300	205	50	1,504	9,955
Wilson, 10,234—Wilson							
Carolina General Hospital*... Gen	NPAssn		54	40	15	619	2,290
Eastern North Carolina Sanatorium... TB	State		190	178	..	...	165
Mercy Hospital... Gen	NPAssn		36	21	8	151	837
Wilson County Tuberculosis Sanatorium... TB	County		40	31	..	...	29
Woodard-Herring Hospital*... Gen	NPAssn		59	52	10	352	2,658
Winston-Salem, 79,815—Forsyth							
City Memorial Hosp.*... Gen	City		183	133	40	1,552	7,100
Forsyth County Hospital... Gen	County		36	12	6	103	383
Forsyth County Sanatorium* TB	County		132	97	..	...	89
Graylin, Bowman Gray School of Medicine... N&M	NPAssn		37	16	..	...	332
Kate Bitting Reynolds Memorial Hospital*... Gen	City		200	170	20	965	5,821
North Carolina Baptist Hospital*... Gen	Church		260	217	50	1,108	7,762

Related Institutions

Asheville, 51,310—Buncombe							
Asheville Orthopedic Home... Orth	NPAssn		58	56	..	...	441
Violet Hill Sanatorium... TB	Indiv		37	34	..	...	40
Candler, 60—Buncombe							
Pisgah Sanitarium and Hosp. Gen	Church		30	16	..	...	127
Davidson, 1,550—Mecklenburg							
Davidson College Infirmary... Inst	NPAssn		25	2	..	...	176
Edenton, 3,835—Chowan							
Chowan Hospital... Gen	CyCo		48	15	9	137	900
Greensboro, 59,319—Guilford							
Central Carolina Convalescent Hospital... Orth	NPAssn		120	...	..	...	Estab. 1918
Henderson, 7,647—Yancey							
Scott Park Sanatorium... TB	County		16	10	..	...	17
Hope Mills, 900—Cumberland							
Reeves Clinic-Hospital... Gen	Indiv		9	...	4	...	Estab. 1918
Kinston, 15,388—Lenoir							
Caswell Training School... MeDe	State		886	732	..	...	61
Raleigh, 46,897—Wake							
Clark Hall Hospital... Inst	State		90	8	..	...	841
McCauley Private Hospital... Gen	Indiv		10	3	3	33	147
Tarboro, 7,148—Edgecombe							
Edgecombe County Tuberculosis Sanatorium... TB	County		27	24	..	...	33
Winston-Salem, 79,815—Forsyth							
Casstevens Clinic-Hospital... Gen	Indiv		17	9	5	130	830

NORTH DAKOTA

Hospitals and Sanatoriums

Belcourt, 200—Rolette							
Turtle Mountain Hospital... Gen	IA		42	23	10	144	889
Bismarck, 15,496—Burleigh							
Bismarck Evangelical Hospital*... Gen	Church		154	137	25	560	4,732
St. Alexis Hospital*... Gen	Church		280	181	32	1,054	8,274
Bottineau, 1,739—Bottineau							
St. Andrew's Hospital*... Gen	Church		81	45	15	245	1,793
Carrington, 1,850—Foster							
Carrington Hospital... Gen	Church		25	13	5	155	596
Crosby, 1,404—Divide							
St. Luke's Hospital... Gen	Church		33	8	8	145	627
Devils Lake, 4,204—Ramsey							
General Hospital*... Gen	NPAssn		46	22	8	148	763
Mercy Hospital*... Gen	Church		85	43	25	473	2,480
Dickinson, 5,839—Stark							
St. Joseph's Hospital*... Gen	Church		89	61	26	837	3,719

NORTH DAKOTA—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Basinsets	Number of Births	Admissions †
Drayton, 688—Pembina	Gen	Church	13	11	6	67	424
St. Elizabeth's Hospital	Gen	Church	13	11	6	67	424
Elbowoods, 175—McLean	Gen	IA	18	10	6	50	463
Fort Berthold Indian Hosp.	Gen	IA	18	10	6	50	463
Elgin, 583—Grant	Gen	NPAssn	31	...	12	Estab.	1048
Lorenzen Memorial Hospital	Gen	NPAssn	31	...	12	Estab.	1048
Fargo, 32,580—Cass	Gen	NPAssn	180	153	40	1,385	6,319
St. John's Hospital	Gen	Church	127	124	20	863	5,165
St. Luke's Hospital	Gen	Church	227	193	...	...	2,299
Veterans Admin. Hospital	Gen	Vet	227	193	...	...	2,299
Fort Totten, 100—Benson	Gen	IA	31	20	4	43	690
Fort Totten Indian Hospital	Gen	IA	31	20	4	43	690
Fort Yates, 1,000—Sloox	Gen	IA	47	25	7	55	830
Standing Rock Indian Hosp.	Gen	IA	47	25	7	55	830
Grafton, 4,070—Walsh	Gen	Church	65	41	15	537	1,958
Grafton Deaconess Hospital	Gen	Church	65	41	15	537	1,958
Grand Forks, 20,238—Grand Forks	Gen	NPAssn	140	109	25	809	4,895
Grand Forks Deaconess Hospital	Gen	NPAssn	140	109	25	809	4,895
St. Michael's Hospital	Gen	Church	77	68	20	568	3,104
Harvey, 1,851—Wells	Gen	Church	48	29	12	355	1,709
St. Aloisius Hospital	Gen	Church	48	29	12	355	1,709
Jamestown, 8,799—State	Gen	NPAssn	76	56	12	259	2,537
Jamestown Hospital	Gen	NPAssn	76	56	12	259	2,537
State Hosp. for the Insane	Ment	State	2,052	2,051	...	...	451
Trinity Hospital	Gen	Church	100	75	15	450	2,099
Kenmare, 1,528—Ward	Gen	Church	33	20	10	181	1,105
Kenmare Deaconess Hospital	Gen	Church	33	20	10	181	1,105
Langdon, 1,516—Cavalier	Gen	Church	45	23	15	318	1,225
Mercy Hospital	Gen	Church	45	23	15	318	1,225
Mandan, 6,685—Morton	Gen	Church	38	10	10	304	1,109
Mandan Deaconess Hospital	Gen	Church	38	10	10	304	1,109
Mayville, 1,351—Traill	Gen	NPAssn	26	14	5	131	683
Union Hospital	Gen	NPAssn	26	14	5	131	683
Minot, 16,577—Ward	Gen	Church	125	90	19	576	4,415
St. Joseph's Hospital	Gen	Church	125	90	19	576	4,415
Trinity Hospital	Gen	Church	188	180	32	967	6,690
New Rockford, 2,017—Eddy	Gen	Church	40	29	9	181	1,124
City Hospital	Gen	Church	40	29	9	181	1,124
Northwood, 1,063—Grand Forks	Gen	Church	25	11	6	150	705
Northwood Deaconess Hosp.	Gen	Church	25	11	6	150	705
Oakes, 1,665—Dickey	Gen	Church	15	10	7	133	854
Mercy Hospital	Gen	Church	15	10	7	133	854
Rolette, 460—Rolette	Gen	NPAssn	21	8	6	74	690
Community Hospital	Gen	NPAssn	21	8	6	74	690
Rolla, 1,008—Rolette	Gen	City	26	18	7	141	1,169
Rolla Community Hospital	Gen	City	26	18	7	141	1,169
Rugby, 2,215—Pierce	Gen	Church	70	61	15	370	2,215
Good Samaritan Hospital	Gen	Church	70	61	15	370	2,215
San Haven, —Rolette	Gen	Church	70	61	15	370	2,215
North Dakota State Tubercu-	Gen	State	375	275	...	...	236
losis Sanatorium	Gen	State	375	275	...	...	236
Sharon, 371—Steele	Gen	City	15	9	5	91	545
Sharon Community Hospital	Gen	City	15	9	5	91	545
Valley City, 5,917—Barnes	Gen	Church	100	67	15	488	2,053
Mercy Hospital	Gen	Church	100	67	15	488	2,053
Wahpeton, 3,747—Richland	Gen	Church	23	22	6	155	819
St. Mary Hospital	Gen	Church	23	22	6	155	819
Williston, 5,790—Williams	Gen	NPAssn	37	21	12	391	1,572
Good Samaritan Hospital	Gen	NPAssn	37	21	12	391	1,572
Mercy Hospital	Gen	Church	75	55	20	395	2,858

Related Institutions

Fargo, 32,580—Cass	Gen	County	40	13	4	3	200
Cass County Hospital	Gen	County	40	13	4	3	200
City Detention Hospital	Isa	City	9	1	...	...	31
Florence Crittenton Home	Mat	NPAssn	56	10	6	85	101
Grafton, 4,070—Walsh	Gen	McDe	1,010	1,009	...	...	60
Grafton State School	Gen	McDe	1,010	1,009	...	...	60
Hazen, 602—Mercer	Gen	Church	20	...	8	Estab.	1918
Memorial Hospital	Gen	Church	20	...	8	Estab.	1918
Powers Lake, 461—Burke	Gen	City	12	8	6	121	152
Powers Lake Community Hospital	Gen	City	12	8	6	121	152

OHIO

Hospitals and Sanatoriums

Akron, 244,791—Summit	Chil	NPAssn	155	129	...	...	6,168
Children's Hospital	Chil	NPAssn	155	129	...	...	6,168
City Hospital	Chil	NPAssn	418	396	72	4,598	16,017
Edwin Shaw Sanatorium	TB	County	120	119	...	...	145
Peoples Hospital	Chil	NPAssn	210	203	50	2,437	9,526
St. Thomas Hospital	Chil	Church	205	160	30	2,085	9,187
Alliance, 22,405—Stark	Gen	City	95	71	22	1,062	3,433
Alliance City Hospital	Gen	City	95	71	22	1,062	3,433
Amherst, 2,890—Lorain	Gen	County	81	76	...	...	72
Pleasant View Sanatorium	TB	County	81	76	...	...	72
Ashland, 12,453—Ashland	Gen	NPAssn	48	38	15	720	2,005
Samaritan Hospital	Gen	NPAssn	48	38	15	720	2,005
Ashtabula, 21,405—Ashtabula	Gen	NPAssn	72	64	23	860	3,179
Ashtabula General Hospital	Gen	NPAssn	72	64	23	860	3,179
Athens, 7,690—Athens	Gen	State	1,777	1,691	...	...	321
Athens State Hospital	Gen	State	1,777	1,691	...	...	321
Sheltering Arms Hospital	Gen	Indiv	55	33	9	510	2,016
St. Vincent Charity Hos-	Gen	NPAssn	78	54	30	1,068	4,285
pital	Gen	NPAssn	78	54	30	1,068	4,285
Sunny Acres, Cuyahoga County	Gen	NPAssn	19	10	7	281	1,027
Tuberculous Hospital	Gen	NPAssn	19	10	7	281	1,027
U. S. Marine Hospital	Gen	City	35	34	13	468	1,709

OHIO—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Basinsets	Number of Births	Admissions †
Bellaire, 13,799—Belmont	Gen	NPAssn	60	31	13	528	1,514
City Hospital	Gen	NPAssn	60	31	13	528	1,514
Bellevue, 6,127—Huron	Gen	NPAssn	41	23	11	272	1,023
Bellevue Hospital	Gen	NPAssn	41	23	11	272	1,023
Berea, 6,025—Cuyahoga	Gen	NPAssn	107	70	34	698	3,096
Community Hospital	Gen	NPAssn	107	70	34	698	3,096
Brecksville, 1,000—Cuyahoga	Gen	NPAssn	260	217	...	...	449
Veterans Admin. Hospital	Gen	NPAssn	260	217	...	...	449
Bryan, 5,401—Williams	Gen	NPAssn	16	16	5	417	956
Cameron Hospitals	Gen	NPAssn	16	16	5	417	956
Bucyrus, 9,727—Crawford	Gen	City	51	46	14	653	2,208
Bucyrus City Hospital	Gen	City	51	46	14	653	2,208
Cambridge, 15,014—Guernsey	Ment	State	2,200	2,249	...	...	371
Cambridge State Hospital	Ment	State	2,200	2,249	...	...	371
St. Francis Hospital	Gen	NPAssn	26	20	7	210	1,793
Swan Hospital	Gen	NPAssn	26	20	7	210	1,793
Canton, 108,401—Stark	Gen	NPAssn	201	232	72	2,585	10,067
Aultman Hospital	Gen	NPAssn	201	232	72	2,585	10,067
Little Flower Hospital	Gen	NPAssn	221	210	45	2,580	10,432
Mercy Hospital	Gen	NPAssn	221	210	45	2,580	10,432
Molly Stark Sanatorium	Gen	NPAssn	159	132	...	...	162
Collins, 4,811—Mercer	Gen	NPAssn	40	28	10	775	1,797
Gibbons Hospital	Gen	NPAssn	40	28	10	775	1,797
Otis Hospital	Gen	NPAssn	25	19	5	175	1,097
Chagrin Falls, 2,305—Cuyahoga	Gen	NPAssn	25	19	5	175	1,097
Windsor Hospital	Gen	NPAssn	25	19	5	175	1,097
Chillicothe, 20,129—Ross	Gen	NPAssn	55	45	16	725	1,980
Chillicothe Hospital	Gen	NPAssn	55	45	16	725	1,980
Federal Reformatory Hosp.	Gen	USPHS	70	29	...	...	1,009
Mount Logan Sanatorium	Gen	County	62	54	...	...	42
Veterans Admin. Hospital	Gen	County	62	54	...	...	42
Cincinnati, 455,610—Hamilton	Gen	NPAssn	218	214	60	2,599	8,407
Bethesda Hospital	Gen	NPAssn	218	214	60	2,599	8,407
Children's Hospital	Chil	NPAssn	195	145	...	...	5,935
Christ Hospital	Chil	NPAssn	370	327	63	2,469	11,027
Christ-Han R. Holmes Hosp.	Chil	NPAssn	32	47	...	...	1,551
Cincinnati General Hosp.	Chil	NPAssn	850	626	65	2,742	11,053
Cincinnati Sanatorium	Chil	NPAssn	100	97	...	...	400
Deaconess Hospital	Chil	NPAssn	168	138	20	996	4,827
Dunham Hospital	Chil	NPAssn	532	453	...	...	481
Good Samaritan Hosp.	Chil	NPAssn	538	477	90	3,613	16,431
Hamilton County Home and	Chil	County	365	319	...	...	416
Chronic Disease Hospital	Chil	County	365	319	...	...	416
Jewish Hospital	Chil	NPAssn	261	233	45	2,239	9,432
Longview State Hospital	Chil	NPAssn	3,114	3,061	...	...	678
Ohio Hospital for Women	Chil	NPAssn	3,114	3,061	...	...	678
and Children	Chil	NPAssn	3,114	3,061	...	...	678
Our Lady of Mercy Hospital	Chil	NPAssn	54	48	18	1,007	2,239
St. Mary's Hospital	Chil	NPAssn	200	155	19	723	5,517
Circleville, 7,922—Pickaway	Gen	City	23	17	12	281	1,403
Berger Municipal Hospital	Gen	City	23	17	12	281	1,403
Cleveland, 878,336—Cuyahoga	Gen	NPAssn	27	18	23	860	948
Babies and Childrens Hosp.	Gen	NPAssn	27	18	23	860	948
Noth Memorial Home and	Gen	NPAssn	1,075	815	56	1,406	12,852
Hospital	Gen	NPAssn	1,075	815	56	1,406	12,852
City Hospital	Gen	NPAssn	275	268	...	...	8,473
Cleveland Clinic Hospital	Gen	NPAssn	2,800	2,599	...	...	497
Cleveland State Hospital	Gen	NPAssn	2,800	2,599	...	...	497
Cleveland State Receiving	Gen	NPAssn	400	360	...	...	800
Hospital	Gen	NPAssn	400	360	...	...	800
Evangelical Deaconess Hos-	Gen	NPAssn	152	118	32	2,007	6,834
pital	Gen	NPAssn	152	118	32	2,007	6,834
Fairview Park Hosp.	Gen	NPAssn	150	127	51	2,394	7,351
Glenview Hospital	Gen	NPAssn	120	91	30	1,088	4,392
Grace Hospital	Gen	NPAssn	61	44	12	414	2,493
Huron Road Hospital	Gen	NPAssn	61	44	12	414	2,493
John H. Lowman Memorial	Gen	NPAssn	297	267	...	...	5,781
Pavilion	Gen	NPAssn	297	267	...	...	5,781
Lakeside Hospital	Gen	NPAssn	390	330	...	...	348
Leonard C. Hanna House	Gen	NPAssn	287	220	...	...	2,914
Lutheran Hospital	Gen	NPAssn	700	569	115	4,537	22,723
Maternity Hospital	Gen	NPAssn	1,000	839	...	...	5,698
Mount Sinai Hospital	Gen	NPAssn	101	80	18	455	4,739
Polyclinic Hospital	Gen	NPAssn	116	80	24	994	5,142
St. Alexis Hospital	Gen	NPAssn	235	214	21	1,369	10,629
St. Ann's Maternity Hosp.	Gen	NPAssn	43	40	43	2,154	2,380
St. John's Hospital	Gen	NPAssn	231	195	41	2,075	8,830
St. Luke's Hospital	Gen	NPAssn	337	291	65	2,598	14,014
St. Vincent Charity Hos-	Gen	NPAssn	297	267	...	...	5,781
pital	Gen	NPAssn	297	267	...	...	5

OHIO—Continued						
Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Basinets	Number of Births Admissions †
Station Hospital	Gen	USAF	75	43	3	39 1,207
White Cross Hospital*+*+* Gen	Church		296	273	62	3,109 10,718
Conneaut, 9,335—Ashtabula						
Brown Memorial Hospital.... Gen	NPAssn		39	25	11	459 1,895
Coshocton, 11,509—Coshocton						
Coshocton Memorial Hospital Gen	NPAssn		60	38	22	675 2,425
Crestline, 4,337—Crawford						
Crestline Emergency Hospital Gen	NPAssn		23	14	4	104 685
Cuyahoga Falls, 20,546—Summit						
Summit County Receiving Hospital	Ment	State	65	52	..	... 361
Dayton, 210,718—Montgomery						
Dayton State Hospital*+*+* Ment	State		1,770	1,658	..	... 554
Good Samaritan Hospital*+*+* Gen	Church		310	238	65	4,279 12,791
Miami Valley Hospital*+*+* Gen	NPAssn		425	357	55	3,550 13,752
St. Ann's Maternity Hosp... Unit of St. Elizabeth Hospital						
St. Elizabeth Hospital*+*+* Gen	Church		345	270	40	2,034 15,245
Stillwater Sanatorium*+*+* TB	Counties		110	107	..	... 174
Veterans Admin. Center*+*+* Gen	Vet		1,094	929	..	... 5,150
Defiance, 9,744—Defiance						
Defiance Hospital	Gen	City	34	29	11	597 1,653
Delaware, 8,944—Delaware						
Jane M. Case Hospital..... Gen	NPAssn		55	36	10	457 1,703
Dennison, 4,413—Tuscarawas						
Twin City Hospital..... Gen	NPAssn		41	31	12	554 1,753
Dover, 9,691—Tuscarawas						
Union Hospital..... Gen	NPAssn		66	48	15	922 2,833
East Cleveland, 39,495—Cuyahoga						
Huron Road Hospital*+*+* Gen	NPAssn		277	235	78	2,867 10,717
East Liverpool, 23,555—Columbiana						
East Liverpool City Hosp.*+*+* Gen	NPAssn		126	95	21	1,292 4,369
Elyria, 25,120—Lorain						
Elyria Memorial Hospital and Gates Hospital for Crippled Children*+*+* Gen	NPAssn		142	130	33	1,196 4,487
Findlay, 20,225—Hancock						
Findlay Hospital..... Gen	NPAssn		76	61	12	904 3,741
Fremont, 14,710—Sandusky						
Community Hospital	Gen	NPAssn	20	13	4	108 543
Memorial Hospital*+*+* Gen	NPAssn		72	57	22	915 3,345
Gallion, 6,685—Crawford						
Gallion City Hospital..... Gen	City		33	27	10	488 2,032
Gallipolis, 7,832—Gallia						
Gallipolis State Institute..... Fpil	State		1,932	1,985	..	... 280
Holzer Hospital..... Gen	NPAssn		75	63	12	668 3,874
Green Springs, 980—Sandusky and Seneca						
Oak Ridge Sanatorium..... TB	Indiv		95	80	..	... 142
Greenville, 7,745—Darke						
Wayne Hospital..... Gen	NPAssn		55	60	18	754 2,242
Hamilton, 50,592—Butler						
Fort Hamilton Hospital*+*+* Gen	NPAssn		100	91	24	888 3,742
Mercy Hospital*+*+* Gen	Church		300	229	45	1,539 8,639
Hillsboro, 4,712—Highland						
Hillsboro Hospital	Gen	NPAssn	28	18	6	243 721
Ironton, 15,551—Lawrence						
Lawrence County General Hospital	Gen	County	65	60	16	895 3,446
Kenton, 7,592—Hardin						
McKilrick Hospital	Gen	NPAssn	33	24	10	200 866
San Antonio Hospital..... Gen	Church		75	45	16	513 1,916
Lakewood, 69,160—Cuyahoga						
Lakewood Hospital*+*+* Gen	City		129	118	28	1,269 5,830
Lancaster, 21,940—Fairfield						
Lancaster-Fairfield County Joint Hospital*+*+* Gen	CyCo		78	71	22	948 4,169
Lima, 44,711—Allen						
District Tuberculosis Hosp... TB	Counties		118	112	..	... 123
Lima Memorial Hosp.*+*+* Gen	NPAssn		165	170	28	1,381 6,330
Lima State Hospital..... Ment	State		1,200	1,142	..	... 496
St. Rita's Hospital*+*+* Gen	Church		300	227	50	1,789 10,458
Lodi, 1,704—Medina						
Lodi Hospital	Gen	NPAssn	40	32	10	457 1,700
Logan, 6,177—Hocking						
Hocking Valley Hospital.... Gen	NPAssn		33	19	10	449 1,255
Lorain, 44,125—Lorain						
St. Joseph's Hospital*+*+* Gen	Church		131	108	30	1,693 6,094
Macedonia, 734—Summit						
Hawthornden State Hospital Ment	State		1,186	1,150	..	... 279
Mansfield, 37,154—Richland						
Mansfield General Hosp.*+*+* Gen	NPAssn		180	158	37	1,717 7,250
People's Hospital	Gen	NPAssn	52	36	..	... 1,094
Richland County Tuberculosis Sanatorium	TB	County	28	27	..	... 26
Marietta, 14,543—Washington						
Marietta Memorial Hospital.. Gen	NPAssn		54	55	12	775 2,920
Marion, 30,817—Marion						
Marion City Hospital..... Gen	City		96	87	24	1,491 4,010
Sawyer Sanatorium*+*+* Nerv	Indiv		50	29	..	... 119
Martins Ferry, 14,729—Belmont						
Martins Ferry Hospital*+*+* Gen	NPAssn		120	109	30	978 4,972
Massillon, 26,644—Stark						
Massillon City Hospital*+*+* Gen	NPAssn		174	122	34	1,261 6,570
Massillon State Hospital*+*+* Ment	State		3,390	2,948	..	... 741
McConnelsville, 1,895—Morgan						
Rocky Glen Sanatorium..... TB	Corp		135	125	..	... 164
Medina, 4,359—Medina						
Medina Community Hospital Gen	NPAssn		36	31	12	365 1,549
Middletown, 81,220—Bulwer						
Middletown Hospital*+*+* Gen	NPAssn		159	117	40	1,668 7,493
Millersburg, 2,239—Holmes						
Holmes County Joel E. Pomerene Memorial Hospital	Gen	County	35	19	8	420 2,094

OHIO—Continued						
Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Basinets	Number of Births Admissions †
Mount Vernon, 10,122—Knox						
Avonlon Sanatorium	TB	NPAssn	89	64	..	... 127
Mercy Hospital	Gen	Church	66	61	12	732 3,313
Mount Vernon Hospital-Sanatorium	Gen	NPAssn	54	39	9	247 2,032
Mount Vernon State Hosp.*+*+* TB	State		177	175	..	... 29
Munroe Falls, 511—Summit						
Summit County Home Hosp. Chr	County		150	118	..	... 117
Napoleon, 4,825—Henry						
S. M. Heller Memorial Hosp. Gen	City		20	13	7	346 826
Newark, 31,487—Licking						
Licking County Tuberculosis Sanatorium	TB	County	51	44	..	... 61
Newark Hospital*+*+* Gen	NPAssn		125	87	30	1,132 4,508
New London, 1,656—Huron						
New London Hospital..... Gen	NPAssn		9	7	3	125 437
New Philadelphia, 12,328—Tuscarawas						
Tuscarawas Valley Sanatorium TB	County		35	28	..	... 33
Norwalk, 8,211—Huron						
Norwalk Memorial Hospital.. Gen	NPAssn		41	32	15	534 1,564
Oberlin, 4,805—Lorain						
Allen Hosp., Oberlin College*+*+* Gen	NPAssn		45	29	11	288 1,701
Oxford, 1,756—Butler						
Miami University Student Hospital	Inst	State	66	7	..	... 1,434
Painesville, 12,235—Lake						
Lake County Memorial Hosp. Gen	County		125	99	30	1,142 3,605
Perrysburg, 3,457—Wood						
Rheinfrank Hospital	Goiter Indiv		11	3	..	... 102
Piqua, 16,049—Miami						
Memorial Hospital*+*+* Gen	NPAssn		77	68	14	1,021 3,401
Pomeroy, 3,581—Meigs						
Meigs General Hospital..... Gen	Corp		22	... 3	Estab.	1948
Port Clinton, 4,505—Ottawa						
H. B. Macruder Memorial Hospital	Gen	NPAssn	43	45	17	424 2,017
Portsmouth, 40,466—Scioto						
Mercy Hospital	Gen	Church	85	69	15	880 5,896
Portsmouth General Hosp.*+*+* Gen	City		100	77	22	729 3,625
Ravenna, 5,838—Portage						
Robinson Memorial Portage County Hospital	Gen	County	110	85	30	1,183 4,550
St. Clairsville, 2,797—Belmont						
Belmont Sanatorium	TB	County	56	50	..	... 62
Salem, 12,801—Columbiana						
Central Clinic and Hospital.. Gen	NPAssn		34	30	10	421 1,412
Salem City Hospital*+*+* Gen	NPAssn		103	60	24	788 2,649
Sandusky, 24,574—Erie						
Good Samaritan Hospital*+*+* Gen	NPAssn		53	47	12	471 2,114
Providence Hospital*+*+* Gen	Church		85	65	25	528 2,889
Shelby, 6,643—Richland						
Shelby Hospital	Gen	NPAssn	54	32	16	404 1,877
Sidney, 9,790—Shelby						
Wilson Memorial Hospital*+*+* Gen	NPAssn		58	40	12	649 2,146
South Euclid, 6,146—Cuyahoga						
Rainbow Hospital for Crippled and Convalescent Children*+*+* Unit of University Hospitals, Cleveland						
Springfield, 70,662—Clark						
Clark County Tuberculosis Sanatorium	TB	County	120	77	..	... 118
Springfield City Hospital*+*+* Gen	City		270	222	50	2,632 10,115
Steubenville, 37,651—Jefferson						
Gill Memorial Hospital..... Gen	Church		65	64	17	924 3,512
Ohio Valley Hospital*+*+* Gen	NPAssn		200	185	40	1,511 8,471
Tiffin, 16,102—Seneca						
Mercy Hospital	Gen	Church	89	67	20	943 2,773
Tiffin State Hospital..... Ment	State		577	550	..	... 56
Toledo, 282,349—Lucas						
Flower Hospital*+*+* Gen	Church		135	126	37	1,189 5,256
Maumee Valley Hospital*+*+* Gen	County		292	165	33	330 4,386
Mercy Hospital*+*+* Gen	Church		295	277	60	2,785 11,750
Riverside Hospital*+*+* Gen	NPAssn		154	147	44	1,450 6,920
Robinwood Hospital*+*+* Gen	Church		90	77	15	502 2,815
St. Vincent's Hospital*+*+* Gen	Church		310	286	60	1,657 10,656
Toledo Hospital*+*+* Gen	NPAssn		266	237	54	2,308 9,574
Toledo State Hospital*+*+* Ment	State		2,872	2,769	..	... 1,216
William W. Roche Memorial Hospital	TB	County	165	143	..	... 245
Troy, 9,697—Miami						
Stouder Memorial Hospital*+*+* Gen	NPAssn		100	61	20	804 3,042
Urbana, 8,335—Champaign						
Champaign County Hospital Gen	County		42	30	10	476 1,672
Van Wert, 9,227—Van Wert						
Van Wert County Hospital.. Gen	NPAssn		57	43	12	536 2,180
Wadsworth, 6,495—Medina						
Wadsworth Municipal Hosp. Gen	City		37	32	16	538 1,241
Warren, 42,837—Trumbull						
St. Joseph's Riverside Hosp.*+*+* Gen	Church		113	94	27	896 4,223
Trumbull County Tuberculosis Hospital	TB	County	48	41	..	... 67
Trumbull Memorial Hosp.*+*+* Gen	NPAssn		190	147	40	1,695 7,204
Wauseon, 3,016—Fulton						
De Ette Harrison Detwiler Memorial Hospital*+*+* Gen	NPAssn		51	34	11	551 2,106
Willard, 4,261—Huron						
Willard Municipal Hospital.. Gen	City		36	25	10	332 2,014
Wilmington, 5,971—Clinton						
Dr. Kelley Hale Surgical Hosp. Gen	Indiv		16	9	7	181 539
Woods, 11,542—Wayne						
Beecher Hospital	Gen	NPAssn	30	26	5	490 1,826
Community Hospital	Gen	NPAssn	26	15	7	301 911
Worthington, 1,563—Franklin						
Harding Sanitarium*+*+* N&M Corp			82	63	..	... 519

Key to symbols and abbreviations is on page 37

OHIO—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Basins	Number of Births	Admissions †
Xenia, 10,633—Greene							
McClellan Hospital [▲]	Gen	Corp	20	14	4	127	505
Youngstown, 167,720—Mahoning							
Mahoning Tuberculosis Sanatorium [▲]	TB	County	175	165	..	..	177
St. Elizabeth's Hospital [▲]	Gen	Church	320	300	50	2,415	11,586
Youngstown Hospital [▲]	Gen	NPAssn	627	508	60	3,574	19,327
Youngstown Receiving Hosp. [Ⓞ]	Ment	State	84	75	..	..	916
Zanesville, 37,500—Muskogum							
Bethesda Hospital [▲]	Gen	NPAssn	145	131	25	1,328	6,892
Good Samaritan Hospital [▲]	Gen	Church	145	143	27	1,169	6,146
Related Institutions							
Akron, 244,791—Summit							
Goodyear Hospital	Indus	NPAssn	18	5	..	..	195
Apple Creek, 510—Wayne							
Apple Creek State School	McDe	State	794	774	..	..	36
Bluffton, 2,077—Allen							
Bluffton Community Hosp.	Gen	NPAssn	24	24	10	348	603
Cincinnati, 455,810—Hamilton							
Catherine Booth Home and Hospital	Mat	Church	13	2	13	305	507
Children's Convalescent Home of the Cincinnati Orphan Asylum [▲]	Conv	NPAssn	100	80	..	..	209
Children's Home (Hanna Hospital)	Inst	NPAssn	16	3	..	..	1,101
Home for Incurables	Incur	NPAssn	66	66	..	..	0
Madeline Marie Nursing Home	Conv	Indiv	45	35	..	..	80
St. Francis Hospital	Chr	Church	307	267	..	..	2,770
St. George Convalescent Hosp.	Conv	Church	40	28	..	..	639
St. Joseph Maternity Hospital and Infant Home	Mat	Church	10	4	10	130	120
Cleveland, 578,336—Cuyahoga							
Children's Fresh Air Camp and Hospital	Conv	NPAssn	60	50	..	..	142
Ingleside Home	N&M	NPAssn	110	106	..	..	512
Columbus, 306,087—Franklin							
Columbus State School	McDe	State	2,139	2,159	..	..	196
Florence Crittenton Home	Mat	NPAssn	36	31	21	183	170
Ohio Penitentiary Hospital	Inst	State	158	125	..	..	3,750
Resthaven	Conv	Indiv	35	28	..	..	156
Dayton, 210,718—Montgomery							
Barney Convalescent Home for Crippled Children [▲]	Orth	NPAssn	30	25	..	..	170
Cochrane Hospital	Conv	Part	42	..	..	Estab.	1918
Delaware, 8,044—Delaware							
Girls' Industrial School Hosp.	Inst	State	32	12	..	..	100
Eueli, 17,866—Cuyahoga							
Rose-Mary, The Johanna Grasselli Home for Crippled Children	Orth	Church	24	26	..	..	20
Glendale, 2,359—Hamilton							
Maple Knoll Hospital and Home for the Friendless	Mat	NPAssn	35	23	18	513	610
Granville, 1,502—Licking							
Whisper Hall Memorial Hosp.	Inst	NPAssn	38	2	..	..	526
Greenfield, 4,228—Highland							
Greenfield Municipal Hospital	Gen	City	22	13	0	225	578
Hamilton, 50,592—Butler							
Butler County Tuberculosis Sanatorium	TB	Church	21	20	..	..	28
Lancaster, 21,940—Fairfield							
Boys' Industrial School Hosp.	Inst	State	100	11	..	..	465
North Canton, 2,985—Stark							
Shadyside Hospital	Conv	Indiv	18	10	..	..	..
Orient, 175—Pekaway							
Orient State School	McDe	State	2,027	2,850	..	..	408
Reynoldsburg, 632—Franklin							
Nightingale Cottage Convalescent Hospital	Conv	NPAssn	30	24	..	..	45
State Soldiers Home, 900—Erie							
Ohio Soldiers' and Sailors' Home Hospital	Inst	State	200	98	..	..	316
Toledo, 282,340—Lucas							
Lucas County Hosp. Annex.	Chr	County	90	90	..	..	53
Toledo Society for Crippled Children Convalescent Home [▲]	Orth	NPAssn	80	47	..	..	268
Warren, 42,837—Trumbull							
Elm Manor	Alcoh	Indiv	8	1	..	..	31
Warrensville (Cleveland P.O.), 1,175—Cuyahoga							
Cleveland Municipal Chronic Hospital	Chr	City	169	167	..	..	93
..	N&M	Corp	52	52	..	..	100
..	N&M	NPAssn	15	10	..	..	56
Hygeia Hall	Inst	NPAssn	25	2	..	..	259
Xenia, 10,633—Greene							
Ohio Soldiers' and Sailors' Orphans' Home Hospital	Inst	State	70	11	..	..	966

OKLAHOMA

Hospitals and Sanatoriums

Ada, 15,143—Pontotoc							
Valley View Hospital [▲]	Gen	NPAssn	80	61	18	720	4,356
Altus, 5,595—Jackson							
Altus Hospital	Gen	Indiv	22	7	7	101	2,601
Alva, 5,055—Woods							
Alva General Hospital	Gen	City	39	27	7	299	1,718
Anadarko, 5,579—Caddo							
Anadarko Hospital	Gen	Part	26	17	6	232	1,019

OKLAHOMA—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Basins	Number of Births	Admissions †
Ardmore, 16,886—Carter							
Ardmore Sanit. and Hospital	Gen	NPAssn	44	15	6	68	902
Hardy Sanitarium [▲]	Gen	Indiv	64	34	18	422	1,796
Atoka, 2,548—Atoka							
Cotton Clinic Hospital	Gen	Corp	15	No data supplied			
Bartlesville, 16,267—Washington							
Washington County Memorial Hospital	Gen	County	73	49	19	762	3,295
Beaver, 1,194—Beaver							
Beaver Hospital	Gen	Part	20	15	7	172	1,321
Blackwell, 8,537—Kay							
Blackwell General Hospital	Gen	Church	35	27	10	311	1,355
Bristow, 6,050—Creek							
Sister Hospital	Gen	Indiv	18	9	5	140	569
Canby, 1,740—Caddo							
Carnegie Hospital	Gen	Corp	14	7	5	129	591
Cherokee, 2,553—Alfalfa							
Masonic Hospital	Gen	NPAssn	32	21	5	127	1,136
Chickasha, 14,111—Grady							
Chickasha Hosp. and Clinic	Gen	Part	54	29	12	212	1,785
Chickasha Hospital	Gen	Indiv	17	6	9	183	628
Claremore, 4,131—Rogers							
Claremore General Hospital	Gen	Indiv	20	8	0	126	819
Claremore Indian Hospital [▲]	Gen	IA	50	50	18	186	892
Clinton, 6,736—Custer							
Clinton Indian Hospital	Gen	IA	27	14	10	101	512
Western Oklahoma State Hospital [▲]	Gen	State	125	64	18	294	1,093
Western Oklahoma Tuberculosis Sanatorium [▲]	TB	State	241	103	..	..	324
Cordell, 2,776—Washita							
Florence Hospital	Gen	Indiv	23	5	6	140	359
Cushing, 7,701—Payne							
Masonic Hospital [▲]	Gen	NPAssn	30	28	6	249	1,454
Duncan, 9,207—Stephens							
Lindley Hospital	Gen	Indiv	25	20	4	296	1,670
Patterson Hospital	Gen	Part	39	22	10	253	1,305
Weedn Hospital	Gen	Indiv	60	No data supplied			
Durant, 10,027—Bryan							
Durant Hospital	Gen	Part	28	18	12	318	1,051
Evergreen Sanitarium	Gen	Indiv	21	6	6	64	319
Hayne Hospital and Clinic	Gen	Indiv	11	5	5	82	333
Elk City, 5,021—Beckham							
Community Hospital	Gen	NPAssn	100	22	0	243	1,970
Tidal Hospital	Gen	Indiv	30	11	9	157	958
El Reno, 10,078—Canadian							
Catto Hospital	Gen	Indiv	12	10	2	22	178
El Reno Sanitarium	Gen	Part	32	18	8	800	916
Federal Reformatory Hosp. [▲]	Inst	USPHS	44	16	..	..	761
Enid, 28,081—Garfield							
Enid General Hospital [▲]	Gen	NPAssn	90	89	12	281	2,467
St. Mary's Hospital and Annex [▲]	Gen	Church	159	110	25	1,022	5,406
Fort Sill, Comanche Station Hospital [▲]	Gen	Army	250	86	20	634	3,062
Fort Supply, 414—Woodward							
Western State Hospital	Ment	State	1,600	1,345	..	..	262
Frederick, 5,169—Tillman							
Frederick Clinic Hospital	Gen	Part	18	7	8	117	564
Grandfield, 1,116—Tillman							
Grandfield Hospital	Gen	Indiv	15	7	3	61	268
Granite, 1,055—Greer							
Lewis Hospital	Gen	Indiv	17	5	5	27	417
Guthrie, 10,018—Logan							
Benedictine Heights Hospital	Gen	Church	90	24	17	309	1,239
Henryetta, 6,005—Okmulgee							
Henryetta Hospital	Gen	Indiv	25	15	4	132	866
John Taylor Hospital	Gen	Indiv	18	14	3	139	901
Hobart, 5,177—Kiowa							
General Hospital	Gen	Part	40	15	12	326	1,512
Holdenville, 6,632—Hughes							
St. Francis Hospital	Gen	Church	30	19	12	212	1,113
Hollis, 2,732—Harmon							
Husband Memorial Hospital	Gen	Part	22	10	7	44	500
Hominy, 3,267—Osage							
Hominy City Hospital	Gen	City	14	9	7	165	504
Hugo, 5,900—Choctaw							
Johnson Hospital	Gen	Indiv	10	3	6	121	339
Lawton, 18,053—Comanche							
Angus Hospital	Gen	Part	19	10	12	311	856
Kiowa Indian Hospital [▲]	Gen	IA	120	64	16	259	2,442
Southwestern Clinic Hospital	Gen	Corp	41	31	18	546	1,903
McAlester, 12,401—Pittsburg							
Albert Pike Hospital	Gen	NPAssn	48	29	7	253	2,084
St. Mary's Hospital [▲]	Gen	Church	60	33	15	441	2,788
U. S. Naval Dispensary	Gen	Navy	19	1	..	..	115
Miami, 8,345—Ottawa							
Miami Baptist Hospital	Gen	Church	75	25	18	598	1,985
Muskogee, 32,322—Muskogee							
Muskogee General Hospital [▲]	Gen	City	92	61	20	787	3,570
Oklaoma Baptist Hosp. [▲]	Gen	Church	100	67	16	523	2,634
Veterans Admin. Hospital [▲]	Gen	Vet	286	314	..	..	3,825
Norman, 11,429—Cleveland							
Central Oklahoma State Hospital [▲]	Ment	State	1,800	2,852	..	..	1,155
Ellison Infirmary [▲]	Inst	State	50	12	..	..	1,484
Norman Municipal Hospital	Gen	City	58	40	22	705	2,665
Okeene, 1,079—Blaine							
Okeene Municipal Hospital	Gen	City	10	6	5	67	457

Key to symbols and abbreviations is on page 37

OKLAHOMA—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Basinets	Number of Births	Admissions †
Okemah, 3,811—Okfuskee Clinic Hospital	Gen	Indiv	10	6	3	108	528
Oklahoma City, 204,424—Oklahoma Bone and Joint Hospital—McBride Clinic+▲	Orth	Corp	83	77	..	1,700	
Capitol Hill General Hospital Gen	Corp	50	30	18	569	2,045	
Coyne Campbell Sanitarium..N&M	Corp	80	47	..	1,166		
Mercy Hospital+▲	Gen	Church	150	142	25	844	6,142
Oklahoma Medical Center....	Ven	State	160	89	..	3,617	
Polyclinic Hospital	Gen	Indiv	95	64	16	558	2,359
St. Anthony Hospital+▲+▲	Gen	Church	375	342	75	2,985	12,960
Station Hospital	Gen	USAF	25	15	..	360	
University Hospitals+▲+▲	GenOr	State	361	306	34	1,088	6,474
Veterans Admin. Hospital+▲	Vet	220	108	..	2,006		
Wesley Hospital+▲+▲	Gen	Part	185	159	33	1,321	8,171
Okmulgee, 16,051—Okmulgee Ming-Kendal Clinic and Hosp. Gen	Part	13	10	..	708		
Okmulgee City Hospital.....	Gen	City	50	30	11	320	1,524
Pauls Valley, 5,104—Garvin Lindsey-Johnson Hospital ...	Part	30	13	7	257	4,745	
Pauls Valley State Hospital... Epil	State	370	360	..	110		
Pawhuska, 5,443—Osage Osage County Hospital.....	Gen	County	46	14	3	75	353
Pawhuska Municipal Hospital Gen	City	32	16	8	161	1,200	
Pawnee, 2,742—Pawnee Pawnee-Ponca Indian Hosp.+▲	Gen	IA	23	17	8	86	623
Picher, 5,848—Ottawa Picher Hospital	Gen	Part	17	6	2	15	334
Ponca City, 16,794—Kay Ponca City Hospital+▲	Gen	Church	110	74	24	780	3,179
Prague, 1,422—Lincoln Rollins Hospital	Gen	Indiv	10	5	3	135	440
Pryor, 2,501—Mayes Whitaker Hospital	Gen	Part	18	12	5	171	1,340
Sapulpa, 12,249—Creek Sapulpa City Hospital.....	Gen	City	20	10	5	261	1,185
Sayre, 3,037—Beckham Sayre Hospital	Gen	City	22	12	6	245	1,128
Seminole, 11,547—Seminole St. Joseph Hospital.....	Gen	City	22	13	6	338	1,050
Sentinel, 1,088—Washita McMurry and Stowers Hosp. Gen	Part	25	10	6	101	636	
Shattuck, 1,275—Ellis Shattuck Hospital	Gen	Part	49	22	8	187	1,455
Shawnee, 22,053—Pottawatomie Anderson, Carson and Hughes Hospital+▲	Gen	Part	25	22	6	305	1,615
Shawnee Indian Sanatorium+▲ TB	IA	90	78	..	115		
Shawnee Municipal Hospital+▲	Gen	City	75	34	15	487	2,192
Stillwater, 10,097—Payne Agricultural and Mechanical College Infirmary	Inst	State	130	75	..	1,572	
Stillwater Municipal Hosp.+▲..	Gen	City	40	43	20	751	2,563
Sulphur, 7,970—Murray Oklahoma State Veterans Hospital+▲	GenTb	State	143	122	..	921	
Taft, 772—Muskogee Taft State Hospital.....	Ment	State	820	805	..	189	
Tahlequah, 3,027—Cherokee Tahlequah City Hospital.....	Gen	City	34	16	9	252	1,182
Wm. W. Hastings Hospital+▲	Gen	IA	72	26	13	273	777
Talihina, 1,057—Le Flore Eastern Oklahoma State Tuberculosis Sanatorium	TB	State	300	242	..	487	
Talihina Indian Hospital+▲..	GenTb	IA	237	132	20	190	1,150
Tulsa, 142,157—Tulsa Hillcrest Memorial Hosp.+▲+▲	Gen	NPAasn	258	189	60	1,571	10,786
Moton Memorial Hospital.....	Gen	NPAasn	42	20	9	357	906
St. John's Hospital+▲+▲	Gen	Church	429	296	71	2,488	14,987
Vinita, 5,685—Craig Eastern State Hospital.....	Ment	State	2,600	2,394	..	463	
Vinita Hospital	Gen	Corp	18	11	7	245	588
Waurika, 2,458—Jefferson Waurika Hospital	Gen	Part	22	9	4	102	622
Woodward, 5,406—Woodward Memorial Hospital	Gen	Corp	31	28	5	311	1,460

Related Institutions

Chickasha, 14,111—Grady Women's and Children's Hospital and Clinic	Gen	Part	11	..	6	Estab. 1948	
Enid, 28,081—Garfield Enid State School.....	MeDe	State	1,284	1,230	..	130	
Oklahoma City, 204,424—Oklahoma Deaconess Hospital	Gen	Church	26	9	25	288	416
Evergreen Sanatorium	TB	Indiv	32	27	..	128	
Tahlequah, 3,027—Cherokee Sequoyah Vocational School Hospital	Inst	IA	19	4	..	311	
Tulsa, 142,157—Tulsa Salvation Army Home and Hospital	Mat	Church	26	3	12	50	73
Tulsa Home for Convalescent Children	Orth	NPAasn	38	18	..	50	
Watonga, 2,828—Blaine Watonga Hospital	Gen	Indiv	16	15	4	175	1,210
Wynnewood, 2,318—Garvin Wynnewood Hospital Clinic..	Gen	Part	12	8	6	245	930

OREGON

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Basinets	Number of Births	Admissions †
Albany, 5,051—Linn Albany General Hospital.....	Gen	NPAasn	53	30	16	416	2,661
Ashland, 4,744—Jackson Community Hospital	Gen	NPAasn	28	18	8	239	...
Astoria, 10,389—Clatsop Columbia Hospital+▲	Gen	Church	91	50	15	347	3,550
St. Mary's Hospital+▲	Gen	Church	85	51	15	295	2,680
Baker, 9,342—Baker St. Elizabeth Hospital+▲	Gen	Church	99	55	22	369	1,909
Bend, 10,021—Deschutes St. Charles Hospital.....	Gen	Church	60	50	10	555	2,397
Burns, 2,566—Harney Valley View Hospital.....	Gen	Part	18	12	6	117	660
Coos Bay, 5,259—Coos McAuley Hospital	Gen	Church	50	41	10	334	3,520
Corvallis, 8,392—Benton Good Samaritan Hospital+▲..	Gen	Church	60	42	23	756	2,448
Oregon State College Student Health Service	Inst	State	30	12	..	919	
Dallas, 3,579—Polk Dallas Hospital	Gen	Corp	30	18	10	224	935
Eugene, 20,838—Lane Eugene Hospital and Clinic+▲	Gen	Part	34	30	..	1,791	
Sacred Heart General Hosp.+▲	Gen	Church	180	164	58	2,468	11,450
Grants Pass, 6,028—Josephine Josephine General Hospital... Gen	County	75	61	15	573	2,792	
Hillsboro, 3,747—Washington Jones Hospital	Gen	Part	65	50	18	411	3,341
Hood River, 3,280—Hood River Hood River Hospital.....	Gen	NPAasn	42	24	10	360	1,768
Klamath Falls, 16,497—Klamath Hillside Hospital+▲	Gen	Corp	57	45	4	2,169	
Klamath Valley Hospital.....	Gen	Corp	87	41	40	1,300	2,978
La Grande, 7,747—Union Grande Ronde Hospital.....	Gen	NPAasn	65	31	12	183	1,249
St. Joseph Hospital+▲	Gen	Church	60	45	13	270	1,938
Lakeview, 2,466—Lake Lakeview Hospital	Gen	Corp	18	8	6	210	860
Lebanon, 2,729—Linn Lebanon Community Hosp... Gen	Church	31	20	7	541	2,124	
McMinnville, 3,766—Yamhill General Hospital	Gen	Corp	50	40	12	300	1,100
McMinnville Hospital	Gen	Corp	43	26	12	208	1,627
Medford, 11,281—Jackson Medford Hospital+▲	Gen	NPAasn	52	33	12	436	2,148
Sacred Heart Hospital+▲	Gen	Church	75	44	12	467	2,687
Milwaukie, 1,871—Clackamas Matson Memorial Hospital for Diseases of the Chest.....	TB	NPAasn	45	32	..	191	
Myrtle Point, 1,296—Coos Mast Hospital	Gen	Indiv	40	19	8	210	1,178
Newberg, 2,960—Yamhill Willamette Hospital	Gen	NPAasn	22	10	8	189	659
North Bend, 4,262—Coos Keizer Brothers Hospital.....	Gen	Corp	50	38	10	408	1,384
Ontario, 3,551—Malheur Holy Rosary Hospital+▲	Gen	Church	75	55	17	421	2,406
Oregon City, 6,124—Clackamas Hutchinson General Hospital Gen	Part	34	19	8	288	699	
Oregon City Hospital+▲	Gen	Corp	64	50	16	616	2,177
Pendleton, 8,847—Umatilla Eastern Oregon State Hosp.+▲	Ment	State	1,410	1,365	..	383	
St. Anthony's Hospital+▲	Gen	Church	115	95	24	662	4,823
Portland, 305,394—Multnomah Doernbecher Memorial Hospital for Children+▲	Unit of University of Oregon Medical School Hospitals and Clinics	Gen	330	317	95	4,046	13,183
Emanuel Hospital+▲+▲	Gen	Church	430	351	75	2,537	13,927
Good Samaritan Hosp.+▲+▲	Gen	Church	75	60	13	226	2,186
Holladay Park Hospital+▲	Gen	NPAasn	26	18	2	...	
Juvenile Hospital for Girls	Ven	NPAasn	400	337	..	54	
Morningside Hospital	N&M	Corp	...	...	...	...	
Multnomah Hospital.....	Unit of University of Oregon Medical School Hospitals and Clinics	Gen	418	370	30	658	6,579
Permanent Hospital.....	Unit of Northern Permanente Hospital, Vancouver, Wash.	Gen	122	100	..	5,065	
Physicians and Surgeons Hospital+▲	Gen	NPAasn	144	147	42	2,037	8,072
Portland Sanitarium and Hospital+▲	Gen	Church	240	198	..	7,890	
Providence Hospital+▲	Gen	Church	356	294	68	2,229	10,845
St. Vincent's Hospital+▲	Gen	Church	33	3	9	131	141
Salvation Army White Shield Home Hospital for Crippled Children+▲	Mat	Church	60	60	..	456	
Theo. B. Wilcox Memorial Hospital	Orth	NPAasn	...	...	...	...	
Univ. of Oregon Medical School Hospitals and Clinics+▲	Unit of Good Samaritan Hospital	GenTb	418	370	30	658	6,579
University State Tuberculosis Hospital+▲	Unit of University of Oregon Medical School Hospitals and Clinics	Gen	510	461	..	5,334	
Veterans Admin. Hospital+▲	Gen	Vet	28	19	6	182	1,100
Prairie City, 647—Grant Blue Mountain General Hosp. Gen	City	30	16	6	246	1,121	
Prineville, 2,358—Crook Prineville General Hospital... Gen	Indiv	...	...	...	...	...	
Roseburg, 4,924—Douglas Mercy Hospital	Gen	Church	50	24	15	772	3,246
Veterans Admin. Hospital+▲	Ment	Vet	670	573	..	...	355

OREGON—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Bassnets	Number of Births	Admissions †
St. Helens, 4,304—Columbia	Gen	Part	10	4	8	199	230
St. Helens Hospital.....	Gen	Part	10	4	8	199	230
Salem, 30,908—Marion	Gen	Part	10	4	8	199	230
Oregon State Hospital*+*+*+*	Ment	State	3,000	2,751	..	..	1,168
Oregon State Tuberculosis Hospital.....	TB	State	240	186	..	..	160
Salem General Hospital.....	Gen	NPAssn	80	73	18	1,232	1,631
Salem Memorial Hospital.....	Gen	NPAssn	104	83	24	766	3,594
Seaside, 2,902—Clatsop	Gen	City	32	18	10	114	2,210
Seaside Hospital.....	Gen	City	32	18	10	114	2,210
Silverton, 2,925—Marion	Gen	NPAssn	35	22	12	272	1,289
Silverton General Hospital.....	Gen	NPAssn	35	22	12	272	1,289
Sweet Home, 1,090—Linn	Gen	Corp	34	21	12	211	1,886
Langmack Hospital.....	Gen	Corp	34	21	12	211	1,886
The Dalles, 6,266—Wasco	Gen	State	135	130	..	..	125
Eastern Oregon State Tuberculosis Hospital.....	TB	State	135	130	..	..	125
Mid-Columbia Hospital.....	Gen	Indiv	22	14	6	106	852
The Dalles General Hosp.*+*	Gen	NPAssn	75	51	20	427	2,425
Tillamook, 2,751—Tillamook	Gen	County	54	45	10	465	1,688
Tillamook General Hospital.....	Gen	County	54	45	10	465	1,688
Toledo, 2,288—Lincoln	Gen	Indiv	25	19	5	324	1,006
Lincoln Hospital.....	Gen	Indiv	25	19	5	324	1,006
Troutdale, 211—Multnomah	Gen	County	36	24	..	..	82
Multnomah County Tuberculosis Pavilion.....	TB	County	36	24	..	..	82
Warm Springs, 150—Jefferson	Gen	IA	23	8	5	25	341
Warm Springs Hospital.....	Gen	IA	23	8	5	25	341

Related Institutions

Enterprise, 1,769—Wallowa	Gen	County	30	12	8	139	785
Wallowa Memorial Hospital	Gen	County	30	12	8	139	785
Portland, 305,394—Multnomah	City	Isolation Hospital.....	115	22	..	...	0-0
City Isolation Hospital.....	City	Isolation Hospital.....	115	22	..	...	0-0
Raleigh Hills Sanitarium.....	Alcoh	Corp	18	14	..	...	2-9
Salem, 30,908—Marion	Gen	State	1,250	1,121	..	...	152
Oregon Fairview Home.....	MeDe	State	1,250	1,121	..	...	152
Oregon State Penitentiary	Inst	State	30	20	..	...	274
Hospital	Inst	State	30	20	..	...	274

PENNSYLVANIA

Hospitals and Sanatoriums

Abington, 3,200—Montgomery	Gen	NPAssn	303	215	57	1,549	8,025
Abington Memorial Hosp.*+*+*	Gen	NPAssn	303	215	57	1,549	8,025
Allentown, 16,904—Lehigh	Gen	NPAssn	364	328	33	2,015	13,658
Allentown Hospital*+*+*	Gen	NPAssn	364	328	33	2,015	13,658
Allentown State Hospital*+*	Ment	State	1,900	2,009	..	..	494
Sacred Heart Hospital*+*+*	Gen	Church	501	263	51	1,519	7,895
Allenwood, 400—Union	TB	NPAssn	104	100	..	..	190
Devitt's Camp.....	TB	NPAssn	104	100	..	..	190
Altoona, 50,214—Blair	Gen	NPAssn	193	171	46	1,119	6,576
Altoona Hospital*+*	Gen	NPAssn	193	171	46	1,119	6,576
Mercy Hospital*+*	Gen	NPAssn	168	120	51	1,544	5,364
Ambler, 3,553—Montgomery	N&M	NPAssn	106	94	..	..	478
DuPont Hospital.....	N&M	NPAssn	106	94	..	..	478
Ashland, 7,045—Schuylkill	Gen	State	173	124	20	709	4,280
Ashland State Hospital*+*	Gen	State	173	124	20	709	4,280
Aspenwall, 4,710—Allegheny	Gen	Vet	943	864	..	..	7,550
Veterans Admin. Hospital*+*	Gen	Vet	943	864	..	..	7,550
Beaver Falls, 17,028—Beaver	Gen	NPAssn	98	84	26	825	2,759
Providence Hospital*+*	Gen	NPAssn	98	84	26	825	2,759
Bedford, 3,268—Bedford	Gen	Indiv	17	12	5	134	671
Thimmins' Hospital.....	Gen	Indiv	17	12	5	134	671
Bellefonte, 5,504—Centre	Gen	NPAssn	67	64	22	671	3,243
Centre County Hospital.....	Gen	NPAssn	67	64	22	671	3,243
Bellevue (Pittsburgh P.O.), 10,488—Allegheny	Gen	NPAssn	123	91	24	750	4,244
Suburban General Hospital*+*	Gen	NPAssn	123	91	24	750	4,244
Berwick, 13,181—Columbia	Gen	NPAssn	63	56	12	561	1,860
Berwick Hospital.....	Gen	NPAssn	63	56	12	561	1,860
Bethlehem, 58,490—Northampton	Gen	Part	20	9	10	73	300
Doctors Hospital.....	Gen	Part	20	9	10	73	300
St. Luke's Hospital*+*	Gen	NPAssn	323	282	46	1,829	14,210
Bloomsburg, 9,790—Columbia	Gen	NPAssn	106	70	25	575	2,500
Bloomsburg Hospital.....	Gen	NPAssn	106	70	25	575	2,500
Blossburg, 1,655—Tioga	Gen	State	90	82	9	210	1,816
Blossburg State Hospital*+*	Gen	State	90	82	9	210	1,816
Bradford, 18,926—Allegheny	Gen	NPAssn	133	125	42	1,375	5,141
Bradford General Hospital*+*	Gen	NPAssn	133	125	42	1,375	5,141
Bradford, 17,691—McKean	Gen	NPAssn	121	86	30	726	4,199
Bradford Hospital*+*	Gen	NPAssn	121	86	30	726	4,199
Brookville, 4,397—Jefferson	Gen	NPAssn	36	36	10	514	1,690
Brookville Hospital.....	Gen	NPAssn	36	36	10	514	1,690
Brownsville, 8,015—Fayette	Gen	NPAssn	89	77	10	774	2,954
Brownsville General Hosp.*+*	Gen	NPAssn	89	77	10	774	2,954
Bryn Mawr, 10,206—Montgomery	Gen	NPAssn	285	227	48	1,668	7,561
Bryn Mawr Hospital*+*+*	Gen	NPAssn	285	227	48	1,668	7,561
Butler, 24,477—Butler	Gen	NPAssn	166	146	36	1,134	5,437
Butler County Memorial Hospital.....	Gen	NPAssn	166	146	36	1,134	5,437
Veterans Admin. Hospital*+*	Gen	Vet	1,000	839	..	..	3,726
Canonsburg, 12,539—Washington	Gen	NPAssn	64	75	32	789	2,938
Canonsburg General Hosp.*+*	Gen	NPAssn	64	75	32	789	2,938
Carlisle, 13,984—Cumberland	Gen	NPAssn	73	70	22	868	3,549
Carlisle Hospital*+*	Gen	NPAssn	73	70	22	868	3,549
Station Hospital.....	Gen	Army	100	30	8	221	1,566

PENNSYLVANIA—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Basinsets	Number of Births	Admissions †
Chambersburg, 14,852—Franklin Chambersburg Hospital*+*	Gen	NPAasn	82	89	12	770	3,615
Charleroi, 10,784—Washington Charleroi-Monessen Hospital*+*	Gen	NPAasn	125	No data supplied			
Chester, 59,255—Delaware Chester Hospital*+*	Gen	NPAasn	235	176	52	1,676	7,093
J. Lewis Crozer Homeopathic Hospital*+*	GenIncur	NPAasn	100	81	35	840	3,861
Clarke Summit, 2,691—Lackawanna Clarke Summit State Hosp... Ment	State		1,350	1,200	..	...	397
Clearfield, 9,372—Clearfield Clearfield Hospital*+*	Gen	NPAasn	107	80	18	617	3,605
Conidale, 6,163—Schuylkill Conidale State Hospital*+*	Gen	State	120	103	18	3-6	3,777
Contesville, 14,006—Chester Clement Atkinson Memorial Hospital.....	Gen	NPAasn	17	9	3	59	217
Contesville Hospital*+*	Gen	NPAasn	160	70	25	797	3,272
Veterans Admin. Hospital*+*	Ment	Vet	2,119	2,062	..	...	429
Columbia, 11,517—Lancaster Columbia Hospital.....	Gen	NPAasn	48	31	14	426	1,457
Confluence, 1,035—Somerset Price Hospital.....	Gen	Indlv	14	6	8	96	357
Cornellsville, 13,048—Fayette Cornellsville State Hospital*+*	Gen	State	97	80	19	970	3,409
Corry, 6,935—Erie Corry Memorial Hospital....	Gen	NPAasn	40	32	8	378	2,069
Coudersport, 3,197—Potter Potter County Memorial Hos- pital.....	Gen	NPAasn	43	35	8	218	3,040
Cresson, 2,500—Cambria Pennsylvania State Tubercu- losis Sanatorium No. 2A....	TB	State	815	5-9	..	...	431
Danville, 7,422—Montour Danville State Hospital*+*	Ment	State	2,296	2,279	..	...	472
George F. Giesinger Memorial Hospital*+*	Gen	NPAasn	205	174	56	1,696	8,258
Darby, 10,331—Delaware Fitzgerald-Mercy Hosp.*+*	Gen	Church	202	165	66	2,324	6,789
Dixmont, 188—Allegheny Dixmont State Hospital.....	Ment	State	1,021	1-6	..	...	42
Drexel Hill, 1,000—Delaware Delaware County Hospital*+*	Gen	NPAasn	74	59	16	561	2,570
Dubois, 12,000—Clearfield Dubois Hospital.....	Gen	Church	61	49	14	511	3,412
Maple Avenue Hospital.....	Gen	NPAasn	80	71	15	468	3,168
Eagleview, 500—Montgomery Eagleview Sanatorium for Consumptives*+*	TB	NPAasn	188	185	..	...	151
Easton, 31,529—Northampton Betts Hospital.....	Gen	NPAasn	50	40	22	509	1,733
Easton Hospital*+*	Gen	NPAasn	186	136	24	1,200	6,076
East Stroudsburg, 6,404—Monroe General Hospital of Monroe County*+*	Gen	NPAasn	62	54	18	604	2,810
Elizabethtown, 4,315—Lancaster Philadelphia Freemasons' Memo- rial Hosp. Masonic Homes.....	Inst	NPAasn	165	161	..	...	547
State Hospital for Crippled Children*+*	Orth	State	225	97	..	...	120
Ellwood City, 12,329—Lawrence Ellwood City Hospital*+*	Gen	NPAasn	89	52	31	676	2,185
Elwyn, 200—Delaware Elwyn Training School.....	MeDe	NPAasn	1,155	1,105	..	...	100
Erie, 116,955—Erie Erie County Tuberculosis Hospital.....	TB	County	65	62	..	...	104
Humot Hospital*+*	Gen	NPAasn	289	251	43	1,018	9,491
St. Vincent's Hospital*+*	Gen	NPAasn	289	252	71	2,706	12,825
Zem Zem Hospital for Crip- pled Children.....	Orth	NPAasn	48	36	..	...	32
Everett, 24,425—Bedford Everett Hospital.....	Gen	County	36	15	8	143	644
Franklin, 9,948—Venango Franklin Hospital.....	Gen	NPAasn	76	60	18	610	3,368
Gettysburg, 5,016—Adams Annie M. Warner Hospital*+*	Gen	NPAasn	74	52	19	671	2,449
Gladwyne, 1,236—Montgomery Gladwyne Colony.....	N&M	Indlv	90	88	..	...	114
Greensburg, 16,743—Westmoreland Westmoreland Hospital*+*	Gen	NPAasn	190	161	40	1,871	7,170
Greenville, 8,119—Mercer Greenville Hospital*+*	Gen	NPAasn	64	44	22	407	2,727
Grove City, 6,296—Mercer Grove City Hospital.....	Gen	NPAasn	31	21	15	335	1,008
Hamburg, 3,717—Berks Pennsylvania State Sanatorium for Tuberculosis No. 3*+*	TB	State	432	428	..	...	362
Hannover, 13,076—York Hannover General Hospital*+*	Gen	NPAasn	80	67	18	1,091	2,989
Harrisburg, 13,000—Dauphin Harrisburg State Hospital*+*	Ment	State	2,444	2,444	..	...	482
Keystone Hospital.....	Gen	Indlv	32	24	..	...	1,361
Hazleton, 38,000—Luzerne Hazleton State Hospital*+*	Gen	State	180	140	30	815	5,127
Hollidaysburg, 5,910—Blair Hollidaysburg State Hosp....	Ment	State	356	363	..	...	104

PENNSYLVANIA—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Bassineets	Number of Births	Admissions †
Homestead, 19,041—Allegheny							
Homestead Hospital* ^{AO}	Gen	NPAssn	122	100	28	717	4,181
Honesdale, 5,687—Wayne							
Wayne County Memorial Hospital	Gen	NPAssn	36	36	9	237	1,311
Huntingdon, 7,170—Huntingdon							
J. C. Blair Memorial Hosp.* ^A	Gen	NPAssn	70	77	14	617	3,130
Indiana, 10,050—Indiana							
Indiana Hospital* ^{AO}	Gen	NPAssn	166	152	34	1,032	5,541
Jersey Shore, 5,432—Lycoming							
Jersey Shore Hospital* ^{AO}	Gen	NPAssn	32	30	10	301	1,122
Johnstown, 66,668—Cambria							
Conemaugh Valley Memorial Hospital* ^{AO}	Gen	NPAssn	346	314	69	1,776	11,206
Lee Homeopathic Hospital* ^{AO}	Gen	NPAssn	75	55	20	567	2,231
Mersey Hospital* ^{AO}	Gen	Church	116	106	25	1,065	4,101
Kane, 6,133—McKean							
Community Hospital* ^A	Gen	NPAssn	59	46	12	244	1,673
Kane Summit Hospital* ^{AO}	Gen	NPAssn	23	19	6	...	...
Kingston, 20,679—Luzerne							
Nesbitt Memorial Hosp.* ^{AO}	Gen	NPAssn	200	146	40	1,393	6,473
Kittanning, 7,550—Armstrong							
Armstrong County Hospital	Gen	NPAssn	69	54	24	831	2,562
Lancaster, 61,345—Lancaster							
Lancaster General Hosp.* ^{AO}	Gen	NPAssn	248	229	78	2,337	8,764
Rossmore Sanatorium	TB	CyCo	56	50	...	...	77
St. Joseph's Hospital* ^{AO}	Gen	Church	232	188	41	887	6,634
Lansdale, 9,316—Montgomery							
Elm Terrace Hospital	Gen	NPAssn	39	21	14	290	1,042
Latrobe, 11,111—Westmoreland							
Latrobe Hospital* ^A	Gen	NPAssn	150	114	40	1,128	4,910
Laurelton, 327—Union							
Laurelton State Village	MeDe	State	1,017	924	...	...	96
Lebanon, 27,206—Lebanon							
Good Samaritan Hospital* ^A	Gen	NPAssn	120	89	30	907	3,528
Lebanon Sanatorium	Gen	NPAssn	40	31	16	560	1,485
Veterans Admin. Hospital* ^A	Ment	Vet	501	230	...	...	2,500
Leetsdale, 2,332—Allegheny							
D. T. Watson Home for Crippled Children* ^A	Orth	NPAssn	100	94	...	...	179
Lewistown, 3,571—Union							
Evangelical Hospital	Gen	Church	47	48	22	665	1,785
U. S. Penitentiary Hospital* ^A	Inst	USPHS	64	29	...	...	635
Lewistown, 13,017—Mifflin							
Lewistown Hospital* ^{AO}	Gen	NPAssn	114	106	21	824	3,636
Limeport, 250—Lehigh							
Sacred Heart Sanatorium	Unit of Sacred Heart Hospital, Allentown						
Lock Haven, 10,810—Clinton							
Lock Haven Hospital* ^{AO}	Gen	NPAssn	78	68	19	693	2,713
Teah Private Hospital	Gen	Indiv	20	24	5	182	1,038
Mayview, 420—Allegheny							
Mayview State Hospital* ^{AO}	Ment	State	3,079	3,562	...	...	812
Allegheny County Institution							
District Hospital* ^A	Unit of Allegheny County Institution						
District Hospital, Woodville							
McKeesport, 55,355—Allegheny							
McKeesport Hospital* ^{AO}	Gen	NPAssn	275	232	50	2,797	8,352
McKees Rocks, 17,021—Allegheny							
Ohio Valley General Hosp.* ^{AO}	Gen	NPAssn	59	49	24	475	2,400
Mendville, 18,919—Crawford							
Mendville City Hospital* ^{AO}	Gen	NPAssn	122	120	23	761	5,360
Spencer Hospital* ^A	Gen	NPAssn	114	78	24	730	4,496
Mercer, 2,572—Mercer							
Mercer Cottage Hospital	Gen	Corp	55	23	5	180	1,226
Mercer Sanitarium	N&M	Part	42	36	...	...	206
Meshoppen, 550—Wyoming							
Tyler Memorial Hospital	Gen	NPAssn	20	...	10	Estab.	1948
Meyersdale, 3,250—Somerset							
Hazel McGilvery Hospital	Gen	NPAssn	16	12	8	254	736
Monaca, 7,061—Beaver							
Beaver County Sanatorium* ^{AO}	TB	County	62	60	...	...	59
Monessen, 20,257—Westmoreland							
Gemmill Hospital	ENT	Part	17	9	...	...	796
Monongahela, 8,825—Washington							
Memorial Hospital* ^{AO}	Gen	NPAssn	74	60	25	727	3,234
Mount Pleasant, 5,824—Westmoreland							
Henry Clay Frick Memorial Hospital* ^{AO}	Gen	NPAssn	71	57	27	831	2,871
Muncy, 2,636—Lycoming							
Muncy Valley Hospital	Gen	NPAssn	20	20	12	251	660
Nanticoke, 24,237—Luzerne							
Nanticoke State Hospital* ^{AO}	Gen	State	100	96	15	674	3,706
New Brighton, 9,630—Beaver							
Beaver Valley General Hospital* ^{AO}	Gen	NPAssn	80	70	18	569	2,915
New Castle, 47,638—Lawrence							
Jameson Memorial Hosp.* ^{AO}	Gen	NPAssn	154	167	36	1,361	6,102
New Castle Hospital* ^{AO}	Gen	Church	113	95	22	618	4,173
New Cumberland, 4,525—Cumberland							
Station Hospital	Army		50	25	...	...	1,038
New Kensington, 21,053—Westmoreland							
Citizens General Hospital* ^{AO}	Gen	NPAssn	147	135	33	1,603	5,074
New Wilmington, 1,018—Lawrence							
Overlook Sanitarium	N&M	Part	35	25	...	...	229
Norristown, 33,181—Montgomery							
Montgomery Hospital* ^{AO}	Gen	NPAssn	193	160	47	1,331	7,200
Norristown State Hosp.* ^{AO}	Ment	State	4,400	4,319	...	...	816
Sacred Heart Hospital* ^{AO}	Gen	Church	66	65	20	672	2,316
Oakbourne (West Chester P.O.), 100—Chester							
Oakbourne Colony Hospital	Epil	NPAssn	140	94	...	...	37

PENNSYLVANIA—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Bassineets	Number of Births	Admissions †
Oil City, 20,379—Venango							
Oil City Hospital* ^{AO}	Gen	NPAssn	140	106	20	889	4,370
Palmerton, 7,475—Carbon							
Palmerton Hospital* ^{AO}	Gen	NPAssn	63	53	11	412	2,325
Peckville, 8,106—Lackawanna							
Mid-Valley Hospital	Gen	NPAssn	65	44	14	414	1,743
Philadelphia, 1,931,334—Philadelphia							
All Saints Hospital for Treatment of Tuberculosis	TB	Church	76	60	...	...	123
American Hospital for Diseases of the Stomach	Gen	NPAssn	34	30	6	90	631
American Oncologic Hosp.* ^A SkCa	SkCa	NPAssn	53	36	...	...	795
Anderson Hospital	Gen	NPAssn	93	48	27	509	4,121
Chestnut Hill Hospital* ^{AO}	Gen	NPAssn	104	76	36	754	3,326
Children's Heart Hospital* ^{AO}	Card	NPAssn	60	59	...	...	141
Children's Hospital* ^{AO}	Chil	NPAssn	138	107	...	...	4,050
Children's Hospital of the Mary J. Drexel Home* ^A	Chil	Church	45	21	...	...	1,097
Columbus Hospital	Gen	Church	52	42	18	365	2,128
Community Hospital	Gen	NPAssn	41	28	18	288	995
Doctors Hospital* ^A	Gen	NPAssn	171	101	40	913	4,121
Eastern State Penitentiary Hospital	Inst	State	50	21	...	...	351
Episcopal Hospital* ^{AO}	Gen	Church	488	376	64	2,662	12,347
Fairmount Farm	N&M	Corp	72	57	...	...	572
Frankford Hospital* ^{AO}	Gen	NPAssn	144	108	48	1,493	4,484
Friends Hospital* ^{AO}	N&M	NPAssn	170	161	...	...	373
Garretson Hospital	Unit of Temple University Hospital						
Germanant Dispensary and Hospital* ^{AO}	Gen	NPAssn	349	227	65	1,872	7,956
Graduate Hospital of the University of Pennsylvania* ^{AO}	Gen	NPAssn	461	255	...	...	7,580
Hahnemann Hospital* ^{AO}	Gen	NPAssn	605	439	91	2,563	14,154
Hall-Mercer Hospital	Associated with Institute of the Pennsylvania Hospital, Philadelphia						
Hospital of the University of Pennsylvania* ^{AO}	Gen	NPAssn	604	565	65	1,784	18,395
Hospital of the Woman's Medical College of Pennsylvania* ^{AO}	Gen	NPAssn	167	120	39	1,411	4,635
Institute of the Pennsylvania Hospital* ^A	N&M	NPAssn	78	59	...	...	268
Jeannes Hospital* ^A	Cancer	NPAssn	80	47	...	...	1,273
Jefferson Medical College Hospital* ^{AO}	GenTb	NPAssn	679	601	53	2,314	17,277
Jewish Hospital* ^{AO}	Gen	NPAssn	407	331	59	1,690	9,234
Joseph Price Memorial Hosp.* ^A	Gen	NPAssn	64	37	11	96	544
Lankenau Hospital* ^{AO}	Gen	NPAssn	237	155	34	894	6,052
Lying-In Hospital	Unit of Pennsylvania Hospital						
Memorial Hospital* ^{AO}	Gen	NPAssn	113	93	20	711	3,336
Mercy-Douglass Hospital* ^{AO}	Gen	NPAssn	116	64	29	410	1,940
Methodist Episcopal Hospital* ^{AO}	Gen	Church	210	133	23	851	4,222
Misericordia Hospital* ^{AO}	Gen	Church	200	183	50	1,755	6,926
Mount Sinai Hospital* ^{AO}	Gen	NPAssn	259	184	53	1,153	6,231
Nazareth Hospital* ^{AO}	Gen	Church	150	136	45	2,060	6,106
Northeastern Hospital* ^{AO}	Gen	NPAssn	87	65	15	775	3,158
Northern Liberties Hosp.* ^{AO}	Gen	NPAssn	53	44	11	207	2,030
Northwestern General Hosp.* ^{AO}	Unit of Temple University Hospital						
Pennsylvania Hospital* ^{AO}	Gen	NPAssn	433	312	69	2,559	10,439
Pennsylvania Hospital, Department for Mental and Nervous Diseases* ^{AO}	N&M	NPAssn	220	181	...	...	436
Philadelphia General Hospital* ^{AO}	Gen	City	2,500	1,922	60	2,717	25,436
Philadelphia Hospital for Contagious Diseases* ^{AO}	IsoTb	City	1,070	205	...	...	2,096
Philadelphia Psychiatric Hospital* ^{AO}	N&M	NPAssn	64	56	...	...	491
Philadelphia State Hosp.* ^{AO}	Ment	State	6,144	6,000	...	...	572
Physicians and Surgeons Hospital	Gen	NPAssn	50	16	12	143	1,032
Presbyterian Hospital* ^{AO}	Gen	Church	334	281	42	814	7,174
Preston Maternity Hospital* ^A	Mat	NPAssn	50	13	35	376	498
Rush Hospital for Consumption and Allied Diseases* ^{AO}	TB	NPAssn	168	125	...	...	832
St. Agnes Hospital* ^{AO}	Gen	Church	346	182	80	1,573	7,012
St. Christopher's Hospital for Children* ^{AO}	Chil	NPAssn	90	57	...	...	2,694
St. Joseph's Hospital* ^{AO}	Gen	Church	200	145	35	850	5,582
St. Luke's and Children's Medical Center* ^{AO}	Gen	NPAssn	251	187	66	1,280	7,792
St. Mary's Hospital* ^{AO}	Gen	Church	230	160	50	1,501	6,195
St. Vincent's Hospital for Women and Children* ^{AO}	Gen	Church	116	70	24	867	1,207
Shriners Hospital for Crippled Children* ^{AO}	Orth	NPAssn	120	69	...	...	230
Skin and Cancer Hospital* ^{AO}	SkCa	NPAssn	31	20	...	...	349
Stetson Hospital	Gen	NPAssn	64	40	15	379	1,741
Temple University Hosp.* ^{AO}	Gen	NPAssn	558	505	44	2,218	14,563
U. S. Naval Hospital* ^{AO}	Gen	Navy	1,200	900	20	805	16,335
Urologic Clinic Hospital	Urol	Part	15	7	...	...	402
Wills Hospital* ^{AO}	Eye	NPAssn	200	142	...	...	3,052
Wolfe Clinic and Hospital	Card	Part	25	15	...	...	300
Woman's Hospital* ^{AO}	Gen	NPAssn	137	92	48	1,833	4,333
Women's Homeopathic Hospital* ^{AO}	Gen	NPAssn	183	128	42	782	5,314
Philipsburg, 3,963—Centre							
Benson Sanatorium	Gen	Indiv	25	20	12	266	760
Philipsburg State Hosp.* ^{AO}	Gen	State	132	124	18	610	4,096

Key to symbols and abbreviations is on page 37

PENNSYLVANIA—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Basinsets	Number of Births	Admissions †
Phoenixville, 12,282—Chester							
Phoenixville Hospital*.....	Gen	NPAasn	87	65	23	516	2,060
Valley Forge General Hosp... Gen		Army	2,082	1,381	4	2	7,097
Pittsburgh, 671,659—Allegheny							
Allegheny General Hosp.*+*+o Gen		NPAasn	551	452	51	2,688	11,946
Belvedere General Hospital... Gen		NPAasn	28	16	10	178	719
Children's Hospital*+*+o.....	Chil	NPAasn	208	174	..	..	5,745
City Tuberculosis Hospital*+*+o TB		City	430	378	..	..	512
Elizabeth Steel Magee Hospital*+*+o..... Gen		NPAasn	309	239	141	4,377	8,526
Eye, Ear, Nose and Throat Hospital*+*+o..... ENT		NPAasn	106	85	0	..	5,090
Fairview Sanatorium..... N&M		Corp	15	12	..	..	49
Haddon Maternity Hospital... Mat		Corp	25	6	14	270	305
Mercy Hospital*+*+o..... Gen		Church	667	608	60	2,186	14,015
Montefiore Hospital*+*+o..... Gen		NPAasn	212	213	31	1,109	8,936
Municipal Hospital*+*+o..... Iso		City	222	60	..	..	1,810
Passavant Hospital*..... Gen		NPAasn	92	58	20	313	1,959
Pittsburgh Hospital*+*+o..... Gen		NPAasn	186	189	40	1,300	6,160
Presbyterian Hospital*+*+o..... Gen		NPAasn	235	203	..	..	5,027
Rosella Foundling and Maternity Hospital*..... MatChil		NPAasn	160	135	28	538	975
St. Francis Hospital*+*+o..... Gen		NPAasn	680	637	51	1,028	14,674
St. John's General Hosp.*+*+o Gen		NPAasn	197	189	53	1,999	6,090
St. Joseph's Hospital and Dispensary*+*+o..... Gen		Church	170	157	30	1,199	6,107
St. Margaret Memorial Hospital*+*+o..... Gen		Church	129	85	21	594	3,682
Shadyside Hospital*+*+o..... Gen		NPAasn	301	290	40	1,454	8,419
South Side Hospital*+*+o..... Gen		NPAasn	207	151	25	965	0,005
Tuberculosis League Hospital*+*+o..... TB		NPAasn	150	147	..	..	212
U. S. Marine Hospital*..... Gen		USPHS	73	55	..	..	1,788
Western Pennsylvania Hospital*+*+o..... Gen		NPAasn	532	438	70	1,777	13,333
Western State Penitentiary Hospital..... Inst		State	39	27	..	..	618
Western State Psychiatric Institute and Clinic*+*+o..... Ment		State	161	125	..	..	210
Woman's Hospital*+*+o..... Gen		NPAasn	115	96	..	..	2,850
Pittston, 17,628—Luzerne							
Pittston Hospital*..... Gen		NPAasn	120	101	28	956	5,716
Polk, 3,690—Yenango							
Polk State School..... McDe		State	3,475	3,171	..	..	255
Port Allegany, 2,356—McKean							
Port Allegany Community Hospital..... Gen		NPAasn	17	8	8	155	545
Pottstown, 20,194—Montgomery							
Hill School Infirmary..... Inst		NPAasn	40	4	..	..	295
Memorial Hospital*..... Gen		NPAasn	70	45	20	576	2,328
Pottstown Hospital*+*+o..... Gen		NPAasn	97	69	21	712	2,919
Pottsville, 24,530—Schuylkill							
A. C. Milliken Hospital*..... Gen		NPAasn	72	62	27	740	3,330
Lemos B. Warne Hospital and Clinic*..... Gen		NPAasn	75	37	17	328	1,760
Pottsville Hospital*+*+o..... Gen		NPAasn	155	115	17	730	3,781
Punxsutawney, 9,482—Jefferson							
Adrian Hospital..... Gen		NPAasn	80	63	15	618	2,893
Quakertown, 5,150—Bucks							
Quakertown Community Hospital*..... Gen		NPAasn	58	37	17	416	2,108
Reading, 110,568—Berks							
Berks County Tuberculosis Sanatorium*..... TB		County	143	100	..	..	117
Community General Hosp.*+*+o Gen		NPAasn	119	113	26	821	3,539
Reading Hospital*+*+o..... Gen		NPAasn	318	273	68	2,167	9,214
St. Joseph's Hospital*+*+o..... Gen		Church	191	101	36	1,761	6,085
Renovo, 3,784—Clinton							
Renovo Hospital..... Gen		NPAasn	21	18	6	204	1,166
Retreat, 2,000—Luzerne							
Retreat State Hospital*..... Ment		State	1,175	1,111	..	..	149
Ridgway, 6,253—Elk							
Elk County General Hospital Gen		NPAasn	71	43	15	332	1,761
Ridley Park, 3,887—Delaware							
Taylor Hospital..... Gen		NPAasn	70	60	18	627	2,833
Roaring Spring, 2,724—Blair							
Nason Hospital..... Gen		NPAasn	60	54	15	376	1,555
Rochester, 7,441—Beaver							
Rochester General Hospital* Gen		NPAasn	138	120	30	957	4,283
St. Marys, 7,633—Elk							
Andrew Kaul Memorial Hospital*..... Gen		Church	65	49	16	571	2,652
Sayre, 7,569—Bradford							
Robert Packer Hospital*+*+o Gen		NPAasn	304	236	21	866	10,558
Seranton, 140,404—Lackawanna							
Hahnemann Hospital*..... Gen		NPAasn	109	81	16	1,293	4,062
Lackawanna County Tuberculosis Hospital*..... TB		County	150	95	..	..	79
Mercy Hospital*+*+o..... Gen		Church	92	100	20	1,019	3,055
Moses Taylor Hospital*+*+o..... Gen		NPAasn	120	99	..	..	2,460
St. Joseph Children's and Maternity Hospital*..... MatChil		Church	204	175	4	81	259
St. Mary's Hospital*+*+o..... Gen		Church	85	72	15	345	1,931
Seranton State Hospital*+*+o Gen		State	290	229	20	1,032	5,876
West Side Hospital*+*+o..... Gen		NPAasn	65	56	10	371	1,735
Sellersville, 2,115—Bucks							
Grand View Hospital*+*+o..... Gen		NPAasn	74	53	25	696	3,300
Sewickley, 5,614—Allegheny							
Sewickley Valley Hospital*+*+o Gen		NPAasn	153	177	31	1,747	5,533

PENNSYLVANIA—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Basinsets	Number of Births	Admissions †
Shamokin, 18,810—Northumberland							
Shamokin State Hospital*+*+o Gen		State	89	68	26	825	2,920
Sharon, 25,022—Mercer							
Christian H. Buhl Hosp.*+*+o... Gen		NPAasn	234	210	46	1,611	10,038
Shenandoah, 19,700—Schuylkill							
Locust Mountain State Hosp.*+*+o Gen		State	79	62	14	772	3,115
Somerset, 5,420—Somerset							
Somerset Community Hosp... Gen		NPAasn	74	56	18	583	2,754
South Mountain, 200—Franklin							
Pennsylvania State Sanatorium No. 1 (Mont Alto)*+*+o..... TB		State	1,389	820	..	..	597
Spangler, 3,201—Cambria							
Miners' Hospital of Northern Cambria*+*+o..... Gen		Corp	79	79	14	775	3,000
Spring City, 3,022—Chester							
Pennhurst State School..... McDe		State	2,509	2,491	..	..	183
State College, 6,226—Centre							
Pennsylvania State College Health Service Hospital*+*+o Inst		State	39	7	..	..	819
Sunbury, 15,462—Northumberland							
Sunbury Community Hospital Gen		NPAasn	74	60	14	663	2,245
Susquehanna, 2,740—Susquehanna							
Simon H. Barnes Memorial Hospital..... Gen		NPAasn	18	12	5	157	533
Tarentum, 9,516—Allegheny							
Allegheny Valley Hospital*+*+o Gen		NPAasn	188	139	40	1,240	5,150
Taylor, 9,002—Lackawanna							
Taylor Hospital..... Gen		NPAasn	49	46	13	310	1,977
Titusville, 8,126—Crawford							
Titusville Hospital*..... Gen		NPAasn	63	47	22	476	2,023
Torrance, 500—Westmoreland							
Torrance State Hospital*+*+o Ment		State	2,687	2,581	..	..	661
Union City, 3,513—Erie							
Henry L. Stem Memorial Hospital..... Gen		NPAasn	20	10	10	201	797
Unlontown, 21,519—Fayette							
Unlontown Hospital*+*+o..... Gen		NPAasn	215	216	35	1,789	7,258
Warren, 14,591—Warren							
Warren General Hospital..... Gen		NPAasn	92	75	22	656	2,581
Warren State Hospital*+*+o..... Ment		State	2,721	2,676	..	..	792
Washington, 26,166—Washington							
Hillview Sanitarium*..... Gen		Corp	49	41	..	..	347
Washington Hospital*+*+o..... Gen		NPAasn	188	153	46	1,392	5,433
Wawa, 200—Delaware							
Wawa Chest Hospital..... TB		NPAasn	25	23	..	..	86
Waymart, 1,005—Wayne							
Fairview State Hospital..... Ment		State	1,360	1,148	..	..	102
Waynesboro, 10,231—Franklin							
Waynesboro Hospital..... Gen		NPAasn	58	47	20	689	2,207
Waynesburg, 4,891—Greene							
Greene County Memorial Hospital*..... Gen		NPAasn	115	91	24	914	4,182
Wellshoro, 3,663—Tioga							
Soldiers and Sailors Memorial Hospital..... Gen		NPAasn	41	33	17	584	1,691
Wernersville, 1,160—Berks							
Wernersville State Hosp.*+*+o Ment		State	1,600	1,862	..	..	453
West Chester, 12,289—Chester							
Chester County Hospital*+*+o Gen		NPAasn	153	137	26	873	4,270
Darlington Sanitarium..... N&M		NPAasn	75	40	..	..	132
Marshall Square Sanitarium..... N&M		Indiv	120	107	..	..	251
Memorial Hospital of Chester County*..... Gen		NPAasn	66	42	14	325	1,812
White Haven, 1,528—Luzerne							
White Haven Sanatorium*+*+o Unlt of Jefferson Medical College Hospital, Philadelphia							
Whittemarsh, 500—Montgomery							
Eugenia Memorial Hospital..... N&M		Indiv	45	..	..	..	Estab. 1918
Wilkes-Barre, 86,236—Luzerne							
Mercy Hospital*+*+o..... Gen		Church	201	178	34	1,005	5,514
Wilkes-Barre General Hospital*+*+o..... Gen		NPAasn	370	267	50	1,743	9,581
Wyoming Valley Homeopathic Hospital*+*+o..... Gen		NPAasn	84	61	25	702	2,335
Wilkinsburg, 29,832—Allegheny							
Columbia Hospital*+*+o..... Gen		Church	171	154	61	1,466	5,765
Williamsport, 44,855—Lycoming							
Rothfuss Clinic and Hospital Gen		Indiv	27	9	12	225	769
Williamsport Hospital*+*+o..... Gen		NPAasn	260	229	41	1,717	8,773
Windber, 9,057—Somerset							
Windber Hospital*+*+o..... Gen		NPAasn	107	90	10	369	3,280
Woodyville, 4,000—Allegheny							
Allegheny County Institution District Hospital*+*+o..... InstGen		County	1,918	1,635	..	..	1,198
Woodyville State Hospital*+*+o Ment		State	2,595	2,474	..	..	406
York, 50,712—York							
York Hospital*+*+o..... Gen		NPAasn	196	171	52	2,243	7,541
Related Institutions							
Bellefonte, 5,301—Centre							
Western State Penitentiary Hospital..... Inst		State	19	5	..	..	222
Broomall, 1,200—Delaware							
Convalescent Hospital..... Conv		NPAasn	28	21	..	..	310
Rest Haven for Convalescents..... ConvOrth		Part	74	63	..	..	160
Bryn Mawr, 10,296—Montgomery							
Bryn Mawr College Infirmary Inst		NPAasn	21	6	..	..	627

Key to symbols and abbreviations is on page 37

PENNSYLVANIA—Continued

Related Institutions	Type of Service	Ownership or Control	Beds	Average Census †	Bassinetts	Number of Births	Admissions †
Cambridge Springs, 1,607—Crawford San Rosario Sanitarium.....	Conv	Church	34	23	..	...	606
Camp Hill, 3,630—Cumberland Pennsylvania Industrial School Inst	State		36	33	..	...	413
Chambersburg, 14,532—Franklin Chambersburg Maternity Home	Mat	Part	10	6	12	318	313
Darby, 10,334—Delaware St. Francis' Country House..	Conv	Church	60	54	..	...	265
Doylestown, 4,976—Bucks Dr. Buckman's Hospital.....	Conv	Indiv	23	12	..	...	34
Ebensburg, 3,719—Cambria Cambria County Hospital....	Inst	County	218	200	..	...	207
Embsreeville, 500—Chester Embreeville State Hospital... Ment	State		337	296	..	...	79
Erie, 116,955—Erie Lakeview Hospital	Iso	City	63	...	6	...	...
Harmarville, 900—Allegheny Harmarville Convalescent Home	Conv	NPAssn	45	33	20	...	266
Harrisburg, 83,893—Dauphin Dauphin County Hospital....	Inst	County	176	176	..	...	160
Hazleton, 35,000—Luzerne St. Joseph Hospital.....	Mat	Church	24	12	24	765	596
Johnstown, 66,668—Cambria Municipal Hospital	Iso	City	44	1	10	...	23
Lancaster, 61,345—Lancaster Lancaster County Institution District	Inst	County	241	237	..	...	140
Lewisburg, 3,571—Union Ziegler Memorial Infirmary... Inst	NPAssn		28	2	..	...	146
Malvern, 1,680—Chester Point Comfort Rest Home... Conv	Indiv		43	40	..	...	20
Mercer, 2,272—Mercer Mercer County Home and Hospital	Inst	County	73	73	..	...	57
Middletown, 7,046—Dauphin Odd Fellows' Home.....	Inst	NPAssn	170	129	..	...	34
Morganza, 900—Washington Pennsylvania Training School Hospital	Inst	State	40	10	..	...	785
North East, 3,704—Erie St. Barnabas' House by the Lake	Conv	Church	33	35	..	...	23
Olyphant, 9,252—Lackawanna Blakely Home and Hospital.. Chr	County		253	240	..	...	128
Philadelphia, 1,931,334—Philadelphia Belle Vista Sanatorium.....	N&M	Indiv	78	75	..	...	601
Florence Crittenton Home.....	Mat	NPAssn	24	8	12	57	82
Philadelphia County Prison Hospital (Holmesburg)	Inst	County	32	15	..	...	331
Philadelphia County Prison Hosp. (Reed Street Prison) Inst	County		34	14	..	...	...
Philadelphia Home for Incurables	Incur	NPAssn	262	235	..	...	39
Pine Hall Convalescent Home Conv	Indiv		23	20	..	...	22
Salvation Army Home and Hospital	Mat	Church	10	5	10	153	207
Sharon Hall	Conv	Corp	60	No data supplied			
Pittsburg, 671,650—Allegheny Hasley Nursing Home.....	Conv	Indiv	20	10	..	...	30
Salvation Army Home and Hospital	Mat	Church	7	3	6	85	111
Rochester, 7,441—Beaver Passavant Memorial Homes for the Care of Epileptics.....	Epil	Church	175	98	..	...	9
Seranton, 140,404—Lackawanna Municipal Hospital	Iso	City	75	10	..	...	115
Selinsgrove, 2,877—Snyder Selinsgrove State Colony for Epileptics	Epil	State	950	940	..	...	141
Somerset, 5,430—Somerset Somerset State Hospital.....	Ment	State	500	450	..	...	40
Towanda, 4,154—Bradford Community Hospital	Gen	NPAssn	21	14	8	191	252
Willow Grove, 12,000—Montgomery Willow Crest for Convalescents Conv	NPAssn		78	65	..	...	1,100

RHODE ISLAND

Hospitals and Sanatoriums

Central Falls, 25,248—Providence Notre Dame Hospital.....	Gen	NPAssn	48	22	20	421	1,385
East Greenwich, 3,842—Kent Crawford Allen Memorial Hospital	Unit of Rhode Island Hospital, Providence						
Hillsgrove, 1,000—Kent St. Joseph's Hospital.....	TB	Church	65	40	..	...	22
Howard, 5,000—Providence State Hospital for Mental Diseases*+*	Ment	State	3,161	2,958	..	...	890
State Infirmary*	Gen	State	988	778	20	...	741
Newport, 30,532—Newport Newport Hospital*	Gen	NPAssn	176	134	46	850	4,570
U. S. Naval Hospital*+*	Gen	Navy	720	514	17	481	27,870
Pawtucket, 75,797—Providence Memorial Hospital*+*	Gen	NPAssn	172	154	30	1,666	6,992

RHODE ISLAND—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Bassinetts	Number of Births	Admissions †
Providence, 233,504—Providence Butler Hospital*+*	N&M	NPAssn	174	135	..	...	203
Charles V. Chapin Hospital*+*	TbIso	N&M City	265	134	..	...	3,295
Emma Pendleton Bradley Home	NervChil	NPAssn	54	47	..	...	57
Jane Brown Memorial Hosp. Unit of Rhode Island Hospital	Gen	NPAssn	65	39	15	268	1,862
Miriam Hospital*	Mat	NPAssn	175	146	175	6,967	7,726
Providence Lying-In Hosp.*+*	Gen	NPAssn	569	499	..	...	14,398
Rhode Island Hospital*+*	Gen	NPAssn	162	140	34	1,433	5,811
Roger Williams General Hospital*+*	Gen	Church	310	269	60	1,736	8,076
Quonset Point, 980—Washington U. S. Naval Air Station Dispensary	Gen	Navy	197	64	12	212	1,497
Wakefield, 4,000—Washington South County Hospital*	Gen	NPAssn	46	32	11	408	1,615
Wallum Lake, 100—Providence State Sanatorium*+*	TB	State	611	345	..	...	265
Westerly, 11,199—Washington Westerly Hospital*	Gen	NPAssn	61	46	20	571	2,217
Woonsocket, 49,303—Providence Woonsocket Hospital*	Gen	NPAssn	147	96	37	1,551	4,812

Related Institutions

Hoxsie, 135—Kent Lakeside Home and Mary Murray Preventorium	TbChil	NPAssn	50	38	..	...	125
La Fayette, 600—Washington Exeter School	MeDe	State	875	847	..	...	47
Providence, 253,504—Providence St. Elizabeth Home for Incurable Women	Incur	Church	70	70	..	...	35

SOUTH CAROLINA

Hospitals and Sanatoriums

Abbeville, 4,930—Abbeville Abbeville County Memorial Hospital	Gen	CyCo	40	22	10	317	1,414
Aiken, 6,168—Aiken Aiken County Hospital*	Gen	County	70	48	10	559	2,566
Anderson, 19,424—Anderson Anderson County Memorial Hospital*	Gen	NPAssn	218	141	38	1,410	8,626
St. Mary's Hospital.....	Gen	NPAssn	40	15	8	38	370
Beaufort, 3,185—Beaufort Beaufort County Hospital... Gen	County		42	22	10	188	1,423
Bennettsville, 4,695—Marlboro Marlboro County General Hospital*	Gen	NPAssn	86	58	20	568	3,082
Camden, 5,747—Kershaw Camden Hospital*	Gen	NPAssn	76	51	13	412	3,441
Charleston, 71,275—Charleston Baker Memorial Sanatorium* Gen	NPAssn	County	60	39	14	456	2,341
Pinehaven Sanatorium	TB	County	73	63	..	...	186
Roper Hospital*+*	Gen	NPAssn	450	330	60	1,296	12,059
St. Francis Xavier Infirmary*+* Gen	Church		111	81	26	1,130	3,862
U. S. Naval Hospital*+*	Gen	Navy	633	306	19	292	4,920
Chester, 6,392—Chester Chester County Hospital.... Gen	County		52	28	9	328	1,577
Clinton, 5,704—Laurens Hays Hospital	Gen	Indiv	21	9	6	185	754
Columbia, 62,396—Richland Columbia Hospital*+*	Gen	County	437	340	60	1,402	11,492
Good Samaritan-Waverly Hospital*	Gen	NPAssn	70	42	14	148	1,050
Providence Hospital*	Gen	Church	96	77	26	887	3,511
Ridgewood Tuberculosis Sanatorium	TB	NPAssn	56	38	..	...	40
South Carolina Baptist Hospital*	Gen	Church	220	146	30	817	6,480
South Carolina State Hosp.* Ment	State		3,050	4,980	..	...	1,853
Veterans Admin. Hospital*+*	Gen	Vet	700	625	..	...	6,263
Waverley Sanitarium	N&M	Corp	35	21	..	...	95
Conway, 5,066—Horry Conway Hospital*	Gen	NPAssn	65	49	19	891	4,444
Dillon, 3,867—Dillon St. Eugene Hospital.....	Gen	Church	60	33	15	511	1,618
Florence, 16,054—Florence Florence-Darlington Tuberculosis Sanatorium	TB	Counties	80	71	..	...	115
McLeod Infirmary*+*	Gen	NPAssn	195	157	38	901	7,743
South Carolina Public Health Hospital	Ven	State	250	154	10	11	6,053
Fort Jackson, Richland Station Hospital*	Gen	Army	500	330	16	458	9,900
Gaffney, 7,636—Cherokee Cherokee County Hospital... Gen	County		56	42	8	591	2,729
Greenville, 34,734—Greenville Greenville County Tuberculosis Sanatorium	Gen	County	75	62	..	...	50
Greenville	City		327	274	35	2,285	11,672
Dr. Jervey	Indiv		15	3	..	...	417
St. Francis	Church		107	98	20	739	4,062

Key to symbols and abbreviations is on page 37

SOUTH CAROLINA—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Basinets	Number of Births	Admissions †
Shriners Hospital for Crippled Children*▲	Orth	NPAasn	60	53	...	260	
Station Hospital	Gen	USAF	100	43	12	139	1,114
Greenwood, 13,020—Greenwood							
Brewer Hospital	Gen	NPAasn	32	18	4	133	635
Greenwood Hospital▲	Gen	NPAasn	85	57	15	604	3,875
Hartsville, 5,399—Darlington							
Byerly Hospital	Gen	NPAasn	74	46	18	536	3,704
Hemingway, 536—Williamsburg							
Johnson Memorial Hospital	Gen	Indlv	56	24	10	137	1,543
Kingsree, 3,182—Williamsburg							
Kelley Memorial Hospital	Gen	Corp	55	23	13	280	1,569
Lake City, 2,522—Florence							
Whitehead Infirmary	Gen	Indlv	13	11	5	127	478
Lancaster, 4,430—Lancaster							
Marion Sims Memorial Hosp.▲	Gen	NPAasn	50	36	10	815	2,651
Laurens, 6,594—Laurens							
Laurens County Hospital	Gen	County	52	29	14	363	1,582
Moncks Corner, 1,165—Berkeley							
Berkeley County Hospital	Gen	NPAasn	44	24	12	220	727
Mullins, 4,392—Marion							
Martin Private Hospital	Gen	Indlv	53	15	8	264	1,518
Mullins Hospital	Gen	City	63	40	18	681	2,693
Newberry, 7,510—Newberry							
Newberry County Hospital	Gen	County	55	25	8	418	1,931
Orangeburg, 10,521—Orangeburg							
Tri-County Hospital*○	Gen	City	172	99	24	684	5,422
Urological Institute	Unit of Tri-County Hospital						
Parris Island, 250—Beaufort							
U. S. Naval Hospital▲	Gen	Navy	200	81	9	132	1,669
Ridgeland, 1,021—Jasper							
Ridgeland Hospital	Gen	NPAasn	35	20	10	193	1,004
Rock Hill, 15,009—York							
Dunlap Hospital	Gen	Indlv	14	2	...	...	318
St. Philip's Mercy Hospital	Gen	Church	64	63	16	525	3,287
York County Hospital▲	Gen	County	79	56	14	663	3,917
Seneca, 2,155—Oconee							
Oconee Memorial Hospital	Gen	County	40	30	14	655	2,316
Spartanburg, 32,219—Spartanburg							
Mary Black Memorial Hosp.▲○	Gen	NPAasn	60	41	9	155	2,538
Spartanburg General Hospital▲○	GenTb	County	296	247	57	2,303	11,287
State Park, 100—Richland							
Palmetto Sanatorium	Unit of South Carolina Sanatorium						
South Carolina Sanatorium▲	TB	State	550	422	...	...	530
Summerville, 3,023—Dorchester							
Dorchester County Hospital	Gen	County	52	19	16	233	1,122
Sumter, 15,874—Sumter							
Tuomey Hospital▲○	Gen	NPAasn	150	129	32	1,009	5,534
Travellers Rest, 1,200—Greenville							
Coleman Hospital	Gen	Indlv	25	10	5	185	682
Union, 8,478—Union							
Wallace Thomson Hospital	Gen	City	29	29	11	412	2,021
Walterboro, 3,373—Colleton							
Colleton County Hospital	Gen	County	72	40	20	302	2,410
Woodruff, 3,505—Spartanburg							
Workman Memorial Hospital	Gen	Indlv	14	10	5	133	602

Related Institutions

Clinton, 5,704—Laurens							
State Training School	MeDe	State	996	972	...	...	78
Newberry, 7,510—Newberry							
People's Hospital	Gen	NPAasn	15	4	3	11	205

SOUTH DAKOTA

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Basinets	Number of Births	Admissions †
Aberdeen, 17,015—Brown							
St. Luke's Hospital▲○	Gen	Church	235	163	50	1,123	7,529
Belle Fourche, 2,496—Butte							
John Burns Memorial Hosp.	Gen	NPAasn	25	22	8	199	1,059
Britton, 1,500—Marshall							
Britton General Hospital	Gen	Church	23	15	7	233	1,123
Brookings, 5,340—Brookings							
Brookings Municipal Hospital	Gen	City	40	34	12	370	1,757
Burke, 602—Gregory							
Burke Community Memorial Hospital	Gen	NPAasn	30	18	8	157	950
Deadwood, 4,100—Lawrence							
St. Joseph's Hospital▲	Gen	Church	64	65	12	445	2,129
Dell Rapids, 1,706—Minnehaha							
Dell Rapids Hospital	Gen	Part	16	10	6	89	424
Eureka, 1,457—McPherson							
Eureka Community Hospital	Gen	NPAasn	26	21	8	201	1,173
Flandreau, 2,212—Moody							
Flandreau Municipal Hospital	Gen	City	19	12	5	126	548
Fort Meade, —Meade							
Veterans Admin. Hospital	Ment	Vet	720	652	...	...	505
Gregory, 1,246—Gregory							
Mother of Grace Hospital	Gen	Church	17	5	7	114	754
Hot Springs, 4,083—Fall River							
Lutheran Hospital	Gen	Church	65	60	10	173	1,272
Our Lady of Lourdes Hospital and Sanitarium	Gen	Church	55	36	11	144	1,146
Veterans Admin. Center▲	Gen	Vet	270	245	...	...	1,544

SOUTH DAKOTA—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Basinets	Number of Births	Admissions †
Hoven, 369—Potter							
Holy Infant Hospital	Gen	Church	30	10	8	107	1,017
Huron, 10,843—Beadle							
St. John's Hospital▲○	Gen	Church	150	92	20	560	3,207
Igloo, 3,600—Fall River							
Station Hospital	Gen	Army	39	5	6	53	328
Lead, 7,526—Lawrence							
Homestake Hospital▲	Gen	NPAasn	25	12	5	4	292
Madison, 5,018—Lake							
Madison Community Hosp.▲	Gen	NPAasn	60	33	12	366	1,844
Millbank, 2,745—Grant							
St. Bernard's Providence Hospital	Gen	Church	31	19	8	205	859
Mitchell, 10,633—Davison							
Methodist State Hospital▲○	Gen	Church	116	97	21	349	3,050
St. Joseph's Hospital▲○	Gen	Church	118	100	20	569	3,595
Mobridge, 3,003—Walworth							
Low Hospital	Gen	Indlv	21	13	6	156	570
Mobridge Hospital	Gen	NPAasn	35	26	7	200	1,207
Parkston, 1,305—Hutchinson							
St. Benedict Hospital	Gen	Church	35	24	12	308	990
Pierre, 4,322—Hughes							
St. Mary's Hospital▲○	Gen	Church	115	93	20	452	3,662
Pine Ridge, 618—Shannon							
Pine Ridge Indian Hospital	Gen	IA	41	35	13	172	1,585
Rapid City, 15,841—Pennington							
Black Hills General Hosp.▲	Gen	NPAasn	56	51	13	373	2,079
St. John's McManama Hosp.▲○	Gen	Church	109	99	25	616	4,034
Sioux Sanatorium▲	TB	IA	150	103	...	...	258
Redfield, 2,428—Spink							
Baldwin Community Hospital	Gen	City	15	11	8	155	659
Rosebud, 255—Todd							
Rosebud Indian Hospital	Gen	IA	40	32	7	120	1,111
Sannator, 10—Custer							
South Dakota State Sanatorium for Tuberculosis▲	TB	State	192	129	...	...	126
Sioux Falls, 49,531—Minnehaha							
McKenna Hospital▲○	Gen	Church	164	140	50	1,134	6,995
Sioux Valley Hospital▲○	Gen	NPAasn	190	153	50	1,170	8,272
Sieston, 2,513—Roberts							
Roberts County Community Hospital	Gen	NPAasn	18	12	6	108	730
Sieston Indian Hospital	Gen	IA	32	23	8	55	795
Tekamtha Hospital	Gen	Church	40	17	8	72	663
Volga, 632—Brookings							
Volga Hospital	Gen	NPAasn	26	8	8	165	416
Watertown, 10,617—Codington							
Barton Hospital▲○	Gen	NPAasn	75	57	14	444	2,875
Lutheran Hospital▲	Gen	Church	80	56	13	473	2,752
Webster, 2,113—Day							
Penbody Memorial Hospital▲	Gen	NPAasn	50	25	12	231	1,302
Wessington Springs, 1,352—Jerauld							
Memorial Hospital	Gen	County	24	10	6	86	504
Yankton, 6,795—Yankton							
Sacred Heart Hospital▲○	Gen	Church	170	137	24	600	5,118
Yankton State Hospital	Ment	State	1,888	1,617	...	...	484

Related Institutions

Garretson, 666—Minnehaha							
DeVal Hospital	Gen	Indlv	10	1	2	7	50
Hot Springs, 4,083—Fall River							
State Soldiers' Home Hosp.	Inst	State	36	19	...	...	227
Redfield, 2,428—Spink							
State School and Home for Feeble-minded	MeDe	State	800	744	...	...	63
Viborg, 639—Turner							
Viborg Hospital	Gen	Indlv	11	7	5	87	314
Wagner, 1,319—Charles Mix							
Duggan Hospital	Gen	Indlv	12	10	4	127	450
Yankton Indian Hospital	Gen	IA	25	14	5	67	627

TENNESSEE

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Basinets	Number of Births	Admissions †
Athens, 6,930—McMinn							
Epperson Clinic-Hospital	Gen	Indlv	60	25	8	345	1,800
Foree Hospital	Gen	Part	27	21	12	382	1,533
Bristol, 14,001—Sullivan							
Hooks-English Infirmary	ENT	Part	10	2	...	...	1,246
Brownsville, 4,012—Haywood							
Haywood County Memorial Hospital	Gen	NPAasn	35	25	12	254	1,584
Chattanooga, 128,163—Hamilton							
Baroness Erlanger Hospital▲	Gen	CyCo	450	315	65	3,054	15,565
Barton Clinic-Hospital	Gen	Indlv	18	9	...	...	335
Doyle Currey Clinic-Hospital	Gen	Indlv	25	13	10	127	695
Earl R. Campbell Clinic-Hosp.	Gen	Corp	22	20	7	179	1,319
East Tennessee Medical Center	Gen	State	125	83	...	...	3,379
Newell Hospital▲	Gen	Part	50	34	5	72	2,234
Physicians and Surgeons Hosp.	Gen	Indlv	24	16	12	470	1,158
Pine Breeze Sanatorium▲	TB	NPAasn	174	165	...	...	147
T. C. Thompson Children's Hospital▲○	Chil	CyCo	60	51	25	...	2,444
Woman's Clinic-Hospital	Gen	Indlv	56	33	24	531	1,288
Clarksville, 11,831—Montgomery							
Clarksville Hospital	Gen	NPAasn	42	37	14	656	2,319

TENNESSEE—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Inpatients	Number of Births	Admissions †
Cleveland, 11,351—Bradley Physicians and Surgeons Hosp. Gen	Indiv	NPAssn	25	11	4	100	728
Speck Hospital	Gen	NPAssn	25	18	15	519	1,405
Columbia, 10,579—Maury Kings Daughters Hospital.... Gen	NPAssn		45	35	14	488	2,000
Dayton, 1,870—Rhea Broyles Hospital	Gen	Indiv	12	4	4	101	274
Thomson Hospital	Gen	Indiv	14	8	5	42	320
Dyersburg, 10,034—Dyer Baird-Brewer General Hosp.▲ Gen	Corp		46	27	12	413	2,165
Elizabethton, 8,516—Carter Franklin Clinic and Hosp.... Gen	NPAssn		32	15	10	391	2,122
St. Elizabeth General Hosp... Gen	Corp		35	23	12	463	2,167
Erwin, 3,350—Unicoi Erwin Community Hospital.. Gen	NPAssn		20	12	9	232	1,032
Franklin, 4,120—Williamson Dan German Hospital..... Gen	Part		18	18	8	325	1,395
Greeneville, 6,784—Greene Campbell's Hospital	Gen	Part	15	5	6	41	180
Greeneville Sanatorium and Hospital▲	Gen	Corp	50	33	16	341	1,594
Laughlin Clinic-Hospital.... Gen	Indiv		30	26	10	315	1,066
Learlne Reaves Sanatorium.. TB	State		32	24	..	..	157
Takoma Hospital and Sanatorium▲	Gen	NPAssn	65	54	12	292	2,143
Harriman, 5,620—Roane Harriman Hospital	Gen	City	41	30	8	461	1,888
Humboldt, 5,160—Gibson Oursler Clinic-Hospital	Gen	Indiv	10	6	4	77	507
St. Mary's Hospital..... Gen	Church		50	20	10	460	1,661
Jackson, 24,832—Madison Doctors Hospital	Gen	Corp	25	14	6	144	1,241
Fitts-White Hospital	Gen	Part	46	31	16	209	1,633
Memorial Hospital	Gen	NPAssn	35	24	10	180	2,480
Webb-Williamson Hospital-Clinic	Gen	Corp	29	23	6	358	1,472
Johnson City, 25,332—Washington Appalachian Hospital▲ Gen	NPAssn		77	78	21	1,224	5,979
Budd Clinic and Hospital... Gen	Indiv		12	8	3	82	383
Campbell's Eye, Ear, Nose and Throat Hospital	ENT	Indiv	10	4	..	..	700
Jones Eye, Ear, Nose and Throat Hospital▲	ENT	Part	27	14	..	..	1,615
Kingsport, 14,404—Sullivan Holston Valley Community Hospital▲	Gen	NPAssn	152	117	33	1,825	7,386
Knoxville, 111,580—Knox Beverly Hills Sanatorium.... TB	CyCo		145	80	..	..	128
Dr. H. E. Christenberry Eye, Ear, Nose and Throat Infirmary	ENT	Indiv	12	3	..	..	1,211
Eastern State Hospital..... Ment	State		2,081	2,093	..	..	666
East Tennessee Baptist Hosp. Gen	Church		216	..	36	Estab. 1918	..
Fort Sanders Hospital▲ Gen	NPAssn		200	204	45	2,475	8,277
Kingston Pike Hospital..... Gen	Part		35	25	5	6	983
Knoxville General Hosp.▲ Gen	City		255	204	40	1,355	9,103
St. Mary's Memorial Hosp.▲ Gen	Church		200	168	30	1,050	7,850
LaFollette, 4,010—Campbell Doctor's Hospital	Gen	Indiv	18	8	6	146	423
LaFollette Hospital	Gen	Indiv	23	12	7	241	895
Lawrenceburg, 3,807—Lawrence Lawrenceburg Hospital	Gen	Church	44	24	12	473	1,688
Lebanon, 9,950—Wilson Martha Gaston Hospital.... Gen	Indiv		35	22	10	344	1,448
McFarland Hospital	Gen	Indiv	43	45	6	419	3,002
Lewisburg, 3,582—Marshall Gordon Hospital	Gen	Corp	31	17	7	78	978
Wheat Memorial Hospital... Gen	Indiv		13	8	6	135	534
Lexington, 2,526—Henderson Conger Clinic-Hospital	Gen	Indiv	12	5	7	240	430
Loudon, 3,017—Loudon Charles H. Bacon Hospital... Gen	County		30	9	14	406	1,044
Madison College, 510—Davidson Madison Rural Sanatorium and Hospital▲ Gen	NPAssn		165	140	20	387	3,844
Maryville, 5,609—Blount Blount Memorial Hospital... Gen	NPAssn		50	60	24	1,034	3,557
Memphis, 292,942—Shelby Baptist Memorial Hosp.▲▲ Gen	Church		590	442	50	2,003	18,934
Campbell Clinic-Hospital▲ Gen	Part		60	56	..	..	1,804
Carroll Turner Sanatorium... N&M	Indiv		27	25	..	..	317
Collins Chapel Connectional Hospital	Gen	Church	60	40	15	150	1,583
Crippled Children's Hospital School	Orth	NPAssn	45	37	..	..	72
Gallier Memorial Psychiatric Hospital®	Ment	State	40	31	..	..	434
Gartly-Ramsay Hospital▲ N&M	Corp		50	43	..	..	1,425
Hospital for Crippled Adults▲ Orth	NPAssn		66	40	..	..	573
John Gaston Hospital▲▲ Gen	City		489	502	61	3,015	16,649
McLemore Clinic-Hospital... Gen	Corp		52	27	6	129	1,210
Memphis Eye, Ear, Nose and Throat Hospital▲ Gen	ENT	Church	60	9	..	..	3,322
Methodist Hospital▲▲ Gen	Church		267	251	60	3,124	15,465
Psychiatric Hospital	Unit of Western State Hospital, Tenn.						
St. Joseph Hospital▲▲ Gen	Church		280	239	60	1,905	10,818
U. S. Marine Hospital▲ Gen	USPHS		130	102	..	..	1,863
U. S. Naval Hospital▲ Gen	Navy		325	177	15	351	2,491

TENNESSEE—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Inpatients	Number of Births	Admissions †
Veterans Admin. Hospital▲. TB	Vet		300	249	..	..	814
Veterans Admin. Hospital (Kennedy)▲▲ Gen	Vet		1,364	1,146	..	..	10,245
Wallace Sanatorium	N&M	Indiv	50	31	..	..	832
West Tennessee Medical Center	Ven	State	150	84	..	..	3,557
Millan, 3,035—Gibson Milan Hospital	Gen	NPAssn	20	10	10	265	730
Morristown, 8,050—Hamblen Hamblen Hospital	Gen	NPAssn	35	13	11	316	996
Nabers Clinic-Hospital	Gen	Indiv	20	15	8	212	1,143
Mountain Home, 250—Washington Veterans Admin. Center▲ Gen	Vet		606	540	..	..	5,620
Murfreesboro, 9,495—Rutherford Rutherford Hospital▲ Gen	NPAssn		46	39	17	660	1,558
Veterans Admin. Hospital▲. Ment	Vet		1,307	950	..	..	993
Nashville, 167,402—Davidson Central State Hospital..... Ment	State		2,016	2,008	..	..	452
City View Sanitarium..... N&M	Part		55	34	..	..	466
Davidson County Hospital... Ment	County		800	758	8	45	1,049
Davidson County Tuberculosis Hospital▲▲	TB	County	300	225	..	..	430
Geo. W. Hubbard Hospital of Meharry Medical Coll.▲▲ Gen	NPAssn		168	108	23	635	3,077
Hospital for the Criminal Insane	Unit of Central State Hospital						
Middle Tennessee Tuberculosis Hospital	TB	State	54	49	..	..	328
Mid-State Baptist Hosp.▲▲ Gen	Church		119	90	20	836	4,806
Nashville General Hosp.▲▲ Gen	City		260	160	35	1,200	6,525
Riverside Sanitarium and Hospital	Gen	Church	38	17	6	47	403
St. Thomas Hospital▲▲ Gen	Church		231	187	39	2,054	11,161
Vanderbilt University Hospital▲▲ Gen	NPAssn		340	246	58	1,779	9,234
Veterans Admin. Hospital▲ Gen	Vet		550	350	..	..	6,037
Oak Ridge, 35,200—Anderson Oak Ridge Hospital▲▲ Gen	NPAssn		292	130	45	992	7,976
Oakville, 163—Shelby Oakville Memorial Sanat.▲... TB	CyCo		375	326	..	..	455
Paris, 6,395—Henry McSwain Clinic-Hospital Gen	Indiv		24	9	4	122	552
Nobles Memorial Hospital... Gen	Part		25	19	7	170	1,190
Pleasant Hill, 178—Cumberland Uplands Cumberland Mountain Sanatorium	GenTb	NPAssn	42	29	6	120	583
Pressmen's Home, 200—Hawkins International Printing Pressmen and Assistants' Union Sanatorium	TB	NPAssn	40	24	..	..	14
Pulaski, 5,314—Giles Pulaski Hospital	Gen	Indiv	20	12	5	292	1,045
Rockwood, 3,981—Roane Chamberlain Memorial Hosp. Gen	NPAssn		50	25	10	489	1,500
Rogersville, 2,018—Hawkins Lyons Hospital	Gen	Indiv	15	8	6	252	456
Sevierville, 1,161—Sevier Broady Hospital	Gen	Indiv	11	7	3	180	513
Wilson Hospital	Gen	Indiv	36	8	6	144	516
Sewanee, 1,600—Franklin Emerald-Hodgson Hospital .. Gen	Church		50	19	10	168	1,474
Springfield, 6,668—Robertson Robertson County Hospital.. Gen	County		25	18	9	474	1,210
Sweetwater, 2,593—Monroe Sweetwater Hospital▲	Gen	NPAssn	30	19	8	347	1,255
Union City, 7,256—Obion Union City Clinic-Hospital... Gen	Corp		15	4	3	202	1,082
Waynesboro, 763—Wayne Cullen C. Woods Memorial Hospital	Gen	Indiv	20	10	6	171	887
Western State Hospital—Hardeman Western State Hospital▲. Ment	State		2,512	2,219	..	..	608
Woodbury, 663—Cannon Good Samaritan Hospital... Gen	Indiv		75	29	9	299	1,883
Related Institutions							
Chattanooga, 128,163—Hamilton Carver Memorial Hospital... Gen	CyCo		50	8	12	155	442
William L. Bork Memorial Hospital	Ment	County	200	226	..	..	63
Donelson, 1,500—Davidson Tennessee Home and Training School for Feeble-minded Persons	MeDe	State	608	756	..	..	53
Fayetteville, 4,634—Lincoln Lincoln County Hospital.... Gen	County		41	28	14	512	2,048
Johnson City, 25,332—Washington McKee-Wilson Eye Hospital.. Eye	Part		15	7	..	..	494
Knoxville, 111,580—Knox Tennessee School for Deaf... Inst	State		20	1	..	..	391
University of Tennessee Hosp. Inst	State		35	4	..	..	509
Memphis, 292,942—Shelby Dr. Henry G. Hill Clinic-Hosp. Orth	Indiv		10	5	..	..	300
Shelby County Hospital..... Inst	County		685	451	..	..	354
Nashville, 167,402—Davidson Junior League Home for Crippled Children	Orth	NPAssn	40	36	..	..	82
Tennessee State Penitentiary Hospital	Inst	State	104	No data supplied			
Shelbyville, 6,537—Bedford Bedford County Hospital.... Gen	NPAssn		38	4	12	423	1,200

Key to symbols and abbreviations is on page 37

TEXAS

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Basinsets	Number of Births	Admissions †
Abilene, 26,612—Taylor							
Abilene State Hospital.....	Epil	State	1,391	1,345	..	...	146
Hendrick Memorial Hosp.▲	Gen	Church	150	127	20	1,032	7,594
St. Ann Hospital.....	Gen	Church	30	27	14	395	2,093
Allee, 7,792—Jim Wells							
Physicians and Surgeons Hosp. Gen	Corp		45	31	12	522	2,168
Alvin, 3,087—Brazoria							
Alvin Memorial Hospital.....	Gen	Indiv	20	0	4	74	820
Amarillo, 51,686—Potter							
Northwest Texas Hospital▲	Gen	County	150	124	40	1,206	6,976
St. Anthony's Hospital▲	Gen	Church	127	105	28	816	5,974
Veterans Admin. Hospital....	Gen	Vet	187	162	..	...	2,179
Andrews, 611—Andrews							
Andrews County Hospital....	Gen	County	17	7	0	320	620
Atlanta, 2,453—Cass							
Ellington Memorial Hospital Gen	Part		12	6	6	145	625
Austin, 87,930—Travis							
Austin State Hospital.....	Ment	State	2,810	3,035	..	...	1,400
Austin-Travis County Tuberculosis Sanatorium.....	TB	CyCo	48	43	..	...	101
Brackenridge Hospital▲	Gen	City	237	148	35	1,128	6,903
Holy Cross Hospital.....	Gen	Church	19	11	7	261	753
St. David's Hospital.....	Gen	Church	61	43	16	555	2,067
Seton Hospital▲	Gen	Church	81	68	50	1,117	4,050
Station Hospital.....	Gen	USAF	25	13	..	...	636
Baird, 1,810—Callahan							
Callahan County Hospital... Gen	County		23	7	5	113	947
Ballinger, 4,472—Runnels							
Bailey Clinic-Hospital.....	Gen	Indiv	15	7	0	147	690
Bastrop, 1,976—Bastrop							
F. A. Orgain Hospital.....	Gen	Part	13	6	6	169	589
Bay City, 6,594—Matagorda							
Matagorda General Hospital Gen	County		45	25	14	377	1,934
Baytown, 5,104—Harris							
Baytown Hospital.....	Gen	Corp	37	28	10	523	2,358
Lillie and Duke Hospital.....	Gen	Part	24	17	8	234	1,302
San Jacinto Memorial Hosp. Gen	NPAasn		100	...	20	Estab. 1918	
Beaumont, 59,061—Jefferson							
Beaumont Municipal Hospital Gen	City		40	35	10	269	1,901
Hotel Dieu Hospital▲	Gen	Church	124	104	..	...	5,105
Jefferson County Tuberculosis Hospital No. 1.....	TB	County	130	106	..	...	124
Jefferson County Tuberculosis Hospital No. 2.....	Unit of Jefferson Hospital No. 1	County Tuberculosis					
St. Therese Hospital▲	Gen	Church	92	93	32	1,522	4,214
Beeville, 6,769—Bee							
Beeville Hospital and Clinic Gen	Indiv		40	24	10	152	864
Thomas Memorial Hospital... Gen	Corp		22	15	12	292	937
Bellville, 1,347—Austin							
Bellville Hospital.....	Gen	Part	10	8	4	149	726
Belton, 3,572—Bell							
Sewell Hospital.....	Gen	Part	21	12	6	234	787
Big Spring, 12,691—Howard							
Big Spring Hospital.....	Gen	Corp	35	25	6	248	2,153
Big Spring State Hospital... Ment	State		497	432	..	...	232
Cowper Clinic and Hospital... Gen	Indiv		36	28	11	269	1,622
Malone and Hogan Clinic-Hospital.....	Gen	Part	42	37	15	181	2,192
Medical Arts Clinic-Hosp. Gen	Part		30	...	10	Estab. 1918	
Blanco, 453—Blanco							
Hospital in the Hills.....	Gen	Part	12	4	4	43	326
Bonham, 6,349—Fannin							
S. B. Allen Memorial Hosp. Gen	NPAasn		32	11	6	153	810
Medical and Surgical Clinic-Hospital.....	Gen	Corp	34	16	..	216	923
Borger, Casa North	Gen	Corp	12	4	3	42	343
Gen	County		100	39	27	812	2,101
Bowie, 3,470—Montague							
Bowie Clinic Hospital.....	Gen	Corp	26	21	8	191	1,387
Brady, 5,002—McCulloch							
Brady Hospital.....	Gen	Part	60	34	11	252	1,705
Medical and Surgical Hosp. Gen	Corp		17	9	7	80	533
Brenham, 6,435—Washington							
St. Francis Hospital.....	Gen	Church	25	15	7	134	747
Sarah B. Milroy Memorial Hospital.....	Gen	Corp	32	14	8	228	1,191
Bridgeport, 1,735—Wise							
Bridgeport Hospital.....	Gen	Indiv	10	4	4	104	477
Brownfield, 4,000—Perry							
Trendaway-Daniell Hospital... Gen	Part		22	16	10	328	1,235
Brownsville, 22,083—Cameron							
Gen	Church		50	32	18	597	2,858
Gen	NPAasn		61	30	12	625	3,039
Gen	NPAasn		42	17	8	175	1,375
Bryan Hospital.....	Gen	Indiv	31	18	8	226	1,150
St. Joseph Hospital.....	Gen	Church	25	20	9	579	1,136
Burnet, 1,945—Burnet							
Allen Hospital.....	Gen	Indiv	7	...	4	Estab. 1918	
Shepherd Memorial Hospital Gen	NPAasn		17	8	0	...	618
Camden, 800—Polk							
Camden Hospital.....	Gen	Part	11	4	0	143	292
Cameron, 5,040—Milam							
Newton Memorial Hospital... Gen	NPAasn		50	14	8	35	1,332
St. Edward Hospital.....	Gen	Church	38	18	8	285	1,191
Camp Hood, Bell Station Hospital.....	Gen	Army	300	63	15	275	2,429

TEXAS—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Basinsets	Number of Births	Admissions †
Canadian, 2,151—Hemphill							
Canadian Hospital.....	Gen	Indiv	10	4	5	80	250
Canyon, 2,662—Randall							
Neblett Hospital.....	Gen	Indiv	19	6	0	105	823
Castroville, 1,500—Medina							
Castroville Hospital.....	Gen	Indiv	10	4	4	87	250
Center, 3,010—Shelby							
Center Sanatorium.....	Gen	Indiv	16	6	5	297	641
Warren Hospital.....	Gen	Part	16	10	6	151	667
Childress, 6,461—Childress							
Childress General Hospital... Gen	County		20	4	6	211	633
Cisco, 4,863—Eastland							
Graham Sanatorium.....	Gen	Indiv	22	7	5	127	935
Clarksburg, 4,095—Red River							
Red River County Hospital... Gen	County		22	9	8	272	935
Cleburne, 10,558—Johnson							
Cleburne Hospital.....	Gen	Indiv	30	15	8	331	1,000
Johnson County Memorial Hospital.....	Gen	County	50	...	8	Estab. 1918	
Cleveland, 1,783—Liberty							
Cleveland Hospital.....	Gen	Part	23	12	6	277	1,095
Clifton, 1,732—Bosque							
Goodall and Wichee Clinic-Hospital.....	Gen	Part	25	13	6	179	856
Coleman, 6,654—Coleman							
Overall Memorial Hospital... Gen	Church		31	12	10	129	720
College Station, 2,181—Brazos							
Agricultural and Mechanical College Hospital.....	Inst	State	150	21	..	...	2,065
Colorado City, 5,213—Mitchell							
Root Memorial Hospital.....	Gen	Indiv	28	21	10	215	1,716
Columbus, 2,422—Colorado							
Columbus Hospital and Clinic Gen	Part		20	11	5	19	722
Commerce, 4,699—Hunt							
Allen Hospital.....	Gen	Indiv	10	8	4	76	611
Leberman Clinic and Hospital Gen	Indiv		14	12	6	118	537
Conroe, 4,621—Montgomery							
Montgomery County Hosp. Gen	County		59	33	10	392	2,155
Corpus Christi, 57,501—Nueces							
Carline Clinic-Hospital.....	Gen	Indiv	10	6	6	86	379
Crippled Children's Hosp.▲	Orth	NPAasn	26	17	..	...	57
Gormley Clinic Hospital.....	Gen	Part	23	...	9	Estab. 1918	
Memorial Hospital.....	Gen	CyCo	127	98	24	1,011	5,036
Spohn Hospital.....	Gen	Church	92	64	35	1,028	4,973
U. S. Naval Air Station Dispensary.....	Gen	Navy	73	10	..	...	1,296
U. S. Naval Hospital.....	Gen	Navy	250	189	22	503	3,265
Corseana, 15,232—Navarro							
Corseana Hospital.....	Gen	NPAasn	20	8	3	85	500
Navarro Clinic Hospital.....	Gen	Part	20	14	8	162	1,091
Physicians and Surgeons Hosp. Gen	County		50	38	12	492	2,008
Crockett, 4,536—Houston							
Butler Memorial Hospital... Gen	Indiv		40	No data supplied			
Jim Smith Memorial Hospital Gen	Part		20	12	2	112	692
Stokes-Goolsby Hospital and Clinic.....	Gen	Part	16	10	5	153	954
Crosbyton, 1,615—Crosby							
Crosbyton Clinic-Hospital... Gen	NPAasn		36	23	6	92	1,015
Crowell, 1,817—Foard							
Foard County Hospital.....	Gen	County	16	4	3	98	473
Crystal City, 6,529—Zavala							
Crystal Clinic and Hospital... Gen	Indiv		25	8	6	172	2,551
Cuero, 5,474—DeWitt							
Burns Hospital.....	Gen	Church	50	20	6	120	1,020
Cuero Hospital and Clinic... Gen	Indiv		24	14	6	185	1,178
Dalhart, 4,682—Dallam							
Loretto Hospital.....	Gen	Church	40	19	20	287	1,610
Dallas, 291,734—Dallas							
Baylor University Hosp.▲▲	Gen	Church	392	353	84	4,695	16,594
Beverly Hills Sanatorium+▲	N&M	Corp	102	97	..	...	1,021
Bradford Memorial Hospital for Babies.....	Unit of Children's Medical Center	TB	NPAasn	25	24	..	50
Carman Sanatorium.....	Unit of Children's Medical Center	Chil	NPAasn	150	166	..	3,618
Children's Hospital.....	Gen	Part	23	20	..	...	1,841
Children's Medical Center+▲	Gen	Corp	38	28	7	221	1,715
Dallas Medical and Surgical Clinic-Hospital▲	Gen	NPAasn	55	53	..	...	2,006
East Dallas Hospital and Clinic Gen	Part		35	28	7	221	1,715
Gaston Hospital▲	Gen	NPAasn	55	53	..	...	2,006
Jones Eye, Ear, Nose and Throat Hospital.....	ENT	Indiv	11	8	..	...	410
Maxfield X-Ray and Radium Clinic Hospital.....	Cancer	Part	16	6	..	...	254
Medical Arts Hospital+▲	Gen	Corp	110	101	..	...	4,865
Methodist Hospital+▲	Gen	Church	208	185	42	2,279	10,757
Nightingale Lying-In Hosp. Unit of Baylor University Hospital	Gen	CyCo	416	310	57	1,761	9,982
Parkland Hospital+▲	Gen	Indiv	17	10	5	105	455
Parkland Clinic-Hospital.....	Gen	Church	310	269	40	3,638	12,870
St. Paul's Hospital+▲	Gen	Church	310	269	40	3,638	12,870
Texas Scottish Rite Hospital for Crippled Children+▲	Orth	NPAasn	75	56	..	...	651
Timberlawn Sanatorium+▲	N&M	Corp	81	65	..	...	529
U. S. Naval Air Station Dispensary.....	Gen	Navy	32	4	..	...	339
Veterans Admin. Hospital+▲	Gen	Vet	366	332	..	...	3,483
Woodlawn Hospital+▲	TB	CyCo	100	91	..	...	150
Dayton, 1,279—Liberty							
Dayton Memorial Hospital... Gen	Part		25	19	7	213	1,332

TEXAS—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Basinets	Number of Births	Admissions †
Decatur, 2,578—Wise	Gen	Indiv	25	10	7	229	979
Decatur Clinic Hospital.....	Gen	Indiv	25	15	8	179	1,831
Rogers Hospital.....	Gen	Indiv	25	15	8	179	1,831
Del Rio, 11,603—Val Verde	Gen	Indiv	18	10	3	141	706
Medical and Surgical Clinic	Gen	Indiv	22	10	6	35	325
and Hospital.....	Gen	Indiv	18	10	3	141	706
Nightingale Memorial Hosp...	Gen	Indiv	22	10	6	35	325
Denison, 15,581—Grayson	Gen	Church	50	42	12	407	2,836
Madonna Hospital.....	Gen	Church	50	42	12	407	2,836
Missouri, Kansas, Texas Rail-	Indus	NPAasn	60	22	..	..	708
road Employees Hospital...	Indus	NPAasn	60	22	..	..	708
Denton, 11,192—Denton	Gen	Indiv	35	28	8	391	2,062
Denton Hospital and Clinic..	Gen	Indiv	35	28	8	391	2,062
Deport, 822—Lamar	Gen	Corp	10	3	4	300	358
Stephen H. Grant Hospital..	Gen	Corp	10	3	4	300	358
Dimmitt, 943—Castro	Gen	NPAasn	26	10	8	106	731
Plains Memorial Hospital....	Gen	NPAasn	26	10	8	106	731
Dublin, 2,546—Erath	Gen	Corp	15	6	5	113	563
Dublin Hospital.....	Gen	Corp	15	6	5	113	563
Dumas, 2,117—Moore	Gen	County	22	..	7	Estab.	1948
Memorial Hospital.....	Gen	County	22	..	7	Estab.	1948
Eagle Lake, 2,124—Colorado	Gen	Indiv	12	8	5	130	1,500
Laughlin Hospital.....	Gen	Indiv	12	8	5	130	1,500
Eagle Pass, 6,459—Maverick	Gen	County	30	10	12	80	682
Maverick County Memorial	Gen	County	30	10	12	80	682
Hospital.....	Gen	County	30	10	12	80	682
East Bernard, 600—Wharton	Gen	Indiv	10	5	4	125	504
Albert Schuhmann Hospital..	Gen	Indiv	10	5	4	125	504
Edinburg, 8,718—Hidalgo	Gen	CyCo	52	33	12	462	2,037
Grandview Hospital.....	Gen	CyCo	52	33	12	462	2,037
.....	Gen	County	59	32	14	426	1,937
.....	Gen	County	59	32	14	426	1,937
.....	Gen	Indiv	20	6	6	110	471
Elgin, 2,008—Bastrop	Gen	Corp	16	10	6	67	738
Fleming Hospital.....	Gen	Corp	16	10	6	67	738
El Paso, 96,810—El Paso	Gen	CyCo	192	116	20	438	2,950
El Paso City-County Hosp.*A	Gen	CyCo	192	116	20	438	2,950
Hotel Dieu Sisters' Hosp.*A	Gen	Church	155	117	51	1,940	8,190
Newark Conference Maternity	Gen	Church	19	13	16	531	861
Hospital.....	Mat	Church	19	13	16	531	861
Providence Memorial Hosp...	Gen	NPAasn	40	33	..	..	1,524
St. Joseph Maternity Hosp.*	Unit of	Hotel Dieu Sisters' Hospital	40	33	..	..	1,524
St. Joseph's Sanatorium.....	Gen	Church	75	48	..	..	228
Southwestern General Hosp.*	Gen	Corp	150	123	48	1,210	5,602
William Beaumont General	Gen	Army	677	525	23	750	8,118
Hospital*A.....	Gen	Army	677	525	23	750	8,118
Ennis, 7,057—Ellis	Gen	City	27	12	8	291	1,011
Ennis Municipal Hospital....	Gen	City	27	12	8	291	1,011
Fabens, 1,623—El Paso	Gen	Indiv	20	8	6	101	699
Fabens Hospital.....	Gen	Indiv	20	8	6	101	699
Floresville, 1,708—Wilson	Gen	Indiv	12	9	6	202	516
Blake Memorial Hospital....	Gen	Indiv	12	9	6	202	516
Floydada, 2,726—Floyd	Gen	Indiv	7	3	3	53	234
Floydada Hospital.....	Gen	Indiv	7	3	3	53	234
Pitts Hospital.....	Gen	Indiv	10	7	4	83	684
Fort Stockton, 3,294—Pecos	Gen	Indiv	20	12	8	120	1,873
J. F. Gibson Hospital.....	Gen	Indiv	20	12	8	120	1,873
Fort Worth, 177,662—Tarrant	Gen	Church	110	100	25	1,425	5,587
All Saints Hospital*A.....	Gen	Church	110	100	25	1,425	5,587
City-County Hospital*A.....	Gen	CyCo	108	113	24	936	4,106
W. I. Cook Memorial Hosp.*	Gen	NPAasn	35	36	8	4	1,472
Dorsey Hospital.....	Gen	Indiv	21	14	5	874	1,480
Fort Worth Children's Hosp.	Child	NPAasn	37	14	..	..	345
Harris Hospital*A.....	Gen	Church	297	256	78	3,036	12,884
Pennsylvania Avenue Hosp...	Gen	Part	68	53	10	419	3,621
St. Joseph's Hospital*A.....	Gen	Church	243	183	48	1,977	10,497
Station Hospital*A.....	Gen	USAF	100	70	20	240	814
U. S. Public Health Service	Gen	USAF	100	70	20	240	814
Hospital*A.....	MentDrug	USPHS	1,050	880	..	..	1,719
Fredericksburg, 3,544—Gillespie	Gen	Corp	24	6	8	268	962
Fredericksburg Hospital and	Gen	Corp	24	6	8	268	962
Clinic.....	Gen	Corp	24	6	8	268	962
Keidel Memorial Hospital....	Gen	Part	16	7	5	140	533
Freepport, 2,579—Brazoria	Gen	NPAasn	54	40	12	322	2,956
Dow Hospital.....	Gen	NPAasn	25	16	6	223	1,410
Freepport Hospital.....	Gen	NPAasn	25	16	6	223	1,410
Freer, 2,346—Duval	Gen	Part	12	8	5	134	724
Thomas-Spann Hospital.....	Gen	Part	12	8	5	134	724
Friona, 803—Parmer	Gen	NPAasn	24	14	12	60	359
Parmer County Community	Gen	NPAasn	24	14	12	60	359
Hospital.....	Gen	NPAasn	24	14	12	60	359
Gainesville, 9,651—Cooke	Gen	Corp	42	14	10	222	1,233
Gainesville Sanitarium.....	Gen	Corp	42	14	10	222	1,233
Medical and Surgical Hosp...	Gen	Indiv	46	21	10	209	1,135
Galena Park, 1,562—Harris	Gen	Indiv	18	6	7	128	649
Deaton Hospital.....	Gen	Indiv	18	6	7	128	649
Galveston, 60,562—Galveston	Gen	Unit of University of Texas Medical Branch Hospitals	225	175	33	1,266	5,686
Galveston State Psychopathic	Gen	Unit of University of Texas Medical Branch Hospitals	225	175	33	1,266	5,686
Hospital*A.....	Gen	Unit of University of Texas Medical Branch Hospitals	225	175	33	1,266	5,686
Hospital for Crippled and	Gen	Unit of University of Texas Medical Branch Hospitals	225	175	33	1,266	5,686
Deformed Children.....	Gen	Unit of University of Texas Medical Branch Hospitals	225	175	33	1,266	5,686
John Sealy Hospital.....	Gen	Unit of University of Texas Medical Branch Hospitals	225	175	33	1,266	5,686
Negro Hospital.....	Gen	Unit of University of Texas Medical Branch Hospitals	225	175	33	1,266	5,686
St. Mary's Infirmary*A.....	Gen	Church	225	175	33	1,266	5,686

TEXAS—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Basinets	Number of Births	Admissions †
U. S. Marine Hospital*▲.....	Gen	USPHS	202	162	..	...	3,301
University of Texas Medical Branch Hospitals**▲▲ ...	Gen	Ment State	701	563	20	1,076	11,132
Garrison, 770—Nacogdoches							
Dora Garrison Health Center	Gen	NPAasn	17	...	6	Estab.	1948
Gatesville, 3,177—Coryell							
Coryell Memorial Hospital...	Gen	County	34	13	8	269	1,062
Georgetown, 3,682—Williamson							
Georgetown Hosp. and Clinic	Gen	NPAasn	25	17	6	317	815
Gilmer, 3,138—Upshur							
Oak Lawn Sanitarium.....	Gen	Part	15	4	5	109	600
Ragland Clinic-Hospital.....	Gen	Part	30	16	10	404	1,664
Gladewater, 4,454—Gregg							
Hancock Clinic and Hospital	Gen	Indiv	24	13	6	127	1,174
Leake-Van Beber Clinic Hosp.	Gen	Part	20	13	3	64	824
McKean Clinic Hospital.....	Gen	Indiv	36	25	6	91	1,472
Gonzales, 4,722—Gonzales							
Gonzales Warm Springs Foun-							
dation Hospital.....	Orth	NPAasn	110	28	..	...	172
Holmes Hospital.....	Gen	Indiv	20	7	5	59	285
Gorman, 1,157—Eastland							
Blackwell Hospital.....	Gen	Part	50	26	8	353	2,298
Graham, 3,175—Young							
Graham Hospital.....	Gen	NPAasn	25	14	8	320	1,079
Grand Saline, 1,641—Van Zandt							
Cozby-Germany Hospital....	Gen	Indiv	13	9	4	95	1,041
Greenville, 13,995—Hunt							
Dr. Joe Beeton's Hospital....	Gen	Indiv	40	18	8	173	1,436
Little and Weis Hospital and							
Clinic.....	Gen	Part	12	7	7	179	560
Phillips Clinic and Hospital..	Gen	Indiv	35	16	12	231	1,202
Groesbeck, 2,272—Limestone							
Dr. Cox's Hospital.....	Gen	Indiv	7	4	5	58	300
Hale Center, 836—Hale							
Hale County Cooperative							
Hospital.....	Gen	NPAasn	17	10	7	...	676
Hallettsville, 1,581—Lavaca							
Renger Hospital.....	Gen	Indiv	22	12	6	174	726
Hamilton, 2,716—Hamilton							
Hamilton Clinic and Hospital	Gen	Corp	50	...	12	Estab.	1948
Hamlin, 2,406—Jones							
Hamlin Memorial Hospital....	Gen	NPAasn	13	...	4	Estab.	1948
Harlingen, 13,306—Cameron							
Valley Baptist Hospital*▲...	Gen	Church	103	60	29	785	3,638
Haskell, 3,051—Haskell							
Haskell County Hospital....	Gen	County	27	18	8	205	1,132
Hearne, 3,511—Robertson							
Hearne Clinic-Hospital.....	Gen	Part	12	...	6	Estab.	1948
Henderson, 6,437—Rusk							
Henderson Memorial Hospital	Gen	NPAasn	50	25	12	342	2,366
Henrietta, 2,391—Clay							
Clay County Memorial Hosp.	Gen	County	20	...	4	Estab.	1948
Hereford, 2,584—Deaf Smith							
Deaf Smith County Hospital	Gen	County	22	20	6	222	1,591
Hillsboro, 7,799—Hill							
Boyd Sanitarium.....	Gen	Indiv	25	12	8	245	762
Houston, 384,514—Harris							
M. D. Anderson Hospital for							
Cancer Research*.....	Cancer	State	62	39	..	...	985
Autry Memorial Hosp.-School	Unit of	Houston					
Unit of Houston Tuberculosis	Hospital						
Hospital.....	N&M	Corp	40	20	..	...	53
Dr. Greenwood's Sanitarium	Gen	Corp	70	56	20	772	4,543
Heights Hospital.....	Gen	NPAasn	300	208	30	1,269	9,054
Hermann Hospital**▲▲ ...	Gen	NPAasn	300	208	30	1,269	9,054
Houston Eye, Ear and Throat							
Hospital.....	ENT	NPAasn	23	13	..	...	1,840
Houston Negro Hospital.....	Gen	NPAasn	50	31	10	547	1,401
Houston Tuberculosis Hosp..	TB	CyCo	197	181	..	...	196
Jefferson Davis Hospital**▲	Gen	CyCo	441	379	52	2,617	12,707
Keightley Hospital.....	N&M	Indiv	42	26	..	...	209
Memorial Hospital**▲...	Gen	Church	284	255	35	2,483	13,811
Methodist Hospital**▲▲ ...	Gen	Church	135	117	22	822	5,050
Mon.....	N&M	Part	39	21	..	...	400
Nort.....	Gen	Part	19	3	7	160	651
Parl.....	Gen	Part	35	16	6	212	1,642
St.....	Gen	Church	50	34	18	450	2,161
St. Joseph's Infirmary**▲...	Gen	Church	377	376	115	6,710	20,790
Southern Pacific Hospital*▲	Indus	NPAasn	130	104	..	...	2,702
Turner Urological Institute..	Urol	Indiv	20	16	..	...	755
U. S. Naval Hospital.....	Gen	Navy	1,000	420	..	...	6,038
Wright Clinic and Hospital▲	Gen	Indiv	31	26	6	138	1,034
Jacksboro, 2,368—Jack							
Jacksboro Hospital.....	Gen	Part	14	10	4	124	624
Jacksonville, 7,213—Cherokee							
Nan Travis Memorial Hosp.*	Gen	NPAasn	121	76	20	462	4,320
Jasper, 2,497—Jasper							
Hardy-Hancock Hospital....	Gen	Part	27	8	5	100	400
Richardson Hospital.....	Gen	Part	20	13	10	205	645
Seale Clinic and Hospital....	Gen	Indiv	22	10	3	42	350
Kaufman, 2,654—Kaufman							
Hall-de Blaming Hospital....	Gen	Part	13	5	6	125	600
Kenedy, 2,891—Karnes							
Kenedy Clinic and Hospital..	Gen	Indiv	22	11	6	189	720
Kermit, 2,584—Winkler							
Winkler County Memorial							
Hospital.....	Gen	County	35	13	8	100	490
Kerrville, 5,572—Kerr							
Kerrville General Hospital....	Gen	NPAasn	20	11	6	203	975
Kerrville State Sanatorium....	TB	State	183	134	..	...	252
Sunnyside Sanatorium.....	TB	Indiv	21	18	..	...	61

TEXAS—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Basinsets	Number of Births	Admissions †
Kilgore, 6,703—Gregg							
Kilgore Memorial Hospital...	Gen	NPAasn	21	20	7	370	1,500
Kingsville, 7,782—Kleberg							
Brindley Clinic-Hospital	Gen	Corp	10	...	4	Estab. 1918	
Kleberg County Hospital	Gen	County	44	30	12	480	2,191
Knox City, 1,127—Knox							
Knox County Hospital	Gen	County	40	18	8	256	1,080
La Grange, 2,531—Fayette							
La Grange Hospital	Gen	Corp	45	28	9	210	1,211
Lamesa, 6,038—Dawson							
Lamesa General Hospital	Gen	Part	33	23	6	371	1,561
Price Clinic and Hospital	Gen	Indiv	20	5	7	114	522
Lampasas, 3,426—Lampasas							
Rollins-Brook Hospital and							
Clinic	Gen	Part	23	16	6	195	1,190
Laredo, 39,274—Webb							
Laredo-Webb County Tubercu-							
culosis Hospital	TB	CyCo	26	22	...	...	33
Mercy Hospital	Gen	Church	70	41	28	927	3,558
La Tuna, 200—El Paso							
Federal Correctional Insti-							
tution	Inst	USPHS	23	13	...	...	591
Legion, 200—Kerr							
Veterans Admin. Hospital+▲	TB	Vet	400	313	...	...	722
Levelland, 3,091—Hockley							
Phillips-Dupre Hospital	Gen	Part	26	19	8	276	1,920
Liberty, 3,087—Liberty							
Mercy Hospital	Gen	Church	55	17	12	156	1,582
Yettie Kersting Memorial							
Hospital	Gen	County	20	13	2	115	1,088
Littlefield, 3,817—Lamb							
Payne-Shotwell Hospital and							
Clinic	Gen	Part	40	21	10	203	1,082
Livingston, 1,851—Polk							
Livingston Hospital	Gen	Indiv	17	6	4	162	677
Lockhart, 5,018—Caldwell							
Lockhart Hospital	Gen	City	20	9	6	49	450
Longview, 13,758—Gregg							
Gregg Memorial Hospital	Gen	County	40	29	8	427	1,088
Hurst Eye, Ear, Nose and							
Throat Hospital	ENT	NPAasn	25	6	...	...	569
Markham Hospital	Gen	NPAasn	52	15	10	569	1,327
Lubbock, 31,833—Lubbock							
Chatman Hospital-Clinic	Gen	Indiv	21	4	8	101	367
Lubbock Memorial Hosp.▲	Gen	NPAasn	120	85	20	677	5,370
St. Mary of the Plains Hosp.▲	Gen	Church	40	31	12	308	2,425
West Texas Hospital▲	Gen	Corp	70	51	21	1,051	5,779
Lufkin, 9,567—Angellina							
Angellina County Hospital...	Gen	County	66	40	14	780	3,501
Luling, 4,437—Caldwell							
Luling Hospital	Gen	Part	20	14	10	166	710
Marlin, 6,542—Falls							
Bule-Allen Hospital	Gen	Indiv	45	30	5	93	1,012
Bule Clinic and Marlin Sani-							
tarium Bath House	Unit of	Bule-Allen Hospital					
Torbett Clinic and Hospital...	Gen	Corp	73	41	10	179	2,491
Marshall, 18,410—Harrison							
Kahn Memorial Hospital	Gen	NPAasn	80	25	20	496	2,295
Texas and Pacific Railway							
Employees Hospital	Indus	NPAasn	105	80	...	...	3,093
Matador, 1,376—Motley							
Traveck Hospital	Gen	Indiv	16	9	4	78	611
Mathis, 1,950—San Patricio							
Mathis Hospital	Gen	Indiv	16	6	5	156	470
McAllen, 11,877—Hidalgo							
McAllen Municipal Hospital...	Gen	City	47	39	18	597	2,051
McKinney, 8,555—Collin							
McKinney City Hospital▲	Gen	City	85	41	22	575	2,103
Veterans Admin. Hospital+▲	Gen	Vet	619	514	...	...	5,095
Memphis, 3,869—Hall							
Goodall Hospital	Gen	Indiv	18	8	6	122	876
Odum-Dryden Clinic Hospital	Gen	Part	15	...	3	Estab. 1918	
Mercedes, 7,624—Hidalgo							
Mercedes General Hospital...	Gen	NPAasn	22	5	7	280	929
Meridian, 1,016—Bosque							
Holt Hospital and Clinic	Gen	Indiv	22	8	4	122	812
Merkel, 2,005—Taylor							
Sadler Clinic-Hospital	Gen	Indiv	20	10	6	120	1,029
Mexia, 6,410—Limestone							
Brown Hospital	Gen	Indiv	20	13	5	129	897
Midland, 9,352—Midland							
Western Clinic-Hospital	Gen	Part	30	23	10	491	1,862
Mineola, 3,223—Wood							
Mineola Hospital-Clinic	Gen	Indiv	15	5	4	121	509
Mineral Wells, 6,303—Palo Pinto							
Nazareth Hospital▲	Gen	Church	40	19	10	215	1,308
Monahans, 3,914—Ward							
Bell Clinic-Hospital	Gen	Indiv	12	7	3	75	650
Turney Hospital	Gen	Indiv	23	4	8	318	1,514
Mount Pleasant, 4,525—Titus							
Taylor Hospital and Clinic...	Gen	Part	9	4	4	74	317
Mount Vernon, 1,413—Franklin							
Franklin County Hospital...	Gen	County	16	6	6	100	600
Muleshoe, 1,327—Bailey							
Green Hospital and Clinic...	Gen	Part	18	6	6	153	593
Nacogdoches, 7,538—Nacogdoches							
City Memorial Hospital	Gen	City	60	47	13	555	4,234

TEXAS—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Basinsets	Number of Births	Admissions †
Naples, 821—Morris							
David Granberry Memorial							
Hospital	Gen	Corp	28	...	8	Estab. 1918	
Navasota, 6,128—Grimes							
Brazos Valley Sanitarium...	Gen	NPAasn	30	13	8	272	1,235
New Braunfels, 6,956—Comal							
Comal Sanitarium	Gen	Part	50	26	4	61	2,160
New Braunfels Hospital	Gen	City	26	14	12	74	206
New Gulf—Wharton							
Texas Gulf Sulphur Company							
Hospital	Gen	NPAasn	20	6	5	80	650
Nocona, 2,605—Montague							
Major Clinic Hospital	Gen	Part	12	9	5	85	671
Odessa, 9,573—Ector							
Headlee Hospital	Gen	Indiv	25	12	10	233	1,501
Wood Hospital	Gen	Part	30	16	11	403	1,537
Olney, 3,467—Young							
Hamilton Hospital	Gen	City	35	15	14	230	1,890
Orange, 7,172—Orange							
Frances Ann Luther Hosp...	Gen	Corp	45	33	12	411	1,686
Orange City Hospital	Gen	Corp	85	44	21	610	2,922
Overton, 2,313—Rusk							
Overton Memorial Hospital...	Gen	City	25	12	4	250	1,026
Rocky Mount Hospital	Ven	State	165	114	...	...	4,621
Paducah, 2,677—Cottle							
W. Q. Richards Memorial							
Hospital	Gen	County	17	8	7	120	750
Palacios, 2,288—Matagorda							
Bayview General Hospital...	Gen	Indiv	35	12	6	57	601
Palestine, 12,141—Anderson							
Hunter-Hunter and Kay Clinic							
Hospital	Gen	Part	7	...	5	Estab. 1918	
Missouri Pacific Lines' Employees'							
Hospital	Indus	NPAasn	75	65	...	...	1,470
Palestine Sanitarium	Gen	Corp	25	19	9	412	1,146
Pampa, 12,995—Gray							
Worley Hospital	Gen	Part	44	29	11	461	2,210
Paris, 18,678—Lamar							
Geo. Griffiths Memorial Hos-							
pital for Children	Unit of	Sanitarium of Paris					
Lamar County Hospital	Gen	County	43	25	7	56	885
St. Joseph's Hospital▲	Gen	Church	60	15	5	562	4,316
Sanitarium of Paris▲	Gen	Corp	81	75	12	220	2,695
Pasadena, 3,436—Harris							
Pasadena Hospital and Clinic	Gen	Corp	29	26	10	523	2,513
Penland, 3,161—Frio							
Goodnight Clinic Hospital...	Gen	Indiv	16	No data supplied			
Pecos, 4,555—Reeves							
Camp and Camp Hospital...	Gen	Indiv	17	7	8	161	489
Perryton, 2,225—Ochiltree							
Perryton Hospital	Gen	Indiv	18	10	6	179	816
Sanford Hospital and Clinic...	Gen	Indiv	40	10	10	85	825
Phillips, 4,000—Hutchinson							
Phillips-Pantex Hospital	Gen	Indiv	21	9	8	107	551
Pittsburg, 2,916—Camp							
Pittsburg Medical and Surgical							
Hospital	Gen	NPAasn	52	12	10	242	1,719
Plainview, 8,263—Hale							
Plainview Sanitarium and							
Clinic	Gen	Part	125	58	12	500	3,715
Pleasanton, 2,074—Atascosa							
Ogden Hospital	Gen	Indiv	10	5	3	105	501
Port Arthur, 46,140—Jefferson							
St. Mary's Hospital, Gates							
Memorial▲	Gen	Church	151	100	35	1,833	6,785
Poteet, 2,315—Atascosa							
Shotts Memorial Hospital...	Gen	Indiv	14	9	4	72	703
Prairie View (Hempstead P.O.), 140—Waller							
Prairie View University							
Hospital▲	Gen	State	52	12	4	16	691
Quannah, 3,767—Hardeman							
Memorial Hospital	Gen	County	56	50	8	297	1,991
Randolph Field—Dexar							
Station Hospital▲	Gen	USAF	347	46	...	...	1,617
Ranger, 4,553—Eastland							
Ranger General Hospital	Gen	CyCo	40	6	7	162	1,382
West Texas Hospital	Gen	Corp	18	10	4	63	511
Raymondville, 4,050—Willacy							
Raymondville Memorial Hos-							
pital	Gen	NPAasn	21	4	6	222	1,208
Refugio, 4,077—Refugio							
Refugio County Hospital...	Gen	Church	33	16	8	198	900
Rising Star, 1,108—Eastland							
Rising Star Hospital	Gen	Indiv	25	...	5	Estab. 1918	
Robstown, 6,780—Nueces							
Robstown Hospital	Gen	NPAasn	17	4	7	192	1,160
Roby, 901—Fisher							
Fisher County Memorial Hos-							
pital	Gen	NPAasn	20	...	4	Estab. 1918	
Rosecoe, 1,166—Nolan							
Young Hospital	Gen	Part	25	12	7	128	1,087
Rosenberg, 3,457—Fort Bend							
Fort Bend Hospital	Gen	Indiv	22	...	3	...	...
Rotan, 2,020—Fisher							
Callan Hospital	Gen	Part	52	20	10	267	2,130
Rusk, 5,690—Cherokee							
▲	Ment	State	2,414	2,414	...	...	730
St. John's Hospital▲	Gen	Church	40	26	10	300	2,244

Key to symbols and abbreviations is on page 37

TEXAS—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Basinsets	Number of Births	Admissions †
Shannon West Texas Memorial Hospital*.....	Gen	NPAasn	143	130	22	651	6,257
Station Hospital.....	Gen	USAF	50	21	8	45	771
San Antonio, 253,851—Bexar							
Baptist Memorial Hosp.*+*+*.....	Gen	Church	252	196	45	2,619	12,393
Brooke General Hospital*+*.....	Gen	Army	1,000	1,638	50	1,388	29,218
Central Clinic Hospital.....	Gen	Indiv	10	5	4	74	235
Grace Lutheran Sanatorium.....	TB	Church	40	41	..	..	85
Medical Arts Hospital.....	Gen	Corp	29	20	6	34	2,174
Mission Medical Center.....	Ven	State	205	147	..	..	5,470
Nix Memorial Hospital*.....	Gen	Corp	157	131	40	1,538	7,102
Robert B. Green Memorial Hospital.....	Gen	County	220	59	26	565	1,441
Sacred Clinic and Hospital.....	Gen	Indiv	12	6	6	278	594
San Antonio State Hospital.....	Ment	State	2,757	2,789	..	..	1,040
Santa Rosa Hospital*+*.....	Gen	Church	365	330	60	2,477	13,094
Station Hospital.....	Gen	USAF	600	353	20	500	12,008
Woodmen of the World Memorial Hospital*+*.....	TB	NPAasn	150	100	..	..	155
Sanatorium, 1,475—Tom Green							
State Tuberculosis Sanat.*.....	TB	State	935	752	..	..	1,506
San Marcos, 6,006—Hays							
Memorial Hospital.....	Gen	NPAasn	33	10	11	190	1,005
Santa Anna, 1,661—Coleman							
Sealy Hospital.....	Gen	Part	15	6	3	57	401
Seagraves, 3,225—Gaines							
Seagraves Clinic-Hospital... Gen	Part		12	5	4	53	416
Sealy, 2,500—Austin							
Sealy Hospital.....	Gen	Indiv	10	4	4	94	466
Seguin, 7,006—Guadalupe							
Seguin Hospital.....	Gen	Part	22	14	12	202	1,002
Seminole, 1,761—Gaines							
Andrew S. Tomb Hospital... Gen	Corp		29	15	6	175	..
Gaines Clinic and Hospital... Gen	Indiv		16	14	6	185	900
Seymour, 3,325—Baylor							
Baylor County Hospital.... Gen	County		29	18	7	128	1,125
Shamrock, 3,123—Wheeler							
Shamrock General Hospital.. Gen	City		30	10	8	135	1,034
Sherman, 17,156—Grayson							
St. Vincent's Hospital*.....	Gen	Church	77	64	15	434	3,147
Wilson N. Jones Memorial Hospital*.....	Gen	NPAasn	72	59	12	382	3,366
Shiner, 1,520—Lavaca							
Dr. Wagner's Hospital.....	Gen	Indiv	18	12	5	137	542
Sinton, 3,770—San Patricio							
Sinton Hospital.....	Gen	Part	23	10	8	222	1,180
Slaton, 3,587—Lubbock							
Mercy Hospital.....	Gen	Church	40	16	10	322	1,886
Snyder, 3,815—Scurry							
Snyder General Hospital.....	Gen	Corp	25	15	10	175	1,127
Spearman, 1,105—Hansford							
Hansford Hospital.....	Gen	NPAasn	16	7	5	22	278
Spur, 2,136—Dickens							
Nichols General Hospital.... Gen	Indiv		20	18	7	107	782
Stamford, 4,810—Jones							
Stamford Sanatorium.....	Gen	Part	50	33	15	314	2,467
Stephenville, 4,763—Erath							
Stephenville Hosp. and Clinic Gen	Part		50	36	10	265	2,126
Sugar Land, 2,400—Fort Bend							
Laura Eldridge Hospital.....	Gen	NPAasn	30	17	4	195	1,244
Sulphur Springs, 6,742—Hopkins							
Longino Hospital.....	Gen	Indiv	15	10	5	90	624
McConnell Hospital.....	Gen	Indiv	16	7	4	60	1,407
Sulphur Springs Clinic-Hosp. Gen	Part		13	6	5	130	500
Sweetwater, 10,367—Nolan							
Sweetwater Municipal Hosp.. Gen	City		65	36	10	357	2,765
Tahoka, 2,129—Lynn							
Tahoka Hospital and Clinic Gen	Indiv		15	7	4	75	341
Taylor, 7,876—Williamson							
Johns Clinic and Hospital.... Gen	Indiv		25	14	6	50	399
Stromberg Clinic and Hosp... Gen	Corp		38	25	8	128	1,005
Swanson Clinic and Hospital Gen	Corp		30	10	7	199	1,070
Temple, 15,344—Bell							
Gulf, Colorado and Santa Fe Hospital.....	Indus	NPAasn	150	65	..	..	3,744
Kings Daughters Hospital*+*.....	Gen	NPAasn	110	69	16	460	3,223
Scott and White Hosp.*+*+*.....	Gen	Corp	236	155	15	287	6,914
Veterans Admin. Hospital*+*.....	Gen	Vet	1,000	583	..	..	4,423
Terrell, 10,481—Kaufman							
Alexander Hospital.....	Gen	Indiv	25	15	6	82	782
Fridell Hospital.....	Gen	Indiv	20	4	4	75	453
Holton-Johnston Clinic-Hosp. Gen	Part		20	7	6	137	620
Lane Clinic-Hospital.....	Gen	Indiv	10	4	3	33	212
Terrell State Hospital.....	Ment	State	2,794	2,828	..	..	999
Texarkana, 17,019—Bowie							
Federal Correctional Institution.....	Inst	USPHS	34	8	..	..	375
Station Hospital.....	Gen	Army	25	..	..	..	..
Texarkana Hospital*.....	Gen	NPAasn	54	45	8	543	2,821
Texas City, 5,748—Galveston							
Danforth Memorial Hospital Gen	Part		32	20	14	347	1,600
Twidwell-Schmidt Hospital .. Gen	Part		12	4	6	172	647
Tyler, 28,278—Smith							
Bryant Clinic and Hospital.. Gen	Part		15	14	8	..	1,158
Mother Frances Hospital*.....	Gen	Church	76	56	19	794	3,395
Uvalde, 6,679—Uvalde							
Merritt Hospital.....	Gen	Indiv	14	8	6	271	967
Vernon, 9,277—Wilbarger							
Christ the King Hospital.... Gen	Church		27	12	5	172	882
Shipman Clinic Hospital.....	Gen	Indiv	15	8	4	53	623
Vernon Hospital.....	Gen	Part	24	19	10	339	1,638

TEXAS—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Basinsets	Number of Births	Admissions †
Victoria, 11,566—Victoria							
DeTar Memorial Hospital.... Gen	Indiv		38	25	10	388	1,922
Victoria Hospital.....	Gen	Indiv	26	16	13	215	1,390
Waco, 55,982—McLennan							
Hillcrest Memorial Hosp.*+*.....	Gen	Church	148	123	44	1,604	6,821
Providence Hospital*.....	Gen	Church	150	113	25	854	6,001
Riverside Hospital.....	Ven	State	160	115	..	..	4,192
Veterans Admin. Hospital*+*.....	Ment	Vet	2,214	2,066	..	..	1,999
Waxahachie, 6,655—Ellis							
Waxahachie Sanatorium*.....	Gen	NPAasn	34	21	7	379	1,901
Weatherford, 5,924—Parker							
Medical and Surgical Clinic-Hospital.....	Gen	Part	16	21	9	227	1,006
Parker County Hospital.....	Gen	County	23	11	4	116	1,596
Wellington, 3,308—Collingsworth							
St. Joseph's Hospital.....	Gen	Church	23	16	6	234	1,223
Wharton, 4,386—Wharton							
Caney Valley Hospital.....	Gen	Part	35	20	10	317	1,524
Rugeley and Blasingame Clinic-Hospital.....	Gen	Corp	39	26	6	169	2,234
Wheeler, 848—Wheeler							
Wheeler Hospital.....	Gen	Part	24	10	6	162	791
Whitney, 824—Hill							
Whitney Memorial Hospital.. Gen	NPAasn		9	5	4	46	345
Wichita Falls, 45,112—Wichita							
Bethania Hospital*.....	Gen	Church	70	40	16	547	2,609
Wichita Falls Clinic-Hosp.*+*+*.....	Part		102	87	15	392	4,718
Wichita Falls State Hospital Ment	State		2,479	2,530	..	..	900
Wichita General Hospital*+*.....	Gen	CyCo	120	86	23	993	5,970
Wills Point, 1,976—Van Zandt							
Baker Clinic-Hospital.....	Gen	Indiv	10	6	3	78	327
Winters, 2,335—Runnels							
Winters Municipal Hospital.. Gen	City		21	9	5	114	688
Wolfe City, 1,339—Hunt							
Wolfe City Community Hosp. Gen	NPAasn		25	..	4	Estab. 1918	
Yoakum, 4,733—Lavaca							
Huth Memorial Hospital.... Gen	Church		30	14	10	182	1,956
Related Institutions							
Alpine, 3,866—Brewster							
Lockhart Clinic-Hospital Gen	Indiv		16	7	8	..	..
Amarillo, 51,868—Potter							
M. L. Wyatt Memorial Hosp. Gen	Indiv		16	8	5	82	367
Arlington, 4,240—Tarrant							
Knights Templar Hospital.... Inst	NPAasn		25	20	..	..	163
Woodward Hospital.....	ENT	Indiv	10	3	..	..	1,095
Athens, 4,763—Henderson							
Henderson County Memorial Hospital.....	Gen	County	40	..	8	Estab. 1948	
Austin, 87,930—Travis							
Austin State School.....	McDe	State	2,091	2,111	..	..	279
Oak Ridge Sanatorium.....	N&M	Indiv	25	..	..	..	..
Beaumont, 59,661—Jefferson							
Beaumont Infirmary.....	Mat	Part	18	12	20	725	783
Palm Springs Hospital.....	Conv	Indiv	37	34	..	..	120
Bronte, 754—Coke							
Karen-Gay Hospital.....	Gen	Indiv	8	..	3	..	..
Buda, 400—Hays							
Buda Clinic and Hospital.... Gen	Indiv		8	..	5	Estab. 1948	
Commerce, 4,699—Hunt							
Seyler Clinic and Hospital.... Gen	Indiv		12	..	3	Estab. 1948	
Cooper, 2,537—Delta							
James Hospital.....	Gen	Indiv	10	9	6	200	315
Corpus Christi, 57,301—Nueces							
Sizer Hospital.....	Gen	Indiv	22	17	..	..	763
Crane, 1,420—Crane							
Crane County Memorial Hospital.....	Gen	County	17	..	4	Estab. 1948	
Dallas, 294,734—Dallas							
Love-Youngblood Eye and Ear Hospital.....	ENT	Part	6	3	..	..	81
Health Center of Southern Methodist University.....	Inst	State	35	12	..	..	..
Wilkinson Hospital and Clinic ENT	Indiv		5	..	..	Estab. 1948	
Eastland, 3,849—Eastland							
Eastland Hospital.....	Gen	Indiv	12	4	4	105	345
El Paso, 96,810—El Paso							
Mesa Sanatorium.....	TB	Indiv	22	19	..	..	56
Fort Worth, 177,662—Tarrant							
Elmwood Sanatorium.....	TB	CyCo	76	67	..	..	61
Harrison Clinic-Hospital.... Gen	Indiv		40	27	6	112	1,426
Howard Sanatorium.....	N&M	Indiv	17	14	..	..	92
West Texas Maternity Hosp. Mat	NPAasn		32	25	1	22	29
Galveston, 69,662—Galveston							
Stewart Convalescent Home.. Unit of University of Texas Medical Branch Hospitals							
Hallettsville, 1,551—Lavaca							
Dufner Hospital.....	Gen	Indiv	7	8	4	32	182
Harlingen, 13,306—Cameron							
Medical Arts Hospital.....	Gen	Corp	16	7	6	193	510
Hico, 1,241—Hamilton							
Hico Hospital and Clinic.... Gen	Corp		10	8	2	92	681
Hondo, 2,500—Medina							
Medina Hospital.....	Gen	Part	15	5	5	187	607
Houston, 884,514—Harris							
Hedgcock Hosp. and Clinic Orth	NPAasn		20	15	..	..	106
Physicians and Surgeons Hospital.....	Gen	Part	30	10	3	..	1,072
Huntsville, 5,105—Walker							
Texas State Prison Hospital.. Inst	State		140	112	..	..	1,471

TEXAS—Continued

Related Institutions	Type of Service	Ownership or Control	Beds	Average Census †	Basins	Number of Births	Admissions †
Hutchins, 400—Dallas							
City-County Convalescent Hospital	Conv	CyCo	130	120	..	..	85
Kaufman, 2,654—Kaufman							
Shaw Clinic and Hospital....	Gen	Indiv	6	...	4	Estab. 1918	
Longview, 13,758—Gregg							
Camp Normal Industrial Hospital	Gen	Indiv	8	5	4	81	326
Loraine, 700—Mitchell							
Johnson Hospital	Gen	Part	8	6	4	120	220
Marlin, 6,542—Falls							
Hunter Clinic-Hospital	Gen	Indiv	18	4	2	12	161
Matador, 1,376—Motley							
Stanley Clinic Hospital.....	Gen	Indiv	10	7	5	104	591
McCamy, 2,595—Upton							
Cooper Hospital	Gen	Indiv	16	7	5	150	300
Memphis, 3,809—Hall							
Clark Hospital	Gen	Indiv	8	4	6	114	439
Moulton, 643—Lavaca							
H. J. Strider Hospital.....	Gen	Indiv	10	1	4	69	118
New Boston, 1,111—Bowie							
McGee Hospital	Gen	Indiv	11	3	5	101	341
Pearson, 3,164—Frio							
Howard Hospital	Gen	Part	10	4	3	90	313
Pharr, 4,784—Hidalgo							
Valley Convalescent Center..	Conv	Indiv	19	12	..	..	115
Ralls, 1,512—Crosby							
L. W. Spikes Hospital.....	Gen	Indiv	8	3	4	84	213
Rosebud, 1,842—Falls							
Rosebud Hospital and Clinic	Gen	Indiv	26	6	3	133	7-0
San Antonio, 253,854—Dexar							
Salvation Army Home and Hospital	Mat	Church	35	20	12	58	89
Smithville, 3,100—Bastrop							
Hoch Clinic-Hospital	Gen	Indiv	10	7	5	52	1,102
Sulphur Springs, 6,742—Hopkins							
Worham Hospital	Gen	Indiv	13	2	6	200	300
Tengue, 3,157—Freestone							
City Hospital	Gen	Indiv	14	5	6	82	3-1
Texon, 1,200—Reagan							
Big Lake Oil Company Hosp.	Gen	NPAssn	8	3	4	32	197
Tulla, 2,055—Swisher							
Swisher County Hospital....	Gen	County	12	8	6	166	952
Waco, 55,982—McLennan							
Crippled Children's Hospital	OrChil	NPAssn	26	...	..	Estab. 1918	
Waco State Home Hospital..	Inst	State	30	6	..	..	101
Wichita Falls, 45,112—Wichita							
Adams and Adams Eye, Ear, Nose and Throat Clinic-Hospital ENT	Part		10	...	..	..	..

UTAH

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Basins	Number of Births	Admissions †
American Fork, 3,333—Utah							
American Fork Community Hospital	Gen	City	22	10	15	340	1,095
Bingham Canyon, 2,834—Salt Lake							
Bingham Canyon Hospital..	Gen	Indiv	40	31	8	61	894
Brigham City, 5,611—Box Elder							
Cooley Memorial Hospital....	Gen	Indiv	35	19	20	458	1,233
Cedar City, 4,695—Iron							
Iron County Hospital.....	Gen	County	45	23	18	310	1,560
Coalville, 949—Summit							
Summit County Hospital.....	Gen	County	14	12	6	16	600
Fort Duchesne, 104—Uintah							
Uintah and Ouray Agency							
Indian Hospital	Gen	IA	21	10	6	61	372
Heber, 2,748—Wasatch							
Heber Hospital	Gen	Part	14	9	10	196	403
Lehi, 2,733—Utah							
Lehi City Hospital.....	Gen	City	16	8	8	110	160
Logan, 11,868—Cache							
Latter-Day Saints Hospital..	Gen	Church	65	50	21	569	2,234
Moab, 1,084—Grand							
Grand County Public Hosp...	Gen	County	17	5	5	49	330
Ogden, 43,688—Weber							
St. Benedict's Hospital*+..	Gen	Church	156	130	32	1,232	5,747
Thomas D. Dee Memorial Hospital*+..	Gen	Church	300	163	70	1,087	10,590
Utah State Tuberculosis Sanatorium*	TB	State	96	61	..	..	128
Park City, 3,739—Summit							
Park City Miners' Hospital..	Gen	NPAssn	17	10	5	70	587
Payson, 3,591—Utah							
Payson City Hospital.....	Gen	NPAssn	31	30	20	660	1,794
Price, 5,214—Carbon							
Price City Hospital.....	Gen	City	54	39	12	632	2,065
Provo, 18,071—Utah							
Utah State Hospital.....	Ment	State	1,220	1,171	..	..	426
Utah Valley Hospital.....	Gen	NPAssn	70	51	28	1,271	3,316
Richfield, 3,581—Sevier							
Sevier Valley Hospital.....	Gen	Indiv	27	17	10	339	1,152
Roosevelt, 1,264—Duchesne							
Roosevelt Hospital	Gen	Church	21	...	10	..	..
St. George, 3,591—Washington							
D. A. McGregor Hospital....	Gen	NPAssn	20	10	8	225	614
Salina, 1,616—Sevier							
Salina Hospital	Gen	City	16	8	6	278	442
Salt Lake City, 149,934—Salt Lake							
Dr. W. H. Groves Latter-Day Saints Hospital*+..	Gen	Church	357	312	116	3,786	14,481

UTAH—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Basins	Number of Births	Admissions †
Holy Cross Hospital*+..	Gen	Church	190	142	60	2,318	7,297
Primary Children's Hospital..	Chil	Church	33	33	..	..	122
St. Mark's Hospital*+..	Gen	Church	214	207	30	1,111	7,212
Salt Lake County General Hospital*+..	Gen	County	231	164	22	424	3,672
Shriners Hospital for Crippled Children	Orth	NPAssn	20	20	..	..	42
Veterans Admin. Hospital*+..	Gen	Vet	204	162	..	..	3,129
Spanish Fork, 4,167—Utah							
Hughes Memorial Hospital...	Gen	Indiv	12	6	7	195	422
Tremonton, 1,113—Box Elder							
Valley Hospital	Gen	NPAssn	20	11	10	160	1,193

Related Institutions

American Fork, 3,333—Utah							
Utah State Training School..	MeDe	State	600	640	..	..	86
Milford, 1,323—Beaver							
Milford Hospital	Gen	Part	10	6	5	65	265
Murray, 5,740—Salt Lake							
Cottonwood Stake Maternity Hospital	Mat	Church	23	14	25	561	501

VERMONT

Hospitals and Sanatoriums

Barre, 10,000—Washington							
Barre City Hospital*+..	Gen	NPAssn	75	48	17	551	2,114
Washington County Sanat...	TB	State	47	38	..	..	60
Bellows Falls, 4,236—Windham							
Rockingham Hospital	Gen	NPAssn	24	26	10	273	1,056
Bennington, 7,628—Bennington							
Henry W. Putnam Memorial Hospital*	Gen	NPAssn	96	63	20	457	2,479
Brattleboro, 8,622—Windham							
Brattleboro Memorial Hosp.*	Gen	NPAssn	75	49	22	315	2,635
Brattleboro Retreat	Ment	NPAssn	750	629	..	..	214
Burlington, 27,684—Chittenden							
Bishop DeGoesbriand Hospital*+..	Gen	Church	115	106	25	574	3,542
Mary Fletcher Hospital*+..	Gen	NPAssn	120	171	37	1,023	7,216
Hardwick, 1,607—Caledonia							
Hardwick Hospital	Gen	NPAssn	16	5	6	104	281
Jeffersonville, 257—Lamoille							
Roger W. Mann Hospital....	Gen	Indiv	15	7	6	93	221
Middlebury, 2,123—Addison							
Porter Hospital	Gen	NPAssn	45	25	10	281	938
Montpelier, 8,006—Washington							
Heaton Hospital*	Gen	NPAssn	75	38	20	373	3,893
Morrisville, 1,967—Lamoille							
Copley Hospital	Gen	NPAssn	30	18	9	167	916
Newport, 4,002—Orleans							
Broadview General Hospital..	Gen	Indiv	26	12	11	164	1,020
Orleans County Memorial Hospital*	Gen	NPAssn	40	23	10	254	998
Pittsford, 556—Rutland							
Vermont Sanatorium	TB	State	65	65	..	..	127
Proctor, 2,181—Rutland							
Proctor Hospital	Gen	NPAssn	35	17	7	128	626
Randolph, 1,988—Orange							
Gifford Memorial Hospital*+..	Gen	NPAssn	53	46	11	234	1,501
Rutland, 17,082—Rutland							
Rutland Hospital*	Gen	NPAssn	140	127	20	805	4,632
St. Albans, 8,037—Franklin							
St. Albans Hospital*+..	Gen	NPAssn	61	48	20	350	2,515
St. Johnsbury, 7,437—Caledonia							
Brightlook Hospital*	Gen	NPAssn	55	38	12	238	1,723
St. Johnsbury Hospital.....	Gen	Church	30	19	9	189	781
Springfield, 5,182—Windser							
Springfield Hospital*	Gen	NPAssn	47	48	16	438	2,053
Waterbury, 3,074—Washington							
Vermont State Hospital*	Ment	State	1,125	1,147	..	..	489
White River Junction, 2,271—Windser							
Veterans Admin. Center*+..	Gen	Vet	250	211	..	..	4,003
Windser, 3,402—Windser							
Windser Hospital	Gen	NPAssn	15	13	8	165	450
Winooksi, 6,036—Chittenden							
Fanny Allen Hospital*+..	Gen	Church	86	86	14	357	3,185

Related Institutions

Brandon, 2,979—Rutland							
Brandon State School.....	MeDe	State	383	386	..	..	14
Pittsford, 576—Rutland							
Caverly Preventorium	TB	NPAssn	44	44	..	..	73
Windser, 3,402—Windser							
Vermont State Prison Hosp.	Inst	State	12	4	..	..	134

VIRGINIA

Hospitals and Sanatoriums

Arlington, 3,158—Washington							
Johnston Memorial Hosp.*+..	Gen	NPAssn	80	67	10	261	2,126
Alexandria, 33,523—Arlington							
Alexandria Hospital*+..	Gen	NPAssn	169	135	60	1,845	6,141
Circle Terrace Hospital.....	Gen	Corp	45	27	..	..	600
Altavista, 2,919—Campbell							
Piedmont General Hospital...	Gen	Part	30	12	5	93	695
Arlington, 57,010—Arlington							
Anderson Orthopedic Clinic and Hospital	Orth	NPAssn	17	15	..	..	250

VIRGINIA—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Basinsets	Number of Births	Admissions †
Arlington Hospital**	Gen	NPAssn	115	81	24	1,187	4,638
Station Hospital	Gen	Army	160	85	10	400	2,063
Bedford, 3,073—Bedford							
John Russell Hospital	Gen	Corp	21	17	10	216	993
Bristol, 9,768—Washington							
Fort Shelby Hospital	Gen	Indiv	18	10	6	384	1,297
Kings Mountain Memorial Hospital	Gen	NPAssn	42	48	10	529	2,778
Burkeville, 658—Nottoway							
Piedmont Sanatorium	TB	State	269	247	..	..	256
Camp Lee, 12—Prince George							
Station Hospital	Gen	Army	300	153	16	233	3,202
Catawba Sanatorium, 100—Roanoke							
Catawba Sanatorium	TB	St te	360	307	..	..	369
Charlottesville, 19,400—Albemarle							
Blue Ridge Sanatorium	TB	State	370	318	..	..	408
Martha Jefferson Hospital and Sanitarium	Gen	NPAssn	50	54	10	463	2,353
University of Virginia Hospital	Gen	State	509	417	50	1,614	14,271
Christiansburg, 2,299—Montgomery							
New Altamont Hospital	Gen	Corp	28	22	8	513	1,778
Clifton Forge, 6,461—Alleghany							
Chesapeake and Ohio Hospital	Gen	NPAssn	155	121	20	404	6,262
Clintwood, 1,106—Dickenson							
Dickenson County Hospital	Gen	Indiv	20	No data supplied			
Coeburn, 764—Wise							
Coeburn Hospital	Gen	Part	25	No data supplied			
Covington, 6,300—Alleghany							
Alleghany Memorial Hospital	Gen	CyCo	31	15	11	239	1,048
Danville, 32,749—Pittsylvania							
Hilltop Sanatorium	TB	NPAssn	25	30	..	..	62
Memorial Hospital	Gen	NPAssn	170	145	26	1,118	8,384
Farmville, 3,475—Prince Edward							
Southside Community Hosp.	Gen	NPAssn	63	39	14	539	2,153
Fort Belvoir, —Fairfax							
Station Hospital	Gen	Army	310	199	40	339	3,567
Fort Eustis, —Warwick							
Station Hospital	Gen	Army	100	58	..	..	2,346
Fort Monroe, 1,265—Elizabeth City							
Station Hospital	Gen	Army	167	42	18	444	1,945
Franklin, 3,466—Southampton							
Rafford Memorial Hospital	Gen	NPAssn	67	40	15	256	1,827
Fredericksburg, 10,060—Spotsylvania							
Mary Washington Hospital	Gen	NPAssn	85	56	20	790	4,166
Front Royal, 3,831—Warren							
Front Royal Community Hospital	Gen	NPAssn	22	18	10	373	1,455
Gordonsville, 508—Orange							
Gordonsville Community Hospital	Gen	Indiv	20	13	5	57	424
Grundy, 1,476—Buchanan							
Grundy Hospital	Gen	Corp	35	29	10	206	1,823
Hampton, 5,898—Elizabeth City							
Dixie Hospital	Gen	NPAssn	140	64	30	772	3,253
Harrisonburg, 3,768—Rockingham							
Rockingham Memorial Hosp.	Gen	NPAssn	150	144	20	1,181	6,046
Hopewell, 8,679—Prince George							
John Randolph Hospital	Gen	NPAssn	40	25	16	280	1,302
Hot Springs, 1,000—Bath							
Community House	Gen	NPAssn	12	7	4	106	419
Kecoughtan, 1,900—Elizabeth City							
Veterans Admin. Center	Gen	Vet	604	483	..	..	3,190
Langley Field, —Elizabeth City							
Station Hospital	Gen	USAF	129	51	..	..	2,388
Lebanon, 622—Russell							
Lebanon General Hospital	Gen	Indiv	25	15	8	245	951
Leesboro, 1,698—Loudoun							
Loudoun County Hospital	Gen	NPAssn	25	22	11	330	1,277
Lexington, 3,914—Rockridge							
Jackson Memorial Hospital	Gen	NPAssn	58	49	15	431	2,644
Luray, 1,511—Page							
Page Memorial Hospital	Gen	NPAssn	30	13	10	206	1,057
Lynchburg, 44,541—Campbell							
Guggenheimer Maternity Hospital	Unit of	Marshall Lodge					
Lynchburg General Hosp.	Gen	City	150	98	27	800	4,571
Marshall Lodge Memorial Hospital	Gen	NPAssn	135	93	30	618	3,498
Virginia Baptist Hospital	Gen	Church	100	80	24	810	3,298
Marion, 5,177—Smyth							
Lee Memorial Hospital	Gen	NPAssn	68	57	13	560	5,054
Southwestern State Hospital	Ment	State	1,287	1,286	..	..	397
Martinsville, 10,080—Henry							
Henry County Memorial Hospital	Gen	Indiv	25	No data supplied			
Martinsville General Hospital	Gen	NPAssn	84	65	26	372	3,259
Nassawadox, 250—Northampton							
Northampton-Accomac Memorial Hospital	Gen	NPAssn	72	55	18	441	2,420

VIRGINIA—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Basinsets	Number of Births	Admissions †
Newport News, 37,067—Ivarwick							
Elizabeth Buxton Hosp.	Gen	Indiv	146	117	35	1,246	5,663
Riverside Hospital	Gen	NPAssn	190	131	35	1,328	5,484
Whittaker Memorial Hosp.	Gen	NPAssn	57	38	20	327	1,284
Norfolk, 144,332—Norfolk							
De Paul Hospital	Gen	Church	258	200	48	1,842	8,872
Grandy Sanatorium	..	TB	152	125	..	..	118
Hampton Roads Medical Center	..	Ven	180	100	4	..	3,610
Leigh Memorial Hospital	..	Gen	166	106	40	1,183	5,535
McCoy-Stokes Hospital	..	ENT	11	3	..	..	470
Norfolk Community Hosp.	..	Gen	130	68	23	614	2,810
Norfolk General Hosp.	..	Gen	340	250	55	1,365	9,706
U. S. Marine Hospital	..	USPHS	419	282	..	..	5,688
U. S. Naval Air Station Dispensary	..	Gen	118	30	..	..	2,174
Norton, 4,006—Wise							
Dr. Botts' Eye, Ear, Nose and Throat Hospital	..	ENT	42	11	..	..	3,996
Norton General Hospital	..	Gen	37	30	10	237	1,873
St. Mary's Hospital	..	Church	41	18	5	35	555
Pennington Gap, 1,990—Lee							
Lee General Hospital	..	Gen	42	28	6	174	1,807
Petersburg, 30,631—Dinwiddle							
Central State Hospital	..	Ment	3,920	3,917	..	..	993
Federal Reformatory Hosp.	..	Inst	46	13	..	..	619
Medical Center Hospital	..	Unit of Central State Hospital	114	93	19	860	4,440
Petersburg Hospital	..	Gen	250	228	..	..	73
Petersburg State Colony	..	McDe	250	228	..	..	73
Portsmouth, 50,745—Norfolk							
Kings Daughters Hospital	..	Gen	202	118	45	811	5,370
Maryview Hospital	..	Church	150	82	32	795	3,747
U. S. Naval Hospital	..	Gen	1,100	785	40	1,607	12,220
Pulaski, 6,792—Pulaski							
Pulaski Hospital	..	Gen	80	69	15	582	3,395
Quantico, 1,139—Prince William							
U. S. Naval Hospital	..	Gen	150	106	14	308	1,937
Radford, 6,990—Montgomery							
Radford Community Hosp.	..	Gen	74	58	20	696	3,432
St. Albans Sanatorium	..	N&M	97	80	..	..	1,269
Richlands, 2,203—Tazewell							
Clinch Valley Clinic Hosp.	..	Gen	101	77	14	415	5,681
Mattie Williams Hospital	..	Gen	75	44	8	206	2,203
Richmond, 193,042—Henrico							
Crippled Children's Hosp.	..	Orth	120	68	..	..	197
Dooley Hospital	..	Unit of Medical College of Va.	90	82	20	633	4,671
Grace Hospital	..	Gen	200	131	27	1,039	6,320
Johnston-Willis Hospital	..	Gen	200	131	27	1,039	6,320
Medical College of Virginia, Hospital Division	..	Gen	861	579	115	3,253	16,850
Penitentiary Hospital	..	Inst	50	32	..	..	2,900
Pine Camp Hospital	..	TB	220	192	..	..	244
Retreat for the Sick	..	Gen	105	90	25	1,163	4,593
Richmond Community Hosp.	..	Gen	35	25	8	283	1,128
Richmond Municipal Hospital	..	Ven	80	No data supplied			
St. Elizabeth's Hospital	..	Gen	58	51	..	..	2,058
St. Luke's Hospital	..	Gen	87	84	23	1,015	3,776
St. Philip Hospital	..	Unit of Medical College of Va.	84	59	17	288	1,824
Sheltering Arms Hospital	..	Gen	114	102	23	660	4,892
Stuart Circle Hospital	..	Gen	56	53	..	..	567
Tucker Hospital	..	N&M	1,000	818	..	..	7,346
Veterans Admin. Hospital	..	Gen	162	133	..	..	530
Westbrook Sanatorium	..	N&M	162	133	..	..	530
Roanoke, 69,287—Roanoke							
Burrell Memorial Hospital	..	Gen	50	38	12	444	2,094
Gill Memorial Eye, Ear and Throat Hospital	..	ENT	25	12	..	..	1,436
Jefferson Hospital	..	Gen	150	128	30	879	5,390
Lewis-Gale Hospital	..	Gen	180	139	20	1,105	6,462
Roanoke City Sanatorium	..	TB	49	30	..	..	54
Roanoke Hospital	..	Gen	160	113	20	558	4,871
Shenandoah Hospital	..	Gen	63	37	8	398	2,297
Veterans Admin. Hospital	..	Ment	2,000	1,871	..	..	3,524
Saltville, 2,650—Smyth							
Mathieson Hospital	..	Gen	18	13	5	164	869
South Boston, 5,252—Halifax							
South Boston Hospital	..	Gen	45	29	10	301	2,168
Staunton, 13,337—Augusta							
DeJarnette State Sanatorium	..	Ment	176	138	..	..	463
Kings Daughters Hospital	..	Gen	75	55	20	656	2,956
Western State Hospital	..	Ment	2,319	2,311	..	..	924
Stonega, 1,650—Wise							
Stonega Hospital	..	Indus	16	1	..	..	76
Stuart, 720—Patrick							
Stuart Hospital	..	Gen	22	15	6	170	528
Suffolk, 11,342—Nansemond							
Lakeview Hospital	..	Gen	61	49	15	322	2,114
Virginia Hospital	..	Gen	13	4	4	121	391
University—Albemarle							
University of Virginia Hosp.	..	See Charlottesville, Va.					
Warrenton, 1,651—Fauquier							
Physicians' Hospital	..	Gen	40	20	12	379	1,424
Waynesboro, 7,372—Augusta							
Waynesboro Community Hospital	..	Gen	40	25	14	410	1,575
Williamsburg, 3,942—James City							
Bell Hospital	..	Gen	20	9	5	163	630
Eastern State Hospital	..	Ment	1,796	1,770	..	..	749

Key to symbols and abbreviations is on page 37

VIRGINIA—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Basinets	Number of Births	Admissions †
Winchester, 12,095—Frederick Winchester Memorial Hosp. A° Gen	Gen	NPAasn	200	140	20	1,180	0,385
Woodstock, 1,540—Shenandoah Cora Miller Memorial Hosp. Gen	Gen	Indiv	38	20	10	101	797
Related Institutions							
Beaumont, 50—Powhatan Virginia Industrial School for Boys Inst	Inst	State	18	2	..	..	850
Bristol, 9,768—Washington Grigsby's Hospital Gen	Gen	Indiv	10	8	12	235	571
Colony, 100—Amherst Lynchburg State Colony A... McDe	State	1,510	1,827	..	..	302	
Medical Center Hospital A... Unit of Lynchburg State Colony							
Galax, 3,195—Grayson Waddell Hospital Gen	Gen	Corp	40	24	9	170	1,151
Martinsville, 10,080—Henry St. Mary Hospital Gen	Gen	Part	13	6	7	118	282
Richmond, 193,042—Henrico City Home Hospital Inst Gen	Inst Gen	City	450	293	20	13	516
State Farm, 75—Goochland State Farm Hospital Inst	Inst	State	120	96	..	..	511
Sweet Briar, 200—Amherst Mary Harley Infirmary Inst	Inst	NPAasn	15	2	..	..	510

WASHINGTON

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Basinets	Number of Births	Admissions †
Aberdeen, 18,846—Grays Harbor St. Joseph's Hospital A° Gen	Gen	Church	115	95	20	919	5,141
American Lake, 500—Pierce Veterans Admin. Hospital A... Ment	Ment	Vet	1,028	817	..	..	441
Anacortes, 5,875—Skagit Anacortes Hospital Gen	Gen	Corp	25	14	5	334	1,054
Auburn, 4,211—King Auburn General Hospital Gen	Gen	Part	45	22	12	3-0	1,416
Bellingham, 29,314—Whatcom St. Joseph's Hospital A° Gen	Gen	Church	112	101	18	976	4,594
St. Luke's General Hosp. A° Gen	Gen	NPAasn	70	65	12	559	3,032
Whatcom County Hospital ... Gen	Gen	State	100	50	8	63	962
Bremerton, 15,134—Kitsap Harrison Memorial Hospital A Gen	Gen	NPAasn	125	61	40	876	3,793
Puget Sound Naval Memorial Hospital Gen	Gen	NPAasn	90	57	20	653	3,513
U. S. Naval Hospital A° Gen	Gen	Navy	550	420	17	415	5,923
Burlington, 1,632—Skagit Matthews General Hospital ... Gen	Gen	Indiv	32	10	7	130	812
Centralia, 7,414—Lewis Lewis County Hospital Gen	Gen	County	52	38	12	377	2,507
Chehalis, 4,857—Lewis MacMillan Sanatorium TB	TB	Counties	58	45	..	..	41
St. Helen Hospital A° Gen	Gen	Church	40	34	13	391	1,567
Chelan, 1,738—Chelan Lake Chelan Community Hospital Gen	Gen	NPAasn	26	..	8	Estab.	1918
Chevelah, 1,565—Stevens St. Joseph's Hospital Gen	Gen	Church	40	23	11	171	1,282
Colfax, 2,853—Whitman St. Ignatius Hospital A° Gen	Gen	Church	68	41	17	447	2,501
Cotville, 2,418—Stevens Mount Carmel Hospital Gen	Gen	Church	45	38	12	222	1,502
Coulee Dam, 3,100—Douglas Coulee Dam Community Hospital Gen	Gen	Indiv	40	13	12	153	953
Dayton, 3,026—Columbia John Brining Memorial Hosp. Gen	Gen	Indiv	22	10	4	109	722
Ellensburg, 5,944—Kittitas Ellensburg General Hospital A Gen	Gen	NPAasn	30	19	10	175	1,170
Kittitas County Hospital ... Gen	Gen	County	53	30	8	58	636
Valley General Hospital Gen	Gen	Indiv	17	10	9	270	1,025
Elma, 1,370—Grays Harbor Elma General Hospital Gen	Gen	Part	21	10	6	119	877
Oakhurst Sanatorium TB	TB	County	110	80	..	..	79
Ephrata, 351—Grant Columbia Basin Hospital ... Gen	Gen	Corp	25	18	7	250	1,225
Everett, 30,224—Snohomish General Hospital A° Gen	Gen	NPAasn	90	67	20	1,104	4,358
Providence Hospital A° Gen	Gen	Church	125	77	30	654	5,325
Fort Lewis, Pierce Madigan General Hospital A° Gen	Gen	Army	1,300	1,129	30	901	10,873
Fort Steilacoom, 2,080—Pierce Western State Hospital A° Gen	Gen	State	2,954	2,026	..	..	990
Kirkland, 2,084—King Fairfax Sanatorium N&M	N&M	Indiv	50	47	..	..	458
Kirkland Hospital Gen	Gen	Indiv	15	8	12	285	694
Lakerew, 200—Pierce Mountain View Sanatorium ... TB	TB	County	100	90	..	..	97
Longview, 12,355—Cowlitz Cowlitz General Hospital ... Gen	Gen	NPAasn	85	74	20	775	5,101
St. John's Hospital A° Gen	Gen	Church	75	67	15	821	4,396

WASHINGTON—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Basinets	Number of Births	Admissions †
Medical Lake, 2,114—Spokane Eastern State Hospital A° Gen	Gen	State	2,274	2,100	..	..	406
Monroe, 1,590—Snohomish Valley View Hospital Gen	Gen	County	72	53	6	14	513
Mount Vernon, 4,278—Skagit Rowley General Hospital Gen	Gen	Indiv	44	31	12	217	1,729
Skagit General Hospital Gen	Gen	NPAasn	30	23	14	181	1,053
Nespelem, 200—Okanogan Colville Indian Hospital Gen	Gen	IA	40	21	6	93	596
Newport, 1,171—Pend Oreille Newport Community Hospital Gen	Gen	NPAasn	22	13	6	156	793
Olympia, 13,254—Thurston St. Peter's Hospital A° Gen	Gen	Church	125	81	25	925	4,261
Pasco, 3,012—Franklin Our Lady of Lourdes Hosp. A Gen	Gen	Church	68	42	25	710	2,913
Port Angeles, 9,459—Clallam Davidson-Hay Hospital Gen	Gen	Indiv	53	35	12	153	1,925
Port Angeles General Hosp. A Gen	Gen	NPAasn	80	44	18	351	2,165
Port Townsend, 4,633—Jefferson St. John's Hospital Gen	Gen	Church	80	35	12	241	1,160
Pullman, 4,417—Whitman Fluch Memorial Hospital Gen	Gen	State	50	13	..	..	1,507
Puyallup, 7,539—Pierce Puyallup General Hospital ... Gen	Gen	Indiv	23	10	12	418	1,263
Renton, 4,488—King Renton Hospital Gen	Gen	NPAasn	100	78	25	1,228	4,200
Richland, 247—Benton Kadlec Hospital A° Gen	Gen	NPAasn	115	71	24	707	4,942
Seattle, 563,302—King Ballard General Hospital Gen	Gen	NPAasn	35	..	12	..	..
Children's Orthopedic Hos- pital A° Gen	Gen	NPAasn	143	123	..	..	2,408
Cobb Hospital Gen	Gen	Indiv	26	14	..	..	2,533
Columbus Hospital A° Gen	Gen	Church	185	103	44	1,062	5,375
Doctors Hospital A° Gen	Gen	NPAasn	200	151	44	1,555	7,963
Farland Sanatorium A° Gen	Gen	TB	731	519	..	..	533
Group Health Hospital Gen	Gen	NPAasn	56	26	15	326	2,420
King County Hospital, Unit No. 1 (Harborview) A° Gen	Gen	County	500	455	51	913	12,153
King County Hospital, Unit No. 2 (Georgetown Branch) A° Gen	Gen	County	275	262	..	..	615
Laurel Beach Sanatorium A° TB	TB	Part	100	93	..	..	105
Maynard Hospital A° Gen	Gen	NPAasn	109	80	40	1,923	3,994
Medical and Dental Building Surgery Surg	Surg	Indiv	20	14	..	..	2,955
Pinel Foundation Sanitarium N&M	N&M	NPAasn	24	..	..	..	Estab. 1945
Providence Hospital A° Gen	Gen	Church	357	208	77	2,556	11,918
Riverton Hospital for Diseases of the Chest A° Gen	Gen	NPAasn	100	88	..	..	145
Seattle General Hospital A° Gen	Gen	NPAasn	128	93	26	901	4,752
Station Hospital Gen	Gen	Army	250	138	4	..	4,312
Swedish Hospital A° Gen	Gen	NPAasn	350	278	74	3,018	11,895
U. S. Marine Hospital A° Gen	Gen	USPHS	400	387	14	215	6,556
U. S. Naval Air Station Dis- pensary Gen	Gen	Navy	87	20	10	163	1,092
University of Washington Infirmary Inst	Inst	State	75	6	..	..	716
Virginia Mason Hospital A° Gen	Gen	NPAasn	263	156	26	1,416	9,230
Washington Infirmary Ven	Ven	State	80	21	..	..	610
Washington Memorial Hosp. Gen	Gen	NPAasn	16	7	..	..	826
Sedro Woolley, 2,951—Skagit Memorial Hospital Gen	Gen	NPAasn	35	33	12	258	1,437
Northern State Hospital A° Gen	Gen	State	2,216	2,122	..	..	557
Shelton, 3,707—Mason Shelton General Hospital A° Gen	Gen	NPAasn	55	33	13	281	1,503
..... TB	TB	County	60	54	..	..	63
..... Gen	Gen	Indiv	23	12	12	300	1,041
Snoqualmie Falls, 900—King Nelems Memorial Hospital ... Gen	Gen	Indiv	21	12	6	86	474
Spokane, 122,001—Spokane Booth Memorial Hospital ... Mat	Mat	Church	34	19	16	71	99
Deaconess Hospital A° Gen	Gen	Church	200	185	44	1,908	8,574
Edgemoor Sanatorium TB	TB	County	200	126	..	..	151
Sacred Heart Hospital A° Gen	Gen	Church	400	346	53	2,614	16,005
St. Luke's Hospital A° Gen	Gen	NPAasn	265	179	26	1,321	7,261
Shriners Hospital for Crippled Children A° Gen	Gen	NPAasn	25	23	..	..	95
Station Hospital A° Gen	Gen	USAF	125	75	..	..	2,271
Stellacoom, 832—Pierce U. S. Penitentiary Hospital A Inst	Inst	USPHS	94	43	..	..	1,152
Sunnyside, 2,368—Yakima Valley Memorial Hospital ... Gen	Gen	NPAasn	23	26	12	555	1,976
Tacoma, 109,408—Pierce Doctors Hospital Gen	Gen	NPAasn	64	42	..	..	2,412
Northern Pacific Beneficial Asso- ciation Hospital A° Gen	Gen	NPAasn	100	70	7	149	3,312
Pierce County Hospital A° Gen	Gen	CyCo	215	156	24	436	4,214
St. Joseph's Hospital A° Gen	Gen	Church	279	163	67	1,853	8,779
Station Hospital Gen	Gen	USAF	75	27	..	..	1,118
Tacoma General Hosp. A° Gen	Gen	NPAasn	213	172	70	2,897	8,875
Tacoma Indian Hospital A° TB Gen	TB Gen	IA	330	238	..	..	1,937
Tonnasket, 613—Okanogan St. Martin's Hospital Gen	Gen	Church	45	37	6	212	1,114
Vancouver, 18,788—Clark Clark County Hospital Gen	Gen	County	78	54	6	58	1,117
Northern Permanente Hos- pital A° Gen	Gen	NPAasn	300	126	50	591	3,327
St. Joseph's Hospital A° Gen	Gen	Church	120	79	40	1,069	5,285

WASHINGTON—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Basinsets	Number of Births	Admissions †
Vancouver Memorial Hosp.▲ Gen	NPAssn	Vet	150	101	30	921	5,714
Veterans Admin. Hospital.... Gen			616	414	..	..	2,643
Walla Walla, 18,103—Walla Walla							
Blue Mountain Sanatorium... TB	County		55	55	..	..	35
St. Mary's Hospital▲..... Gen	Church		125	82	29	766	4,068
Veterans Admin. Hospital▲... TB	Vet		421	380	..	..	861
Walla Walla General Hosp.▲ Gen	Church		53	40	14	419	2,224
Wenatchee, 11,630—Chelan							
Central Washington Deaconess Hospital▲..... Gen	Church		50	47	20	639	2,222
St. Anthony's Hospital▲..... Gen	Church		75	51	20	501	2,026
Yakima, 27,221—Yakima							
St. Elizabeth Hospital▲..... Gen	Church		258	177	48	2,257	10,568
Yakima County Hospital.... Gen	County		93	78	7	272	2,321

Related Institutions

Arlington, 1,460—Snohomish							
Arlington General Hospital.. Gen	Indiv		18	8	8	156	1,159
Cle Elum, 2,230—Kittitas							
Roslyn Cle Elum Beneficial Company Hospital	NPAssn		24	17	1	18	358
Colville, 2,418—Stevens							
Valley View Hospital..... Gen	County		36	34	4	13	223
Ione, 681—Pend Oreille							
Ione Hospital	Indiv		10	4	5	50	340
Medical Lake, 2,114—Spokane							
Lakeland Village	MeDe		1,423	1,413	..	..	59
Seattle, 268,702—King							
Shadel Sanitarium	Alcoh		43	35	..	..	1,900
Tacoma, 109,408—Pierce							
Washington Minor Hospital.. Gen	NPAssn		21	14	..	..	1,456
White Shield Home..... Mat	NPAssn		21	17	10	50	69
Walla Walla, 18,103—Walla Walla							
Washington State Penitentiary Hospital	Inst		65	54	..	..	356
White Salmon, 955—Klickitat							
West Klickitat Hospital..... Gen	Indiv		17	No data supplied			
Yakima, 27,221—Yakima							
Yakima Valley Sanitarium... TB	Part		45	39	..	..	114

WEST VIRGINIA

Hospitals and Sanatoriums

Alderson, 1,463—Monroe							
Federal Reformatory for Women	Inst	USPHS	50	14	6	15	1,724
Barboursville, 1,550—Cabell							
Barboursville Unit of Huntington State Hospital..... MeDe	State		316	315	..	..	..
Beckley, 12,832—Randolph							
Beckley Hospital▲..... Gen	Part		171	130	15	544	6,064
Pinecrest Sanitarium..... TB	State		650	513	..	..	607
Raleigh General Hospital▲..... Gen	Corp		100	83	20	479	3,780
Bluefield, 20,641—Mercer							
Bluefield Sanitarium▲..... Gen	Corp		163	140	26	801	7,428
Brown's Hospital	Indiv		40	5	3	23	413
St. Luke's Hospital▲..... Gen	Corp		60	51	20	392	2,441
Buckhannon, 4,450—Upshur							
St. Joseph's Hospital▲..... Gen	Church		44	29	15	384	1,342
Charleston, 67,914—Kanawha							
Charleston General Hosp.▲▲ Gen	NPAssn		250	171	35	1,238	8,782
Kanawha Valley Hospital▲▲ Gen	Corp		150	122	15	726	5,559
McMullan Hospital▲..... Gen	Corp		100	75	20	828	4,180
Mountain State Memorial Hospital▲..... Gen	NPAssn		88	71	12	610	5,049
St. Francis Hospital▲..... Gen	Church		130	114	30	1,185	6,043
Salvation Army Hospital..... Gen	Church		28	12	9	230	806
Staats Hospital	Corp		62	43	12	243	1,944
Charles Town, 2,926—Jefferson							
Charles Town General Hosp.. Gen	NPAssn		21	12	8	284	757
Clarksburg, 30,579—Harrison							
St. Mary's Hospital▲..... Gen	Church		203	178	39	1,138	6,899
Union Protestant Hospital▲..... Gen	NPAssn		60	51	14	708	2,376
Denmar, 100—Pocahontas							
Denmar Sanatorium	TB		125	111	..	..	121
Elkins, 8,133—Randolph							
Davis Memorial Hospital▲..... Gen	NPAssn		103	51	19	437	2,241
Fairmont, 23,105—Marion							
Fairmont Emergency Hosp... Gen	State		68	53	10	216	1,885
Fairmont General Hosp.▲..... Gen	City		140	127	18	1,120	6,418
Gassaway, 1,429—Braxton							
Gassaway Hospital	Corp		18	13	6	148	631
Glen Dale, 1,348—Marshall							
Reynolds Memorial Hospital▲ Gen	NPAssn		98	65	19	527	3,140
Grafton, 7,431—Taylor							
Grafton City Hospital..... Gen	City		70	43	10	291	2,075
Hinton, 5,815—Summers							
Hinton Hospital	Corp		75	52	12	211	2,303
Holden, 3,000—Logan							
Holden Hospital	Part		31	19	4	107	1,421

WEST VIRGINIA—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Basinsets	Number of Births	Admissions †
Hopewell, 475—Preston							
Hopewell Sanitarium▲..... TB	State		475	372	..	..	356
Huntington, 78,836—Cabell							
Chesapeake and Ohio Hospital▲..... Gen	NPAssn		165	152	20	211	4,693
Huntington Orthopedic Hospital▲..... Gen	Orth		120	53	..	..	540
Huntington State Hospital... Ment	State		1,140	1,067	..	..	742
Memorial Hospital▲..... Gen	NPAssn		130	70	22	536	3,334
St. Mary's Hospital▲▲..... Gen	Church		300	278	50	1,886	14,470
Veterans Admin. Hospital▲..... Gen	Vet		290	259	..	..	2,956
Keyser, 6,177—Mineral							
Potomac Valley Hospital.... Gen	Corp		61	34	32	471	1,966
Kingwood, 1,676—Preston							
Kercheval Memorial Clinic-Hospital	Gen	Corp	10	9	6	101	490
Lakin, 50—Mason							
Lakin State Hospital..... Ment	State		420	410	..	..	150
Logan, 5,166—Logan							
Logan General Hospital..... Gen	Corp		100	58	20	476	4,190
Mercy Hospital	Gen	Corp	65	45	5	132	2,510
Madison, 1,205—Boone							
Madison General Hospital.... Gen	Corp		35	14	6	168	1,190
Marlington, 1,644—Pocahontas							
Pocahontas Memorial Hosp.. Gen	County		30	18	10	180	1,080
Martinsburg, 15,663—Berkeley							
City Hospital▲..... Gen	NPAssn		85	59	15	311	1,378
Kings Daughters Hospital▲ Gen	NPAssn		90	70	16	504	2,512
Veterans Admin. Center▲..... Gen	Vet		800	562	..	..	3,574
Milton, 1,641—Cabell							
Morris Memorial Hospital▲ Orth	NPAssn		125	59	..	..	414
Montgomery, 3,231—Fayette							
Laird Memorial Hospital▲ Gen	Corp		127	100	15	425	5,250
Morgantown, 16,653—Monongalia							
Heiskell Memorial Hospital▲ Gen	Indiv		91	77	25	731	4,009
Monongalia General Hosp.▲ Gen	NPAssn		125	82	24	769	3,879
New Martinsville, 3,491—Wetzel							
Wetzel County Hospital..... Gen	NPAssn		30	23	7	362	1,613
Oak Hill, 3,213—Fayette							
Oak Hill Hospital▲..... Gen	Part		75	55	8	175	2,831
Parkersburg, 30,103—Wood							
Camden-Clark Memorial Hospital▲..... Gen	City		154	..	33	..	..
St. Joseph's Hospital▲▲..... Gen	Church		170	153	30	1,036	5,748
Parsons, 2,077—Tucker							
Tucker County Hospital.... Gen	Corp		38	25	10	118	861
Phillippi, 1,953—Barbour							
Myers Clinic Hospital▲..... Gen	Part		70	57	12	263	2,027
Princeton, 7,426—Mercer							
Mercer Memorial Hospital.... Gen	Corp		58	37	12	458	2,173
Ravenswood, 1,661—Jackson							
Ravenswood Hospital	Gen	Indiv	15	6	5	57	212
Richwood, 5,051—Nicholas							
McClung Hospital	Gen	Indiv	35	15	12	189	818
Sacred Heart Hospital..... Gen	Church		36	27	10	258	2,223
Ronceverte, 2,265—Greenbrier							
Greenbrier Valley Hospital... Gen	Corp		50	46	8	156	1,693
South Charleston, 10,377—Kanawha							
Dunn Hospital	Gen	Indiv	30	11	12	165	845
Herbert J. Thomas Memorial Hospital▲..... Gen	NPAssn		77	55	16	767	3,978
Kanawha Valley Medical Center	Ven		207	86	7	..	3,148
Spencer, 2,497—Roane							
De Pue Hospital..... Gen	Indiv		21	7	5	130	481
Spencer State Hospital..... Ment	State		973	967	..	..	411
Triadelphia, 359—Ohio							
Ohio County Tuberculosis Sanatorium	TB	County	37	35	..	..	20
Welch, 6,264—McDowell							
Grace Hospital▲..... Gen	Corp		151	122	12	285	5,670
Stevens Clinic Hospital▲..... Gen	Corp		140	99	15	375	6,617
Welch Emergency Hospital... Gen	State		85	45	10	102	1,123
Weston, 8,268—Lewis							
Weston City Hospital..... Gen	Corp		60	32	14	220	1,261
Weston State Hospital▲..... Ment	State		1,963	1,879	..	..	698
Wheeling, 61,699—Ohio							
Ohio Valley General Hosp.▲▲ Gen	NPAssn		320	275	40	1,655	9,055
Wheeling Hospital▲..... Gen	Church		230	202	40	1,387	7,794
Williamson, 8,266—Mingo							
Williamson Memorial Hosp.▲ Gen	Indiv		108	83	9	525	4,430

Related Institutions

Berkeley Springs, 1,145—Morgan							
Morgan County War Memorial Hospital	Gen	County	40	23	9	120	629
Charleston, 67,914—Kanawha							
Hillcrest Sanatorium	TbChil	NPAssn	52	39	..	..	42
.....	N&M	Corp	25	8	..	..	21
.....	Gen	Indiv	27	21	12	183	1,040
Moundsville, 14,168—Marshall							
West Virginia Penitentiary Hospital	Inst	State	60	20	..	..	650
St. Mary's, 2,201—Pleasants							
West Virginia Training School	MeDe	State	120	126	..	..	17

WISCONSIN

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Basinsets	Number of Births	Admissions †
Adams, 1,310—Adams							
Adams-Friendship Hospital .. Gen	NPAssn		8	6	2	69	254
Algoma, 2,652—Kewaunee							
Algoma Hospital	NPAssn		14	8	4	156	475
Amery, 1,461—Polk							
Amery Hospital	NPAssn		10	12	6	163	684
Antigo, 9,495—Langlade							
Langlade County Memorial Hospital	Gen	Church	55	51	11	605	2,483
Appleton, 28,436—Outagamie							
St. Elizabeth Hospital*..... Gen	Church		205	138	50	2,011	6,763
Areadla, 1,830—Trempealeau							
St. Joseph's Hospital..... Gen	Church		25	21	6	158	649
Ashland, 11,101—Ashland							
St. Joseph's Hospital..... Gen	Church		132	70	18	392	3,251
Trinity Hospital	Gen	Church	60	41	8	269	1,762
Baldwin, 918—St. Croix							
Baldwin Community Hospital Gen	NPAssn		16	10	6	171	694
Baraboo, 6,415—Sauk							
St. Mary's Ringling Hospital Gen	Church		80	60	22	597	2,364
Bayfield, 1,212—Bayfield							
Pureair Sanatorium	TB	Counties	65	59	..	..	100
Beaver Dam, 10,356—Dodge							
Lutheran Deaconess Hospital Gen	Church		57	47	12	310	1,774
St. Joseph's Hospital*..... Gen	Church		75	67	19	579	3,132
Beloit, 25,365—Rock							
Beloit Municipal Hospital*... Gen	City		120	105	32	1,064	5,376
Berlin, 4,247—Green Lake							
Berlin Memorial Hospital..... Gen	NPAssn		39	27	13	313	1,308
Black River Falls, 2,639—Jackson							
Krohn Clinic and Hospital... Gen	Part		29	21	10	331	771
Boscobel, 2,008—Grant							
Brookside-Parker Hospital .. Gen	Part		21	13	8	154	509
Burlington, 4,414—Racine							
Burlington Memorial Hosp.* Gen	NPAssn		35	24	10	417	1,428
Chippewa Falls, 10,368—Chippewa							
Northern Wisconsin Colony and Training School	McDe	State	1,429	1,549	11	5	171
St. Joseph's Hospital..... Gen	Church		150	124	25	565	4,097
Clintonville, 4,134—Waupaca							
Clintonville Community Hos- pital	Gen	NPAssn	22	13	9	235	1,051
Columbus, 2,769—Columbia							
St. Mary's Hospital..... Gen	Church		56	56	12	257	1,271
Cumberland, 1,539—Barron							
Cumberland Hospital	Gen	Part	20	6	4	150	447
Dodgeville, 2,269—Iowa							
Dodgeville General Hospital.. Gen	NPAssn		23	22	4	190	1,008
St. Joseph's Hospital..... Gen	Church		61	50	16	409	1,667
Eau Claire, 30,715—Eau Claire							
Luther Hospital*..... Gen	NPAssn		193	158	32	1,024	6,396
Mt. Washington Sanatorium TB	County		91	89	..	..	87
Sacred Heart Hospital..... Gen	Church		185	152	15	796	6,367
Edgerton, 3,264—Rock							
Edgerton Memorial Hospital Gen	NPAssn		31	23	10	224	1,212
Elkhorn, 2,382—Walworth							
Lakeland Hospital*..... Gen	County		85	58	23	658	2,640
Fond du Lac, 27,209—Fond du Lac							
St. Agnes Hospital*..... Gen	Church		281	307	75	1,612	10,313
Fort Atkinson, 6,153—Jefferson							
Fort Atkinson Memorial Hos- pital	Gen	NPAssn	19	17	8	321	911
Frederie, 725—Polk							
Frederie Municipal Hospital.. Gen	City		30	18	8	204	912
Grantsburg, 874—Burnett							
Community Hospital	Gen	NPAssn	32	21	5	55	491
Green Bay, 46,235—Brown							
Bellin Memorial Hospital*... Gen	Church		104	100	22	956	3,582
St. Mary's Hospital*..... Gen	Church		100	73	25	917	3,231
St. Vincent's Hospital..... Gen	Church		225	203	25	1,069	10,010
Hartford, 3,910—Washington							
St. Joseph's Hospital..... Gen	Church		58	31	15	332	1,203
Hawthorne, 75—Douglas							
Middle River Sanatorium*... TB	County		112	98	..	..	143
Hayward, 1,571—Sawyer							
Hayward Indian Hospital.... Gen	IA		45	17	9	113	621
Hazel Green, 582—Grant							
Hazel Green Hospital..... Gen	NPAssn		25	17	6	210	780
Hillsboro, 1,146—Vernon							
Hansberry Hospital	Gen	Indiv	30	17	5	157	975
Iola, 746—Waupaca							
Iola Hospital	Gen	NPAssn	20	10	6	92	469
Janesville, 22,092—Rock							
Mersey Hospital*..... Gen	Church		200	121	50	804	4,092
Pinehurst Sanatorium*..... TB	County		75	66	..	..	86
Jefferson, 3,059—Jefferson							
Forest Lawn Sanatorium.... TB	County		58	38	..	..	79
Kaukauna, 7,382—Outagamie							
Riverview Sanatorium*..... TB	County		65	55	..	..	119
Kenosha, 47,765—Kenosha							
Kenosha Hospital*..... Gen	NPAssn		150	99	25	673	7,041

WISCONSIN—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Basinsets	Number of Births	Admissions †
St. Catherine's Hospital*.... Gen	Church		76	76	24	848	2,997
Willowbrook Sanatorium*... TB	County		45	41	..	..	41
Keshenn, 566—Shawano							
St. Joseph's Indian Hospital Gen	Fed		63	32	9	115	1,014
Kewaunee, 2,533—Kewaunee							
Whitepole-Nesemann Hospital Gen	Part		9	4	5	125	399
La Crosse, 42,707—La Crosse							
Grandview Hospital	Gen	NPAssn	80	31	10	127	1,175
La Crosse Hospital..... Gen	NPAssn		41	32	8	123	1,146
La Crosse Lutheran Hosp.*+A Gen	Church		140	125	12	371	4,677
St. Ann's Hospital..... Unlt of St. Francis Hospital	Gen		2-2	245	48	1,656	8,251
St. Francis Hospital*+A..... Gen	Church		2-2	245	48	1,656	8,251
Ladysmith, 3,671—Rusk							
St. Mary's Hospital..... Gen	Church		75	40	15	595	1,995
Lancaster, 2,963—Grant							
Grant Community Hospital.. Gen	Part		16	6	5	149	453
Lancaster General Hospital.. Gen	Part		12	9	7	114	263
Laona, 1,400—Forest							
Ovitz Hospital	Gen	Part	20	7	6	146	315
Madison, 67,147—Dane							
Lake View Sanatorium*..... TB	County		142	135	..	..	154
Madison General Hosp.*+A..... Gen	NPAssn		177	185	26	1,415	7,029
Mendota State Hospital..... Ment	State		781	719	..	..	1,162
Methodist Hospital*+A..... Gen	Church		120	110	21	446	4,553
Morningside Sanatorium.... TB	NPAssn		50	42	..	..	35
St. Mary's Hospital*+A..... Gen	Church		250	190	50	1,590	7,990
State of Wisconsin General Hospital*+A..... Gen	State		750	697	22	359	14,349
Wisconsin Orthopedic Hospi- tal for Children*..... Unlt of State of Wisconsin General Hosp.	Gen						
Manitowoc, 21,404—Manitowoc							
Holy Family Hospital*..... Gen	Church		165	167	32	1,033	5,526
Marquette, 14,183—Marquette							
Marquette General Hospital... Gen	County		80	76	25	622	3,617
Marshfield, 10,359—Wood							
St. Joseph's Hospital*+A..... Gen	Church		196	146	18	972	6,538
Mauston, 2,621—Juneau							
Mauston Hospital	Corp		45	32	10	250	1,220
Medford, 2,361—Taylor							
Medford Clinic Hospital..... Gen	Corp		58	23	8	392	1,213
Menomonie, 6,582—Dunn							
Memorial Hospital	Gen	CyCo	28	24	12	371	833
Merrill, 5,711—Lincoln							
Holy Cross Hospital*..... Gen	Church		76	57	14	385	2,283
Lincoln County Hospital..... InstGen	County		25	18	..	..	63
Milwaukee, 587,472—Milwaukee							
Columbia Hospital*+A..... Gen	NPAssn		160	132	30	1,173	5,294
Evangelical Deaconess Hos- pital*+A..... Gen	Church		135	113	32	1,607	6,547
Johnston Emergency Hosp.* Emer	City		25	..	4	14	..
Milwaukee Children's Hos- pital*+A..... Gen	Chil	NPAssn	159	108	..	..	4,878
Milwaukee County Asylum for Chronic Insane	Ment	County	2,181	2,131	..	..	354
Milwaukee County Hosp.*+A Gen	County		950	729	33	433	18,456
Milwaukee County Hospi- tal for Mental Diseases..... Ment	County		1,015	1,042	..	..	645
Milwaukee Hospital*+A..... Gen	County		285	254	66	2,629	11,650
Milwaukee Sanatorium..... Gen	Sec Wauwatosa						
Misericordia Hospital*+A..... Gen	Church		110	85	30	1,363	4,520
Mount Sinai Hospital*+A..... Gen	NPAssn		175	154	40	1,094	8,080
Muskegon Sanatorium*+S..... TB	County		692	336	..	..	549
Sacred Heart Sanatorium*..... Gen	Church		250	206	..	..	2,497
St. Anthony Hospital..... Gen	Church		111	68	40	1,378	4,652
St. Joseph's Hospital*+A..... Gen	Church		370	281	85	3,783	13,611
St. Luke's Hospital*+A..... Gen	Church		135	113	35	1,555	6,632
St. Mary's Hill Sanatorium* N&M	Church		100	71	..	..	297
St. Mary's Hospital*+A..... Gen	Church		210	195	55	1,862	9,321
St. Michael Hospital*..... Gen	Church		135	95	25	896	4,733
Shorewood Hospital-Sani- tarium..... N&M	Corp		55	51	..	..	337
South View Hospital*..... Iso	City		205	31	..	..	1,927
Veterans Admin. Center*+A..... Gen	Vet		1,463	1,308	..	..	7,837
West Side Hospital..... Gen	NPAssn		35	22	14	211	1,741
Mondovi, 2,077—Buffalo							
Gillette Hospital	Gen	Indiv	22	16	5	111	533
Mondovi Clinic Hospital..... Gen	Indiv		25	12	6	71	517
Mouree, 6,182—Green							
St. Clare Hospital..... Gen	Church		75	80	18	751	4,215
Neenah, 10,645—Winnebago							
Theda Clark Memorial Hosp.* Gen	NPAssn		68	62	18	786	2,655
Nellsville, 2,562—Clark							
Nellsville Hospital	Gen	Part	25	17	11	200	935
New London, 4,825—Waupaca							
Borchardt Clinic Memorial Hospital	Gen	NPAssn	15	11	6	101	692
Community Hospital	Gen	Church	52	35	14	421	1,456
Oconomowoc, 4,562—Waukesha							
Rogers Memorial Sanitarium N&M	NPAssn		54	49	..	..	90
Sunnit Hospital	Gen	Corp	48	42	6	157	641
Oconto Falls, 1,888—Oconto							
Oconto Falls Hospital..... Gen	City		20	10	8	254	874
Onalaska, 1,742—La Crosse							
Oak Forest Sanatorium..... TB	County		60	48	..	..	42
Oscola, 642—Polk							
Ladd Memorial Hospital..... Gen	NPAssn		14	10	2	61	544

WISCONSIN—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Basinsets	Number of Births	Admissions †
Oshkosh, 33,089—Winnebago							
Mercy Hospital*400	Gen	Church	220	152	42	1,243	7,212
Park Falls, 3,252—Price							
Park Falls Hospital.....	Gen	Indlv	25	12	4	182	631
Platteville, 4,762—Grant							
Wilson Cunningham Hospital	Gen	Part	25	9	8	112	269
Plum City, 308—Pierce							
Plum City Hospital.....	Gen	NPAasn	16	13	5	135	547
Plymouth, 4,170—Sheboygan							
Plymouth Hospital.....	Gen	Church	42	21	14	233	797
Rocky Knoll Sanatorium*4	TB	County	78	55	..	..	97
Portage, 7,016—Columbia							
Divine Savior's Hospital*4	Gen	Church	91	68	14	539	2,831
Port Washington, 4,016—Ozaukee							
St. Alphonsus Hospital.....	Gen	Church	70	51	15	455	2,181
Prairie du Chien, 4,322—Crawford							
Beaumont Hospital.....	Gen	NPAasn	21	11	8	156	501
Prairie du Chien Sanitarium							
Hospital.....	Gen	NPAasn	55	37	8	236	2,142
Prescott, 837—Pierce							
St. Croixdale Sanitarium... Gen	N&M Corp		67	60	2	25	386
Racine, 67,195—Racine							
St. Luke's Hospital*40	Gen	Church	97	89	34	1,066	3,951
St. Mary's Hospital*4	Gen	Church	250	125	51	1,127	7,033
Sunny Rest Sanatorium.....	TB	County	80	75	..	..	85
Reedsburg, 3,008—Sauk							
Reedsburg Municipal Hospital	Gen	City	30	25	10	360	1,170
Rhinelander, 8,501—Oneida							
St. Mary's Hospital.....	Gen	Church	75	70	10	543	2,915
Rice Lake, 5,719—Barron							
Lake-side Methodist Hospital	Gen	Church	50	33	14	401	1,959
St. Joseph's Hospital.....	Gen	Church	40	35	12	372	2,285
Richland Center, 4,351—Richland							
Richland Hospital.....	Gen	NPAasn	73	56	15	644	2,643
Ripon, 4,774—Fond du Lac							
Ripon Municipal Hospital... Gen	City		23	17	10	207	710
River Falls, 2,806—Pierce							
City Hospital.....	Gen	City	25	18	8	194	647
St. Croix Falls, 1,097—Polk							
St. Croix Falls Hospital.... Gen	NPAasn		20	11	5	117	536
Shawano, 5,565—Shawano							
Shawano Municipal Hospital	Gen	NPAasn	65	56	20	483	2,060
Sheboygan, 40,638—Sheboygan							
St. Nicholas Hospital.....	Gen	Church	222	179	40	1,181	7,040
Sheboygan Memorial Hospital	Gen	NPAasn	110	85	20	568	3,283
Shullsburg, 1,187—Lafayette							
Shullsburg Hospital.....	Gen	Indlv	12	6	4	22	200
South Milwaukee, 11,134—Milwaukee							
South Milwaukee Hospital... Gen	Indlv		16	10	6	285	640
Sparta, 5,820—Monroe							
St. Mary's Hospital.....	Gen	Church	65	42	20	617	2,578
Stanley, 2,021—Chippewa							
Victory Hospital.....	Gen	NPAasn	21	12	7	374	914
Statesan, 110—Waukesha							
Wisconsin State Sanatorium*4	TB	State	211	157	..	..	96
Stevens Point, 15,777—Portage							
River Plains Sanatorium*4	TB	Church	62	60	..	..	51
St. Michael's Hospital*4	Gen	Church	135	119	35	790	5,029
Stoughton, 4,743—Dane							
Stoughton Hospital.....	Gen	NPAasn	36	23	12	307	1,093
Sturgeon Bay, 5,439—Door							
Door County Memorial Hosp. Gen	NPAasn		60	37	17	431	2,197
Superior, 35,126—Douglas							
St. Francis Hospital.....	Gen	Church	50	43	10	318	1,667
St. Joseph's Hospital.....	Gen	Church	38	33	14	445	1,410
St. Mary's Hospital*4	Gen	Church	133	106	25	378	3,031
Tomah, 3,517—Monroe							
Veterans Admin. Hospital*4	Ment	Yct	1,172	674	..	..	843
Tomahawk, 3,265—Lincoln							
Sacred Heart Hospital.....	Gen	Church	42	33	6	163	1,216
Two Rivers, 10,392—Manitowoc							
Two Rivers Municipal Hosp. Gen	City		55	36	12	376	1,993
Union Grove, 973—Racine							
Southern Wisconsin Colony and Training School.....	MeDe	State	902	905	..	..	143
Veterans Administration, Milwaukee							
Veterans Admin. Center.....	See Milwaukee						
Viroqua, 3,549—Vernon							
Vernon Memorial Hospital... Gen	NPAasn		28	26	7	333	1,212
Washburn, 2,363—Bayfield							
Washburn Hospital.....	Gen	NPAasn	15	10	5	61	413
Watertown, 11,301—Jefferson							
St. Mary's Hospital.....	Gen	Church	83	80	20	762	2,978
Waukesha, 19,242—Waukesha							
Milwaukee Children's Hospital							
Convalescent Home.....	Unit of Milwaukee Children's Hospital						
Veterans Admin. Hospital*4	TB	Vet	240	214	..	..	266
Waukesha Memorial Hosp.*4	Gen	City	95	72	31	1,103	3,731
Waupaca, 3,458—Waupaca							
Mirror Lake Hospital.....	Gen	NPAasn	12	9	5	120	447
Waupaca Hospital.....	Gen	Part	17	11	6	54	427
Waupun, 6,798—Fond du Lac							
Central State Hospital.....	Ment	State	350	345	..	..	125
Wausau, 27,269—Marathon							
Mount View Sanatorium.....	TB	County	74	64	..	..	59
St. Mary's Hospital*40	Gen	Church	205	172	45	1,083	7,704
Wausau Memorial Hospital*4	Gen	NPAasn	95	80	25	596	3,624

WISCONSIN—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Basinsets	Number of Births	Admissions †
Wauwatosa, 27,769—Milwaukee							
Milwaukee Sanitarium*4	N&M Corp		147	135	..	..	343
West Bend, 3,452—Washington							
St. Joseph's Hospital.....	Gen	Church	100	56	24	399	2,395
West dePere, Brown							
Hickory Grove Sanatorium... TB	County		86	75	..	..	67
Whitehall, 1,093—Trempealeau							
Whitehall Community Hosp. Gen	NPAasn		34	30	9	193	1,579
Whiteland, 225—Manitowoc							
Maple Crest Sanatorium..... TB	County		46	35	..	..	69
Wild Rose, 539—Waushara							
Wild Rose Hospital.....	Gen	NPAasn	24	21	6	31	207
Winnebago, 150—Winnebago							
Sunny View Sanatorium..... TB	Counties		77	68	..	..	88
Winnebago State Hospital*6	Ment	State	949	918	..	..	1,224
Wisconsin Rapids, 11,416—Wood							
Riverview Hospital.....	Gen	NPAasn	85	57	25	836	3,186
Wood, Milwaukee							
Veterans Admin. Center.....	See Milwaukee						
Related Institutions							
Appleton, 28,436—Outagamie							
Outagamie County Hospital... Ment	County		268	262	..	..	37
Chippewa Falls, 10,368—Chippewa							
Chippewa County Hospital... Ment	County		375	373	..	..	...
Dodgeville, 2,260—Iowa							
Iowa County Hospital.....	Ment	County	194	171	..	..	175
Eau Claire, 30,745—Eau Claire							
Eau Claire County Hospital... Ment	County		230	243	..	..	64
Elkhorn, 2,382—Walworth							
Walworth County Hospital... Ment	County		236	234	..	..	237
Fond du Lac, 27,208—Fond du Lac							
Fond du Lac County Hosp... Ment	County		332	318	..	..	44
Green Bay, 46,235—Brown							
Brown County Hospital.....	Ment	County	316	314	..	..	269
Wisconsin State Reformatory							
Hospital.....	Inst	State	10	4	..	..	150
Itasca, Douglas							
Douglas County Hospital and							
Tuberculosis Sanatorium... Ment	Tb County		362	361	..	..	106
Parkland Sanatorium.....	Unit of Douglas County Hospital and Tuberculosis Sanatorium						
Janesville, 22,092—Rock							
Rock County Hosp. and Home	Ment	County	325	317	..	..	99
Jefferson, 3,059—Jefferson							
Jefferson County Hospital... Ment	County		270	272	..	..	44
Juneau, 1,301—Dodge							
Dodge County Hospital.....	Ment	County	215	214	..	..	271
... Gen	Indlv		7	1	1	17	88
... np TB	State		48	32	..	..	95
Grant County Hospital.....	Ment	County	242	228	..	..	12
Madison, 67,447—Dane							
East Washington Avenue							
Hospital.....	Iso	City	60	7	..	..	120
... Ment	County		222	222	..	..	18
... Ment	County		253	251	..	..	11
... Ment	County		185	185	..	..	36
Layton Home.....	Unit of Milwaukee Hospital						
Milwaukee County Home for							
Dependent Children.....	Inst	County	75	64	..	..	2,079
St. Camillus Hospital.....	Chr	Church	85	84	..	..	33
Salvation Army Martha Wash-							
ington Women's Home and							
Hospital.....	Mat	Church	76	41	15	205	225
Shore View Home.....	Conv	Corp	59	53	..	..	...
Monroe, 6,182—Green							
Green County Hospital.....	Ment	County	291	244	..	..	58
New Richmond, 2,388—St. Croix							
St. Croix County Hospital... Ment	County		177	178	..	..	15
Oconto, 5,362—Oconto							
Oconto County and City							
Hospital.....	Gen	NPAasn	42	19	15	193	776
Oshkosh, 39,089—Winnebago							
Alexian Brothers Hospital... N&M	Church		84	80	..	..	49
Owen, 1,083—Clark							
Clark County Hospital.....	Ment	County	390	355	..	..	45
Peshigo, 1,947—Marinette							
Marinette County Hospital... Ment	County		310	292	..	..	48
Racine, 67,195—Racine							
Lincoln Memorial Hospital... Iso	City		50	6	..	..	129
Racine County Hospital and							
Home.....	Inst	Ment	487	472	..	..	152
Reedsburg, 3,608—Sauk							
Sauk County Hospital and							
Home.....	Ment	County	250	190	..	..	40
Richland Center, 4,364—Richland							
Richland County Hospital... Ment	County		154	172	..	..	19
Shawano, 5,565—Shawano							
Shawano County Hospital... Ment	County		190	190	..	..	27
Sheboygan, 40,638—Sheboygan							
... Hospital							
... Ment	County		300	285	..	..	58
Shen Lake Hospital.....	Gen	NPAasn	13	8	5	172	757
Sparta, 5,820—Monroe							
Monroe County Hospital....	Ment	County	190	192	..	..	40

Key to symbols and abbreviations is on page 37

WISCONSIN—Continued

Related Institutions	Type of Service	Ownership or Control	Beds	Average Census †	Basinsets	Number of Births	Admissions †
Superior, 35,136—Douglas Douglas County Hospital and Tuberculosis Sanatorium... See Itasca							
Verona, 535—Dane Dane County Hospital and Home	Ment	County	293	286	..	...	26
Viroqua, 3,549—Vernon Vernon County Hospital....	Ment	County	161	161	..	...	212
Watertown, 11,301—Jefferson Bethesda Lutheran Home....	McDe	Church	353	340	..	...	8
Waukesha, 19,242—Waukesha Waukesha County Hospital..	Ment	County	230	214	..	...	67
Waupun, 6,798—Fond du Lac Wisconsin State Prison Hosp.	Inst	State	21	20	..	...	406
Wausau, 27,268—Marathon Marathon County General Hospital	Inst	County	60	50	..	...	101
Marathon County Hospital..	Ment	County	225	218	..	...	59
Wauwatosa, 27,769—Milwaukee Milwaukee County Home for Dependent Children	See Milwaukee						
St. Camillus Hospital.....	See Milwaukee						
Salvation Army Martha Wash- ington Women's Home and Hospital	See Milwaukee						
West Bend, 5,452—Washington Washington County Hospital	Ment	County	172	150	..	...	31
West Salem, 1,251—La Crosse La Crosse County Hospital..	Ment	County	201	287	..	...	37
Weyauwega, 1,173—Waupaca Waupaca County Hospital....	Ment	County	193	193	..	...	28
Whitehall, 1,635—Trempealeau Trempealeau County Hospital	Ment	County	180	161	..	...	32
Winnebago, 156—Winnebago Winnebago County Hospital..	Ment	County	261	265	..	...	29
Wyocena, 766—Columbia Columbia County Hospital... Ment	County		325	312	..	...	314

WYOMING

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Basinsets	Number of Births	Admissions †
Alton, 1,211—Lincoln Latter Day Saints Star Valley Hospital	Gen	Church	12	6	6	199	580
Basin, 1,099—Big Horn Basin Hospital	Gen	Part	13	3	5	86	675
Wyoming State Sanatorium... TB	State		31	29	..	...	42
Casper, 17,961—Natrona Memorial Hospital of Natrona County... Gen	County		141	115	21	501	4,958
Cheyenne, 22,474—Laramie Memorial Hospital of Laramie County... Gen	County		122	114	28	981	5,563
Station Hospital	Gen	Army	320	91	8	208	4,002
Veterans Admin. Center.....	Gen	Vet	201	142	..	...	2,528
Cody, 2,526—Park Cody Hospital	Gen	NPA's'n	53	40	12	319	1,500
Douglas, 2,203—Converse Converse County Memorial Hospital	Gen	County	40	21	9	130	102
Evanston, 3,605—Union Wyoming State Hospital... Ment	State		631	591	..	...	187
Fort Washakie, 150—Fremont Wind River Indian Hospital..	Gen	IA	41	12	6	95	551
Gillette, 2,177—Campbell McHenry Hospital	Gen	Indiv	19	9	6	32	284
Greybull, 1,828—Big Horn St. Luke's Hospital.....	Gen	Part	12	6	5	87	505
Jackson, 1,046—Teton St. John's Hospital.....	Gen	Church	28	12	7	109	816
Kemmerer, 2,026—Lincoln Lincoln County Miner's Hosp.	Gen	NPA's'n	25	6	6	98	518
Lander, 2,591—Fremont Bishop Randall Hospital....	Gen	Church	20	17	10	161	708
Laramie, 10,627—Albany Iverson Memorial Hospital... Gen	County		85	49	17	503	3,526
Lovell, 2,175—Big Horn Lovell Hospital	Gen	Part	22	8	8	152	714
Lusk, 1,814—Mohrara Spencer Hospital	Gen	Indiv	23	14	7	76	1,092
Rock Springs, 9,827—Sweetwater Memorial Hospital of Sweet- water County	Gen	County	114	62	20	603	4,050
Sheridan, 10,529—Sheridan Memorial Hospital of Sheridan County	Gen	County	89	53	16	397	2,350
Veterans Admin. Hospital... Ment	Vet		900	717	..	...	1,012
Wheatland, 2,110—Platte Wheatland General Hospital... Gen	NPA's'n		41	25	7	109	2,091
Worland, 2,710—Washakie Worland Hospital	Gen	Corp	19	12	8	145	408
Related Institutions	Type of Service	Ownership or Control	Beds	Average Census †	Basinsets	Number of Births	Admissions †
Hanna, 1,127—Carbon Hanna Hospital	Gen	NPA's'n	12	5	3	55	500
Lander, 2,591—Fremont Wyoming State Training School	MeDe	State	405	393	..	...	25
..... Gen	Indiv		11	7	11	123	357
..... Gen	Part		35	13	2	3	277

ALASKA

Hospitals, Sanatoriums and Related Institutions	Type of Service	Ownership or Control	Beds	Average Census †	Basinsets	Number of Births	Admissions †
Anchorage, 3,405 Providence Hospital	Gen	Church	86	56	21	548	2,969
Barrow, 363 Point Barrow Hospital.....	Gen/Tb	Fed	20	5	4	53	111
Bethel, 376 Alaska Native Service Hosp... Gen	IA		43	42	6	51	848
Cordova, 938 Cordova Community Hosp... Gen	NPA's'n		21	12	3	40	369
Fairbanks, 3,455 St. Joseph's Hospital.....	Gen	Church	58	45	10	315	2,070
Fort Yukon, 274 Hudson Stuck Memorial Hos- pital... Gen	Church		36	19	3	30	265
Juneau, 5,729 Alaska Native Service Hosp. Gen/Tb	IA		59	45	5	44	323
St. Ann's Hospital.....	Gen	Church	55	32	10	220	1,101
Kanakanak, 133 Alaska Native Service Hosp. Gen	IA		31	21	6	13	273
Ketchikan, 4,695 Ketchikan General Hospital.. Gen	Church		75	57	20	227	1,790
Kodiak, 161 Griffin Memorial Hospital... Gen	Church		19	11	7	89	577
U. S. Naval Air Station Dis- pensary	Gen	Navy	165	17	9	29	794
Kotzebue, 372 Alaska Native Service Hosp... Gen	IA		17	16	..	...	214
Nome, 1,559 Maynard-Columbus Hospital Gen	Church		15	7	4	36	201
Palmer, 150 Matanuska Valley Hospital.. Gen	NPA's'n		18	9	6	56	570
Petersburg, 1,233 Petersburg General Hospital.. Gen	City		9	4	4	34	252
St. Paul Island, 259 St. Paul Island Hospital.... Gen	Fed		10	2	3	12	26
Seldovia, 416—Alaska Seldovia General Hospital... Gen	City		6	3	2	20	100
Seward, 919 Seward General Hospital.... Gen	Church		39	14	4	65	1,456
Sitka, 1,957 Monterey Home Hospital... Inst	Ter		50	...	...	...	...
Skagway, 631 Pacific and Arctic Railway and Navigation Company Hosp. Gen	NPA's'n		10	...	2	25	...
Tahuna, 159 Tahuna Hospital	Gen	IA	31	21	4	4	56
Valdez, 529 Valdez Community Hospital Gen	NPA's'n		40	...	6	...	...
Wangai, 1,162 Bishop Howe General Hosp... Gen	Church		14	1	5	28	361

CANAL ZONE

Hospitals, Sanatoriums and Related Institutions	Type of Service	Ownership or Control	Beds	Average Census †	Basinsets	Number of Births	Admissions †
Ancon, 1,946 Gorgas Hospital*+A	Gen	Fed	531	580	51	1,074	11,773
Balboa, 3,022 Palo Seco Leprosy Colony.....	Lepro	Fed	140	112	..	...	5
Coco Solo, 56 U. S. Naval Hospital.....	Gen	Navy	150	73	10	221	2,036
Corozal, 1,370 Corozal Hospital	Ment	Fed	487	325	..	...	195
Cristobal, 1,226 Colon Hospital	Gen	Fed	369	157	28	573	4,236
Fort Clayton, 3,895 Station Hospital	Gen	Army	329	179	21	446	4,140

GUAM

Hospitals, Sanatoriums and Related Institutions	Type of Service	Ownership or Control	Beds	Average Census †	Basinsets	Number of Births	Admissions †
Agaña U. S. Naval Hospital*.....	Gen	Navy	450	245	11	177	4,970

HAWAII

Hospitals, Sanatoriums and Related Institutions	Type of Service	Ownership or Control	Beds	Average Census †	Basinsets	Number of Births	Admissions †
Ala, 3,553—Honolulu U. S. Naval Hospital.....	Gen	Navy	700	510	20	828	8,652
Ewa, 3,570—Honolulu Ewa Plantation Company Hospital	Gen	NPA's'n	44	20	6	151	1,169
Hahana, —Hawaii Honokaa Plantation Hospital Gen	NPA's'n		30	11	2	57	427
Hakaha, 525—Hawaii Hakaha Plantation Hospital Gen	NPA's'n		20	10	3	48	352
Hana, 293—Mau Hana County Hospital.....	Gen	County	25	6	4	29	325
Hilo, 23,351—Hawaii Hilo Memorial Hospital... Gen	County		183	120	22	667	5,062
Dr. Z. Matayoshi Hospital... Gen	Indiv		42	8	2	35	429
Puunahale Hospital	Gen	County	128	112	..	...	111
Honokaa, 1,669—Hawaii Okada Hospital	Gen	Indiv	6	2	3	63	142
Honolulu, 179,359—Honolulu Kalihi Hospital	Lepro	Ter	41	14	..	...	136
Kapiolani Maternity and Gynecological Hospital*.....	MatGyn	NPA's'n	115	66	87	3,507	4,470

Key to symbols and abbreviations is on page 37

PUERTO RICO—Continued

Hospitals, Sanatoriums and Related Institutions	Type of Service	Ownership or Control	Beds	Average Census †	Bassinets	Number of Births	Admissions
Humacao, 7,621—Humacao							
Clinica Oriente	Gen	Indiv	83	60	4	21	1,534
Ryder Memorial Hospital....	Gen	Church	57	45	14	255	1,806
Jayuya, 1,803—Ponce							
Catalina Figueras Memorial Hospital	Gen	City	14	13	..	...	1,356
Juana Diaz, 3,931—Ponce							
Municipal Hospital	Gen	City	42	...	5	...	...
Manatí, 6,771—Arecibo							
Manatí Municipal Hospital....	Gen	City	50	...	8	...	...
Mayaguez, 50,371—Mayaguez							
Clinica Betances	Gen	Indiv	100	36	10	19	1,234
Clinica Drs. Perea	Gen	Part	163	105	36	550	4,253
Tuberculosis Hospital	TB	Govt	200	142	..	...	...
Ponce, 65,179—Ponce							
Clinica Quirúrgica Dr. Pila*▲◊	Gen	NP-Assn	217	149	11	97	3,700
Hospital Municipal Valentin Tricoche	Gen	City	180	175	20	720	5,043
Hospital Santo Asilo de Damas◊	Gen	Church	165	87	20	234	2,863
St. Luke's Memorial Hosp.◊ ..	Gen	Church	99	51	12	178	2,039
Tuberculosis Hospital	TB	Govt	300	291	..	...	466
Rio Piedras, 19,933—San Juan							
Clinica Antillas	TB	Corp	95	72	..	...	500
Clinica Pereira Leal	Gen	Indiv	140	94	15	322	2,573
Hospital for the Lepers	Lepro	Govt	80	51	..	...	60
Insular Hosp. of Psychiatry..	Ment	Govt	1,200	1,550	..	...	664
Insular Tuberculosis Sanatorium▲	TB	Govt	800	801	..	...	846
Salinas, 3,176—Guayama							
Salinas Municipal Hospital...	Gen	City	50	26	6	200	1,922
San Juan, 169,253—San Juan							
Clinica Miramar Hospital....	Gen	Indiv	160	30	5	1	213
Hospital Pavia▲◊	Gen	Corp	76	57	13	342	1,539
Hospital San Jose	Gen	Corp	100	25	16	82	1,356
Ophthalmic Institute of Puerto Rico	Eye	Corp	60	53	..	...	2,203
Presbyterian Hospital*▲◊ ...	Gen	Church	100	74	22	719	2,567
Rodriguez General Hospital...	Gen	Army	500	315	17	307	5,412
San Juan City Hospital*▲◊ ..	Gen	City	366	303	82	4,016	10,912
U. S. Marine Hospital▲	Gen	USPHS	90	67	..	...	1,226
University Hospital*▲	Gen	Govt	54	21	..	...	846
Veterans Admin. Hospital....	Gen	Vet	200	189	..	...	2,929
Santurce,—San Juan							
Hospital Mimiyá	Gen	Indiv	100	33	15	43	716
Utudelo, 4,430—Arecibo							
Clinica San Miguel	Gen	Indiv	90	41	4	5	2,011

Hospitals, Sanatoriums and Related Institutions

UNITED STATES ARMY HOSPITALS IN THE EUROPEAN COMMAND

AUSTRIA

	Type of Service	Beds	Average Census †	Bassinets	Number Births	Admissions ‡
AUSTRIA						
Linz						
124th Station Hospital.....	Gen	150	65	10	65	2,207
Vienna						
110th Station Hospital. ...	Gen	150	116	10	130	3,794
GERMANY						
Bayreuth						
120th Station Hospital.....	Gen	500	300	6	60	1,217
Berlin						
279th Station Hospital.....	Gen	350	221	20	164	6,879
Bremerhaven						
319th Station Hospital.....	Gen	550	274	14	172	6,877
Frankfurt a/Main						
97th General Hospital.....	Gen	983	576	17	543	15,341
Gießen						
388th Station Hospital.....	Gen	250	167	9	93	5,220
Münch						
98th General Hospital.....	Gen	1,000	560	35	557	14,860
Nürnberg						
353th Station Hospital.....	Gen	350	206	12	257	9,076
Regensburg						
250th Medical Station Hos- pital	Gen	150	119	6	88	4,012
Rohrbach						
150th Station Hospital.....	Gen	250	224	10	133	7,331
Stuttgart-Bad Cannstatt						
357th Station Hospital.....	Gen	500	412	12	139	7,106
Wiesbaden						
317th Station Hospital.....	Gen	363	217	10	155	4,395

Key to symbols and abbreviations is on page 37

SCHOOLS FOR X-RAY TECHNICIANS

In this issue of THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION the Council on Medical Education and Hospitals again presents a list of approved schools for x-ray technicians. During the past year 14 schools were approved and one course discontinued. The 224 schools currently listed have reported a total of 1,176 students, as compared with 948 enrolments last year. There were 656 graduates, an increase of 157 over the previous year. As newly approved programs are further developed and classes enlarged in other schools, a still greater number of trained x-ray technicians will be available during the ensuing year.

Of the 224 schools approved, 198 have indicated high school graduation as a prerequisite for admission. Various other requirements are in effect in the remaining 26 schools, ranging from one to four years of college and graduation from an accredited school of nursing. A majority of the schools report that no tuition is charged; a majority, also, accept men students for training. As will be noted by referring to the list, each course is under the direction of a radiologist.

A brief history of the development of the list of approved schools for x-ray technicians by the Council may be of interest. The American Registry of X-Ray Technicians, which is sponsored by the American College of Radiology, requested the American Medical Association to assume the responsibility of approving schools for x-ray technicians. The Essentials of an

Acceptable School for X-Ray Technicians were formulated and published originally in THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION Jan. 13, 1945. The Registry and the American College of Radiology worked with the Council in the preparation of these Essentials, officially adopted by the House of Delegates in June 1944, and in the preparation of the first list approved by the Council, also published Jan. 13, 1945. This list contained the names of 112 schools which substantially conformed to the minimum standards; 478 students were enrolled. Candidates for admission should satisfy one of the following requirements:

1. Completion of the four years of high school. Courses in physics, algebra, geometry and chemistry are recommended.
2. Passing of a college entrance examination for admission to an accredited college or university.
3. Graduation from a school of nursing recognized by the state board of nurse examiners.

Correspondence regarding schools for x-ray technicians should be addressed to the Council on Medical Education and Hospitals. Graduates desiring registration should communicate with the American Registry of X-Ray Technicians, 2900 East Minnehaha Parkway, Minneapolis 6.

APPROVED SCHOOLS FOR X-RAY TECHNICIANS

Council on Medical Education and Hospitals of the American Medical Association

NOTE: Complete details regarding admission to an approved school for x-ray technicians can be obtained by communicating directly with the radiologist. Asterisk (*) after name of school indicates that male as well as female students are admitted.

Name and Location of School	Radiologist in Charge	Entrance Requirements	Length of Training in Months	Maximum Enrollment	Classes Begin	Tuition	Certificate, Diploma, Degree
ARIZONA							
St. Monica's Hospital, Phoenix *	J. Foster, M.D.	High school	18	2	Varies	None †	Certificate
ARKANSAS							
University Hospital, Little Rock *	I. Meschan, M.D.	High school	12	12	Feb-Aug	\$180	Certificate
CALIFORNIA							
Herick Memorial Hospital, Berkeley *	W. A. Ward, M.D.	High school	24	4	Quarterly	\$100 gr. †	Certificate
California Hospital, Los Angeles *	W. Himmstra, M.D.	High school	24	4	Varies	\$50 †	Certificate
Cedars of Lebanon Hospital, Los Angeles *	E. Freedman, M.D.	High school	12	3	Quarterly	None	Certificate
College of Medical Evangelists, Los Angeles *	W. Stillson, M.D.	1 yr. college	12	6	Every 2 mo.	\$100	Diploma
Los Angeles County Hospital, Los Angeles *	R. A. Carter, M.D.	2 yrs. coll. or R.N.	12	8	Varies	None †	Certificate
Collis P. and Howard Huntington Memorial Hospital, Pasadena	R. S. Harrison, M.D.	2 yrs. college	12	3	Sept	\$25	Certificate
Mercy Hospital, Sacramento	J. D. Lawson, M.D.	High school	12	3	Jan-July	None	Certificate
COLORADO							
Colorado General Hospital, Denver	M. H. Levine, M.D.	High school	12	8	Feb-Aug	\$50	Certificate
Denver General Hospital, Denver *	J. H. Weiss, M.D.	High school	12	6	Jan-July	None	Certificate
Presbyterian Hospital, Denver	K. D. A. Allen, M.D.	High school	12	4	Jan-July	None	Certificate
St. Anthony Hospital, Denver	J. S. Bouslog, M.D.	1 yr. college	12	8	Jan-June	None	Certificate
St. Luke's Hospital, Denver *	W. P. Stumpff, M.D.	High school	12	5	Quarterly	None	Cert. & Dipl.
Weld County Hospital, Greeley *	W. W. McCaw, M.D.	1 yr. college	12	3	Every 6 mo.	None	Diploma
CONNECTICUT							
Hartford Hospital, Hartford *	R. T. Ogden, M.D.	High school	24	4	June	None	Certificate
Grace Unit, Grace-New Haven Community Hospital, New Haven *	R. M. Lowman, M.D.	High school	18-24	8	Every 6 mo.	None	Certificate
New Haven Unit, Grace-New Haven Community Hospital, New Haven *	A. H. Janzen, M.D.	1 yr. coll. or R.N.	24	6	July	None †	Certificate
Hospital of St. Raphael, New Haven *	R. Shapiro, M.D.	High school	18	4	July	None	Certificate
GEORGIA							
Crawford W. Long Memorial Hospital, Atlanta *	W. F. Lake, M.D.	High school	12	7	Jan-July	None	Certificate
Georgia Baptist Hospital, Atlanta *	L. Long, M.D.	High school	12	3	Jan-June	None	Cert. & Dipl.
Grady Memorial Hospital, Atlanta *	H. S. Weens, M.D.	High school	12	8	Quarterly	None	Certificate
Piedmont Hospital, Atlanta	G. R. Hirdleka, M.D.	High school	12	2	Every 6 mo.	None	Certificate
University Hospital, Augusta *	L. P. Holmes, M.D.	High school	12	8	Varies	None	Certificate
Emory University Hospital, Emory Univ. *	T. F. Leigh, M.D.	2 yrs. college	12	4	Every 4 mo.	None	Certificate
IDAHO							
St. Alphonsus Hospital, Boise *	J. B. Morris, M.D.	High school	12	3	Spring & Fall	None †	Diploma
St. Luke's Hospital, Boise *	A. M. Popma, M.D.	High school	15	4	Spring & Fall	None	Certificate
Mercy Hospital, Nampa *	N. Bolker, M.D.	High school	12	3	Spring & Fall	None	Certificate
ILLINOIS							
Alexian Brothers Hospital, Chicago *	M. Indovina, M.D.	High school	24	3	Jan-June	None †	Certificate
St. Joseph Hospital, Chicago	D. S. Beilin, M.D.	1 yr. coll. or R.N.	18	2	Feb-July	None †	Diploma
St. Luke's Hospital, Chicago	J. P. Sammet, M.D.	High school	12	3	Quarterly	None	Certificate
School of Medicine, Chicago *	G. M. Landau, M.D.	High school	12	12	Jan-July	\$150	Certificate

APPROVED SCHOOLS FOR X-RAY TECHNICIANS—Continued

Name and Location of School	Radiologist in Charge	Entrance Requirements	Length of Training in Months	Maximum Enrollment	Classes Begin	Tuition	Certificate, Diploma, Degree
ILLINOIS—Continued							
Edgewater Hospital, Chicago *	N. S. Zeitlin, M.D.	High school	12	10	Varies	\$360	Certificate
Englewood Hospital, Chicago *	B. C. Cushman, M.D.	High school	18	2	AprOct	None †	Certificate
Evangelical Hospital, Chicago *	B. C. Cushman, M.D.	High school	18	2	AprOct	None †	Certificate
Michael Reese Hospital, Chicago	R. A. Arens, M.D.	1 yr. college	18	6	Varies	None †	Certificate
Mount Sinai Hospital, Chicago	J. Arendt, M.D.	High school	12	6	Every 6 mo.	None	Certificate
Notre-Dame Hospital, Chicago *	R. H. Warden, M.D.	High school	24	6	Spring & Fall	\$250 yr.	Certificate
Providence Hospital, Chicago *	W. P. Quinn, M.D.	High school	12	7	Quarterly	\$150	Certificate
Lavenswood Hospital, Chicago	D. L. Jenkinson, M.D.	High school	18	4	Varies	None	Diploma
St. Bernard's Hospital, Chicago *	B. C. Cushman, M.D.	High school	18	6	AprOct	None †	Certificate
St. Elizabeth Hospital, Chicago *	J. Brams, M.D.	High school	12	2	Varies	None †	Certificate
St. George's Hospital, Chicago *	B. C. Cushman, M.D.	High school	18	3	AprOct	None †	Certificate
St. Joseph Hospital, Chicago	W. E. Anspach, M.D.	High school	12	2	Sept	None	Certificate
St. Luke's Hospital, Chicago	E. L. Jenkinson, M.D.	High school	18	13	Varies	\$50	Diploma
St. Mary of Nazareth Hospital, Chicago *	C. J. Challenger, M.D.	High school	24	5	Varies	\$35 †	Diploma
South Chicago Community Hospital, Chicago *	B. D. Braun, M.D.	High school	18	5	Varies	None †	Certificate
Woodlawn Hospital, Chicago *	H. A. Olin, M.D.	High school	18	3	Varies	None †	Certificate
Dixon Public Hospital, Dixon *	R. E. Kinzer, M.D.	High school	12	2	Varies	None	Diploma
St. Francis Hospital, Evanston	A. C. Ledoux, M.D.	High school	12	4	JanJuly	\$50 †	Certificate
John C. Proctor Hospital, Peoria *	P. B. Goodwin, M.D.	High school	12-24	5	Every 6 mo.	\$100	Certificate
Methodist Hospital for Central Illinois, Peoria *	F. H. Decker, M.D.	High school	12	2	Varies	None	Certificate
St. Francis Hospital, Peoria *	P. R. Dirkse, M.D.	High school	24	3	FebSept	\$100	Certificate
St. Anthony's Hospital, Rockford	T. J. Lang, M.D.	High school	18	4	Spring & Fall	\$25	Diploma
Swedish-American Hospital, Rockford	H. W. Ackemann, M.D.	High school	18	3	JanJuly	None	Cert. & Dipl.
Memorial Hospital, Springfield *	E. King, M.D.	High school	12	5	JanSept	None	Certificate
St. John's Hospital, Springfield	W. DeHollander, M.D.	High school	12	6	Sept	\$50	Certificate
INDIANA							
St. Catherine Hospital, East Chicago	B. D. Braun, M.D.	High school	18	8	Every 2 mo.	\$100	Diploma
St. Joseph Hospital, Fort Wayne *	C. H. Warfield, M.D.	High school	24	2	August	\$100 †	Certificate
Methodist Hospital, Gary *	J. P. Bennett, M.D.	High school	12	4	JanJuly	None †	Cert. & Dipl.
Indiana University Medical Center, Indianapolis *	J. A. Campbell, M.D.	High school	12-16	6	FebSept	None	Certificate
Methodist Hospital, Indianapolis *	H. C. Ochsner, M.D.	High school	12-24	6	Varies	None †	Diploma
St. Anthony Hospital, Terre Haute *	H. J. Pierce, M.D.	High school	12	3	Every 6 mo.	\$50	Certificate
IOWA							
Mercy Hospital, Cedar Rapids *	A. W. Erskine, M.D.	High school	24	4	August	None	Certificate
St. Luke's Methodist Hospital, Cedar Rapids	J. V. Prouty, M.D.	High school	12	2	JanJuly	None	Certificate
Finley Hospital, Dubuque *	R. P. Rusk, M.D.	High school	24	3	Every 6 mo.	\$200	Certificate
St. Joseph Mercy Hospital, Dubuque *	R. P. Rusk, M.D.	High school	24	3	Every 6 mo.	\$100	Certificate
University Hospitals, Iowa City *	H. D. Kerr, M.D.	High school	12	12	Every 6 wks.	None	Certificate
St. Joseph Mercy Hospital, Sioux City *	M. M. McCuiston, M.D.	High school	24	2	FebSept	None †	Diploma
KANSAS							
Bethany Hospital, Kansas City	P. E. Hiebert, M.D.	High school	12	2	FebSept	None †	Certificate
University of Kansas School of Medicine, Kansas City *	G. M. Tice, M.D.	2 yrs. college	12	5	Varies	.....	Certificate
Wesley Hospital, Wichita *	N. C. Nash, M.D.	High school	24	4	JuneSept	None †	Certificate
KENTUCKY							
Louisville General Hospital, Louisville *	E. L. Pirkey, M.D.	High school	12	8	Varies	\$50	Certificate
Norton Memorial Infirmary, Louisville	J. C. Bell, M.D.	High school	12	2	JanSept	\$50	Certificate
St. Joseph Infirmary, Louisville *	S. E. Johnson, M.D.	High school	24	5	FebSept	None †	Certificate
LOUISIANA							
Charity Hospital of Louisiana, New Orleans *	L. J. Menville, M.D.	High school	12	25	August	None	Certificate
U. S. Marine Hospital, New Orleans *	A. Mayoral, M.D.	High school	12	2	JanJuly	None	Certificate
Shreveport Charity Hospital, Shreveport *	M. L. Cooke, M.D.	High school	18	6	Monthly	None	Certificate
MARYLAND							
Baltimore City Hospitals, Baltimore *	S. H. Macht, M.D.	High school	24	6	Monthly	None †	Cert. & Dipl.
Johns Hopkins Hospital, Baltimore *	R. H. Morgan, M.D.	High school	12	28	MarSept	\$100	Certificate
MASSACHUSETTS							
Massachusetts Memorial Hospitals, Boston	G. Levene, M.D.	High school	12	3	Varies	None	Certificate
Providence Hospital, Holyoke	E. J. Harrington, M.D.	High school	15	2	Spring & Fall	None	Certificate
Lawrence General Hospital, Lawrence *	W. C. Miller, M.D.	High school	12	4	JanSept	\$120	Certificate
St. Luke's Hospital, Pittsfield	F. Martin, M.D.	High school	12	3	Varies	None	Diploma
Mercy Hospital, Springfield	J. W. Turner, M.D.	High school	12-15	3	Every 6 mo.	None	Certificate
St. Vincent's Hospital, Worcester	A. E. O'Connell, M.D.	High school	12	3	JanSept	None	Certificate
MICHIGAN							
St. Joseph Mercy Hospital, Ann Arbor	S. W. Donaldson, M.D.	High school	12	2	JanJuly	None	Certificate
Lila Y. Post Montgomery Hospital, Battle Creek *	S. P. Barden, M.D.	High school	12	4	AprOct	None †	Certificate
Mount Carmel Mercy Hospital, Detroit	J. M. Grace, M.D.	High school	24	3	Sept	\$100	Certificate
St. Mary's Hospital, Detroit *	J. E. Lofstrom, M.D.	High school	12	10	MarSept	\$150	Certificate
Wayne County General Hospital and Infirmary, Elioise *	N. R. Shippey, M.D.	High school	12	3	Quarterly	None	Certificate
Hurley Hospital, Flint *	D. R. Limbach, M.D.	High school	12	6	July	None	Certificate
Bodgett Memorial	H. C. Jones, M.D.	High school	12	2	Sept	None †	Certificate
St. Joseph Mercy	J. A. Morton, M.D.	High school	12	2	MarSept	None †	Certificate
MINNESOTA							
St. Luke's Hospital, Duluth *	A. L. Abraham, M.D.	High school	18	8	Quarterly	None	Certificate
St. Mary's Hospital, Duluth	J. R. McNutt, M.D.	2 yrs. coll. or R.N.	12	6	MarSept	None	Diploma
Eitel Hospital, Minneapolis	R. H. Beiswanger, M.D.	High school	12	3	Varies	.....	Certificate
Minneapolis General Hospital, Minneapolis	O. Lipschultz, M.D.	High school	12	15	Monthly	None	Diploma
St. Mary's Hospital, Minneapolis	W. H. Ude, M.D.	High school	12	6	AprOct	None	Certificate
Swedish Hospital, Minneapolis *	G. T. Nordin, M.D.	2 yrs. college	12	10	Every 2 mo.	\$125	Certificate
University of Minnesota Hospitals, Minneapolis	L. Rigler, M.D.	2 yrs. college	15	16	Quarterly	\$64	Certificate
St. Cloud Hospital, St. Cloud	C. B. Nesson, M.D.	High school	24	8	Sept	\$90	Certificate
Bedesda Hospital, St. Paul *	J. P. Medelman, M.D.	High school	12	4	Varies	None	Certificate
Charles T. Miller Hospital, St. Paul *	H. O. Peterson, M.D.	High school	12	7	Varies	None	Certificate
St. Joseph's Hospital, St. Paul *	J. P. Medelman, M.D.	High school	12	3	Summer & Fall	None	Certificate
MISSISSIPPI							
Mercy Hospital-Street Memorial, Vicksburg *	T. B. Dominick, M.D.	High school	12	3	Varies	None	Certificate
Vicksburg Hospital, Vicksburg	F. J. Hamernik, M.D.	High school	24	2	Varies	None †	Certificate
MISSOURI							
Independence Sanitarium and Hospital, Independence *	J. F. Bowser, M.D.	High school	12	3	July	None †	Diploma
Kansas City General Hospital No. 1, Kansas City	L. A. Scarpellino, M.D.	High school	12	6	Every 4 mo.	None †	Certificate
Kansas City General Hospital No. 2, Kansas City *	A. B. Smith, M.D.	High school	12	4	Every 6 mo.	None †	Certificate
Memorial Hospital, Kansas City	D. S. Dunn, M.D.	High school	24	6	Quarterly	None †	Certificate
Research Hospital, Kansas City	I. H. Lockwood, M.D.	High school	12	8	JanJuly	None †	Certificate
St. Luke's Hospital, Kansas City	L. A. Scarpellino, M.D.	High school	12	6	Quarterly	\$25	Certificate
De Paul Hospital, St. Louis *	E. C. Ernst, M.D.	High school	12	4	JanJuly	None	Certificate

Name and Location of School	Radiologist in Charge	Entrance Requirements	Length of Training in Months	Maximum Enrollment	Classes Begin	Tuition	Certificate, Diploma, Degree
MISSOURI—Continued							
Evangelical Deaconess Hospital, St. Louis.....	J. C. Peden, M.D.....	High school	21	6	Feb/Sept	\$100 f	Certificate
Homer G. Phillips Hospital, St. Louis *.....	W. E. Allen Jr., M.D.....	High school	21	6	Sept	\$15 mo.	Certificate
St. Louis University School of Nursing, St. Louis *.....	L. R. Sante, M.D.....	High school	4 yrs. 21		Varies	\$150 per semester	Dipl. & Deg.
St. Mary's Infirmary, St. Louis.....	W. E. Allen, M.D.....	High school	21	2	Sept	\$150	Certificate
MONTANA							
Murray Hospital, Butte *.....	J. G. Sawyer, M.D.....	High school	21	2	Varies	None f	Certificate
NEBRASKA							
Lincoln General Hospital, Lincoln.....	J. M. Neely, M.D.....	High school	12	2	Jan/July	None	Certificate
St. Elizabeth's Hospital, Lincoln *.....	J. M. Neely, M.D.....	High school	21	2	Feb/June	None f	Cert. & Dipl.
Creighton Memorial, St. Joseph's Hospital, Omaha *.....	J. F. Kelly, M.D.....	High school	21	10	Sept	\$100	Certificate
Immanuel Deaconess Institute, Omaha.....	P. L. Simonds, M.D.....	1 yr. college	12	4	Jan/Sept	\$175	Diploma
University of Nebraska College of Medicine, Omaha *.....	H. B. Hunt, M.D.....	High school	12	1	Jan/July	\$75	Cert. & Deg.
NEW HAMPSHIRE							
Mary Hitchcock Memorial Hospital, Hanover.....	L. K. Sycamore, M.D.....	2 yrs. coll. or R.N.	12	3	Jan/July	\$50	Certificate
Laconia Hospital, Laconia *.....	A. Oppenheimer, M.D.....	1 yr. college	12	8	Varies	\$75	Certificate
NEW JERSEY							
Jersey City Medical Center, Jersey City *.....	H. J. Perlberg, M.D.....	High school	12	12	Feb/Aug	None	Certificate
Paterson General Hospital, Paterson *.....	E. L. Warren, M.D.....	High school	12	4	Mar/Sept	None	Diploma
Mercer Hospital, Trenton.....	M. P. Mains, M.D.....	High school	12	2	Jan/June	None	Certificate
NEW YORK							
Albany Hospital, Albany *.....	W. P. Howard, M.D.....	High school	21	6	Sept	\$150 yr. f	Certificate
Edward J. Meyer Memorial Hospital, Buffalo *.....	E. G. Eschner, M.D.....	High school	21	4	July	None	Certificate
Mersey Hospital, Buffalo.....	C. J. Jenczewski, M.D.....	High school	21	3	Sept	\$50	Certificate
Brooks Memorial Hospital, Dunkirk *.....	S. B. Clark, M.D.....	High school	21	2	Jan/July	\$100 f	Certificate
New York Hospital, New York *.....	G. Jaspin, M.D.....	High school	21	17	Oct	\$700 f	Diploma
New York Polyclinic Med. School and Hosp., New York *.....	W. H. Sheehy, M.D.....	High school	12	10	Apr/Oct	\$150	Certificate
St. Clare's Hospital, New York City *.....	D. G. Butler, M.D.....	High school	12	3	Sept	\$100	Certificate
Rochester General Hospital, Rochester *.....	E. F. Merrill, M.D.....	High school	12	2	Feb/Sept	\$100	Certificate
Strong Memorial Hospital, Rochester *.....	G. H. Ramsey, M.D.....	High school	12	12	Quarterly	\$100	Certificate
NORTH CAROLINA							
Duke University School of Medicine, Durham *.....	R. J. Reeves, M.D.....	Coll. Dipl. or R.N.	12	2	Mar/Oct	\$25	Diploma
Watts Hospital, Durham *.....	W. W. Vaughan, M.D.....	2 yrs. college	12	4	Jan/July	\$50	Certificate
Bowman Gray School of Medicine, Winston-Salem.....	J. P. Rousseau, M.D.....	High school	12	4	Jan/July	\$50	Certificate
City Memorial Hospital, Winston-Salem *.....	J. Schuman, M.D.....	High school	12	2	July	None	Certificate
NORTH DAKOTA							
Qualin and Ramstad Clinic, Bismarck *.....	H. M. Berg, M.D.....	High school	21	4	Varies	None f	Certificate
St. Alexis Hospital, Bismarck *.....	H. M. Berg, M.D.....	High school	21	2	Varies	None f	Certificate
Trinity Hospital, Minot.....	W. W. Wall, M.D.....	High school	12	3	Varies	None f	Certificate
OHIO							
City Hospital, Akron *.....	F. T. Moore, M.D.....	High school	21	4	Feb/July	None f	Cert. & Dipl.
Cincinnati General Hospital, Cincinnati *.....	B. Felson, M.D.....	High school	12	6	Every 2 mo.	\$50	Certificate
Our Lady of Mercy Hospital, Cincinnati.....	C. M. Barrett, M.D.....	2 yrs. college	12	2	Varies	\$75	Certificate
City Hospital, Cleveland *.....	H. Hauser, M.D.....	High school	12	8	Every 6 wks.	\$100	Certificate
Mount Sinai Hospital, Cleveland.....	H. A. Mahler, M.D.....	High school	12	4	Quarterly	\$100	Certificate
St. Luke's Hospital, Cleveland *.....	D. D. Brannan, M.D.....	High school	12	5	Quarterly	\$50	Diploma
St. Vincent Charity Hospital, Cleveland *.....	E. J. O'Malley, M.D.....	High school	12	2	Varies	\$100	Certificate
University Hospitals, Cleveland *.....	H. L. Friedell, M.D.....	High school	11	9	Every 6 wks.	\$100	Certificate
Ohio State University Hospital, Columbus *.....	H. J. Means, M.D.....	High school	12	6	Varies	None f	Certificate
Good Samaritan Hospital, Dayton.....	H. Snow, M.D.....	High school	21	2	Every 6 mo.	\$50	Certificate
Miami Valley Hospital, Dayton *.....	G. A. Nicoll, M.D.....	High school	12	4	Every 6 mo.	None	Certificate
St. Elizabeth's Hospital, Dayton *.....	H. Snow, M.D.....	High school	12	3	June/Sept	None	Cert. & Dipl.
Huron Road Hospital, East Cleveland *.....	J. O. Newton, M.D.....	High school	12	4	Quarterly	\$100	Certificate
Mersey Hospital, Hamilton *.....	E. L. Saenger, M.D.....	High school	21	2	Varies	\$25	Certificate
St. Rita's Hospital, Lima *.....	D. W. English, M.D.....	High school	15	3	Jan/July	None f	Certificate
St. Joseph Hospital, Lorain *.....	D. A. Russell, M.D.....	High school	12	3	Jan	\$50	Certificate
Youngstown Hospital, Youngstown.....	E. C. Baker, M.D.....	High school	12	1	Varies	None f	Certificate
OKLAHOMA							
St. Anthony's Hospital, Oklahoma City.....	J. F. Healy, M.D.....	High school	21	3	Spring & Fall	None f	Diploma
University Hospitals, Oklahoma City *.....	P. F. Russo, M.D.....	High school	12	6	June/Dec	None f	Diploma
St. John's Hospital, Tulsa.....	L. M. Pasucci, M.D.....	High school	21	8	June	None f	Certificate
OREGON							
University of Oregon Medical School Hospitals and Clinics, Portland *.....	W. Y. Burton, M.D.....	High school	12	9	Every 6 wks.	None	Certificate
PENNSYLVANIA							
Chester Hospital, Chester.....	A. M. Sharpe, M.D.....	High school	18	2	Jan/July	None	Certificate
" "							

APPROVED SCHOOLS FOR X-RAY TECHNICIANS—Continued

Name and Location of School	Radiologist in Charge	Entrance Requirements	Length of Training in Months	Maximum Enrollment	Classes Begin	Tuition	Certificate, Diploma, Degree
TENNESSEE							
Knoxville General Hospital, Knoxville.....	H. H. McCampbell, M.D.....	High school	12	3	Jan/July	None	Certificate
University of Tennessee College of Medicine, Memphis *	D. S. Carroll, M.D.....	High school	12	6	Quarterly	\$50	Certificate
Meharry Medical College, Nashville *	G. E. Johnson, M.D.....	2 yrs. coll. or R.N.	24	2	July	\$75 yr.	Certificate
TEXAS							
Hotel Dieu Hospital, Beaumont.....	J. H. Ledbetter, M.D.....	1 yr. coll. or R.N.	12	2	June/Sept	None	Certificate
Baylor University Hospital, Dallas *	F. M. Windrow, M.D.....	2 yrs. college	12	3	Jan/July	\$100	Certificate
Methodist Hospital, Dallas *	M. L. Mazer, M.D.....	High school	12	2	Varies	None	Certificate
Parkland Hospital, Dallas *	J. E. Miller, M.D.....	High school	18	12	Every 2 mo.	None	Certificate
St. Paul's Hospital, Dallas *	G. D. Carlson, M.D.....	High school	12	5	Quarterly	None †	Diploma
University of Texas School of Medicine, Galveston *	M. Schneider, M.D.....	High school	12	6	Every 2 mo.	\$124	Certificate
Methodist Hospital, Houston *	C. H. Burge, M.D.....	High school	12	1	July	None †	Letter
St. Joseph's Infirmary, Houston *	P. E. Wigby, M.D.....	High school	24	6	Every 6 mo.	None †	Certificate
Santa Rosa Hospital, San Antonio.....	M. Davis, M.D.....	High school	24	4	June/Sept	\$50	Certificate
Scott and White Hospital, Temple *	C. A. Stevenson, M.D.....	High school	24	3	Varies	None †	Certificate
UTAH							
Salt Lake County General Hospital, Salt Lake City..	H. P. Plenk, M.D.....	3 yrs. college	12	6	Fall	\$108	Certificate
VERMONT							
Mary Fletcher Hospital, Burlington *	A. B. Soule Jr., M.D.....	High school	12	4	Varies	\$100	Certificate
VIRGINIA							
University of Virginia Hospital, Charlottesville *	V. W. Archer, M.D.....	2 yrs. college	12	8	Sept	None	Certificate
Medical College of Virginia Hosp. Division, Richmond..	F. B. Mandeville, M.D.....	High school	12	15	Every 4 mo.	None	Certificate
St. Luke's Hospital, Richmond.....	J. L. Tabb, M.D.....	High school	12	2	Varies	None †	Certificate
WEST VIRGINIA							
St. Luke's Hospital, Bluefield *	D. V. Kechele, M.D.....	High school	12	2	Jan/June	None	*Certificate
Kanawha Valley Hospital, Charleston.....	W. P. Elkin, M.D.....	High school	12	1	Feb	None	Diploma
McMillan Hospital, Charleston.....	W. P. Elkin, M.D.....	High school	12	1	Varies	None	Diploma
St. Francis Hospital, Charleston.....	W. P. Elkin, M.D.....	High school	12	1	Nov	None	Diploma
WISCONSIN							
Mercy Hospital, Janesville *	W. T. Clark, M.D.....	High school	24	2	Sept	None	Certificate
St. Francis Hospital, La Crosse.....	P. V. Hulick, M.D.....	High school	12	2	Sept	\$50	Certificate
Madison General Hospital, Madison *	L. V. Littig, M.D.....	High school	12	4	Every 4 mo.	None †	Certificate
St. Mary's Hospital, Madison.....	C. F. Sherman, M.D.....	High school	24	4	Sept	None	Certificate
University of Wisconsin Medical School, Madison *	E. A. Pohle, M.D.....	1 yr. college	12	16	Every 6 wks.	\$10	Certificate
Columbia Hospital, Milwaukee *	S. A. Morton, M.D.....	High school	24	4	July	None †	Certificate
Evangelical Deaconess Hospital, Milwaukee *	A. Melamed, M.D.....	High school	12-24	5	Quarterly	\$100	Diploma
Milwaukee Hospital, Milwaukee.....	H. W. Hefke, M.D.....	High school	24	5	Spring & Fall	None †	.....
Mount Sinai Hospital, Milwaukee *	M. Moe, M.D.....	High school	12	4	Quarterly	\$100	Certificate
St. Joseph's Hospital, Milwaukee *	A. R. Altenhofen, M.D.....	High school	24	16	Varies	\$50	Certificate
St. Michael's Hospital, Stevens Point *	J. A. Knights, M.D.....	High school	12	4	Feb/Aug	None	Certificate
Mary's Hospital, Wausau *	J. M. Foerster, M.D.....	High school	24	5	Mar/Aug	None	Diploma

† Students are paid a stipend.

SCHOOLS FOR MEDICAL RECORD LIBRARIANS

The Essentials of a Registered Hospital of the American Medical Association, the basic requirements for recognition by the Council on Medical Education and Hospitals, state, in part, that an adequate record system should be maintained in hospitals. When, therefore, in 1942, the American Association of Medical Record Librarians requested the House of Delegates of the American Medical Association to originate a list of schools for medical record librarians meeting specific standards, the Council was instructed to proceed with the establishment of essentials and preparation of an approved list.

In June 1943 the Essentials of an Acceptable School for Medical Record Librarians, drawn up by the Council with the cooperation of the American Association of Medical Record Librarians, were officially approved by the American Medical Association House of Delegates. The first approved list contained the names of 10 hospitals, colleges and universities; currently 13 schools are approved. While 2 additional schools are under consideration at the present time, further expansion of educational opportunities in this field are indicated in order to meet the growing needs for trained personnel.

The number of students completing the course during 1948 was 58; an enrollment of 118 has been reported by the schools now approved. Candidates for admission to approved schools should be proficient in typing and

shorthand and, in addition, should fulfil one of the following requirements:

1. Completion of two academic years of study in a college of liberal arts approved by a recognized accrediting agency.
2. Graduation from a school of nursing recognized by a state board of nurse examiners.

Nine schools accept students who have completed two years of college or have finished nurses' training; 1 requires three years of college; 1 a degree and 2 accept high school graduates in relation to a four year college course. The tuition range is from \$125 to \$300 a year; a uniform tuition of \$150 is in effect in 6 schools. Three schools confer a degree, 9 issue certificates and 1 a diploma.

Scholarships in this field are offered by the National Foundation for Infantile Paralysis. Funds have also been granted by that foundation to provide inservice training programs, and institutes are sponsored by the American Hospital Association in cooperation with the American Association of Medical Record Librarians.

Schools desiring approval should apply to the Council on Medical Education and Hospitals. Application forms will be furnished on request. Correspondence regarding registration should be addressed to the American Association of Medical Record Librarians, 22 East Division Street, Chicago 10.

APPROVED SCHOOLS FOR MEDICAL RECORD LIBRARIANS
Council on Medical Education and Hospitals of the American Medical Association

Name and Location of School	College Affiliation	Length of Course	Classes Start	Entrance Requirements*	Tuition	Certificate, Diploma, Degree	Maximum Enrollment
Herrick Memorial Hospital, Berkeley, Calif.....	None.....	12 mos.	.....	2 yrs. coll. or R.N.	\$150	Certificate	4
Samuel Merritt Hospital, Oakland, Calif.....	None.....	12 mos.	MarAug	2 yrs. coll. or R.N.	\$150	Certificate	5
Univ. of Colorado School of Med. & Hosps., Denver	University of Colorado.....	12 mos.	Sept	3 yrs. college	\$360	Degree	10
Grant Hospital, Chicago.....	None.....	12 mos.	FebSept	2 yrs. coll. or R.N.	\$150	Certificate	8
St. Joseph Hospital, Chicago.....	DePaul University.....	12 mos.	MarSept	2 yrs. coll. or R.N.	\$150	Certificate	6
Wesley Memorial	Northwestern University.....	12 mos.	Sept	2 yrs. coll. or R.N.	\$275	Certificate	12
Massachusetts Ger	None.....	12 mos.	Sept	2 yrs. coll. or R.N.	\$125	Certificate	8
Mount Carmel Mercy Hospital, Detroit.....	Mercy College.....	12 mos.	Sept	2 yrs. coll. or R.N.	\$150	Diploma	8
College of St. Scholastica, Duluth, Minn.....	.....	1	Sept	High school	\$130 yr.	Degree	10
Homer G. Phillips Hospital, St. Louis.....	None.....	12 mos.	FebSept	2 yrs. coll. or R.N.	\$150	Certificate	3
St. Louis University, St. Louis.....	St. Louis University.....	1 yrs.	JanSept	High school	\$300	Degree	16
Duke Hospital, Durham, N. C.....	Duke University.....	12 mos.	JuneOct	Degree	\$175	Certificate	12
Graduate Hosp. of the Univ. of Penna., Philadelphia	University of Pennsylvania.....	12 mos.	Sept	2 yrs. coll. or R.N.	\$700	Certificate	16

* All students are required to be proficient in typing and shorthand.

† Four academic years and one summer session.

SCHOOLS FOR OCCUPATIONAL THERAPY- TECHNICIANS

In June 1933 a resolution was presented to the House of Delegates of the American Medical Association which requested that, if feasible, plans be made for the establishment of standards, ratings and inspections of training schools for occupational therapy technicians.

The Board of Trustees referred this resolution to the Council on Medical Education and Hospitals for consideration and investigation. The inspection work, which began in November 1933, was carried out in conjunction with the other activities of the Council, the schools being inspected by members of the staff on their regular tours of hospital inspection. Thirteen schools were visited. On completion of the inspections, joint meetings were held with representatives present from the American Occupational Therapy Association and the American Medical Association Council on Physical Medicine and Rehabilitation and Council on Medical Education and Hospitals for the purpose of developing standards in this field. On Feb. 17, 1935, the proposed Essentials of an Acceptable School of Occupational Therapy were adopted by the Council, and at the Atlantic City session of the American Medical Association in June 1935 they were ratified by the House of Delegates. Certain sections of the Essentials were subsequently revised and adopted by the Council at its meeting Feb. 12, 1938. The first list of approved schools was published by the Council on Medical Education and Hospitals March 26, 1938. In this list there were 6 schools which conformed to the newly adopted minimum requirements, 1 Canadian school being included in the group. At present 25 schools are approved. One university had no graduates in 1948,

inasmuch as the course had been lengthened to three years in 1946; the remaining 24 schools graduated 455 students as compared with 320 last year. On the basis of data furnished the Council by all of the 25 schools presently approved, it is expected that there will be approximately 475 graduates in 1949.

The present standards of the Council specify that colleges offering training courses in occupational therapy, which are combined with work leading to a bachelor's degree, should require the candidates for this combined course to comply with the regular entrance requirements of the school concerned. Other candidates should furnish proof of having completed one year of college education or its equivalent.

The training in some schools is on three levels, the duration of the course, entrance requirements and tuition varying with the type of course offered. The regular course in occupational therapy is approximately three years in duration. Mostly, however, the courses are now conducted on a degree basis, with four or five years required for completion of training. Advanced standing is also offered, so that students with proper qualifications may obtain a certificate in occupational therapy after eighteen months' training. All of the approved schools are affiliated with senior colleges or universities.

Application for approval of occupational therapy schools should be submitted to the Council on Medical Education and Hospitals. Inquiries regarding the registration of qualified therapists should be addressed to the American Occupational Therapy Association, 33 West 42d Street, New York 18.

APPROVED SCHOOLS FOR OCCUPATIONAL THERAPY TECHNICIANS
Council on Medical Education and Hospitals of the American Medical Association

Name and Location of School	College Affiliation	Duration of Course ¹	Classes Start	Entrance Requirements	Tuition per Year	Certificate, Diploma, Degree	Graduates in 1948
University of Southern California, 923½ 35th Place, Los Angeles	University of Southern California	2 yrs. 5 yrs.	FebSept FebSept	Degree High sch.	\$120 \$150	Certificate Cert. & D.S.	22
Mills College, Oakland, Calif.....	Mills College	2½ yrs. 5 yrs.	FebSept FebSept	Degree High sch.	\$250+ \$650+	Certificate Cert. & Deg.	2 7
San Jose State College, San Jose, Calif.....	San Jose State College.....	18 mos. 45 mos.	Varies Varies	Degree High sch.	\$ 21 \$ 21	Certificate Degree	3 10
University of Illinois College of Medicine, 1533 W. Polk St., Chicago	University of Illinois.....	5 yrs.	MarSept	High sch.	\$110	Degree	16
State University of Iowa, Iowa City, Iowa.....	State University of Iowa, College of Medicine	18 mos. 46 mos.	FebSept FebSept	 High sch.	 \$130 ²	Certificate Cert. & Deg.	3 4
University of Kansas, Lawrence.....	University of Kansas.....	41 mos.	FebSept	High sch.	\$ 80 ²	Degree	11
Boston School of Occupational Therapy, 7 Hancock St., Boston	Tufts College	2 yrs. 5 yrs.	Sept Sept	Degree High sch.	\$500 \$150	Dipl. & B.S. Dipl. & B.S.	25

APPROVED SCHOOLS FOR OCCUPATIONAL THERAPY TECHNICIANS—Continued

Council on Medical Education and Hospitals of the American Medical Association

Name and Location of School	College Affiliation	Duration of Course ¹	Classes Start	Entrance Requirements	Tuition per Year	Certificate, Diploma, Degree	Graduation, 1948
Wayne University, 4811 Cass, Detroit.....	Wayne University	2 yrs.	Varies	Degree	\$175	Certificate	4
		5 yrs.	Varies	High sch.	\$175	Degree	5
Kalamazoo School of Occupational Therapy, Oakland Drive, Kalamazoo, Mich.....	Western Michigan College.....	18 mos.	FebSept	Degree	\$127 ²	Certificate	2
		4 yrs.	FebSept	1 yr. coll.	\$127 ²	Cert.&Deg.	37
Michigan State Normal College, Ypsilanti, Mich.....	University of Michigan.....	5 yrs.	Varies	High sch.	\$115 ²	Cert.&Deg.	10
University of Minnesota, Minneapolis.....	University of Minnesota.....	4½ yrs.	Sept	High sch.	\$ 42 ²	Degree	16
College of St. Catherine, 2001 Randolph, St. Paul.....	College of St. Catherine.....	4 yrs.	Varies	High sch.	\$210	Degree	7
Washington University School of Medicine, St. Louis..	Washington University	27 mos.	Sept	2 yrs. coll.	\$100	Degree	14
University of New Hampshire, Durham.....	University of New Hampshire	5 yrs.	Sept	High sch.	\$200 ²	Cert.&Deg.	10
Columbia University College of Physicians and Surgeons, 630 W. 168th St., New York City	Columbia University	17 mos.	Sept	Degree	\$600	Certificate	17
		27 mos.	Sept	2 yrs. coll.	\$600	Degree	10
New York University School of Education, Washington Square, New York City	New York University.....	.....	FebSept	1 yr. coll.	\$500	Cert.&Deg.	5
		4½ yrs.	FebSept	High sch.	\$500	Cert.&Deg.	31
Ohio State University, Columbus.....	Ohio State University.....	4 yrs.	Varies	High sch.	\$ 90 ²	Degree	24
Philadelphia School of Occupational Therapy, 419 S. 19th St., Philadelphia	University of Pennsylvania...	18 mos.	Sept	Degree	\$500	Diploma	35
		20 mos.	Sept	1-2 yrs. coll.	\$500	Diploma	10
		42 mos.	FebSept	High sch.	\$600	Diploma	4
Texas State College for Women, Denton, Texas.....	Texas College for Women....	5 yrs.	FebSept	High sch.	\$ 50 ²	Degree	14
Richmond Professional Institute, 901 W. Franklin St., Richmond, Va.	Medical College of Virginia....	2 mos.	Sept	Degree	....	Certificate	21
		3 yrs.	Sept	1 yr. coll.	....	Certificate	16
		5 yrs.	Sept	....	....	Degree	3
College of Puget Sound, 18th and Warner, Tacoma, Wash.	College of Puget Sound.....	3 yrs.	FebSept	Degree	\$750	Certificate	4
		5 yrs.	FebSept	High sch.	\$300	Certificate	4
University of Wisconsin, Madison.....	University of Wisconsin.....	5 yrs.	FebSept	High sch.	\$120 ²	Cert.&Deg.	23
Milwaukee-Downer College, Dept. of Occupational Therapy, 2512 E. Hartford, Milwaukee	Milwaukee-Downer College	3½ yrs.	Sept	1 yr. coll.	\$350	Diploma	} 25
		5 yrs.	Sept	High sch.	\$350	Dipl.& Deg.	
Mount Mary College, 92d and Burleigh, Milwaukee...	.....	5 yrs.	Sept	High sch.	\$260	Degree	15
University of Toronto, Toronto, Ont., Canada.....	University of Toronto.....	3 yrs.	Sept	.....	\$210	Diploma	..

1. Duration of course is expressed in academic years or in number of months.

2. Nonresidents charged additional fee.

SCHOOLS FOR PHYSICAL THERAPY TECHNICIANS

As early as 1936 the Council on Medical Education and Hospitals completed a survey of schools for physical therapy technicians. The first approved list, published Aug. 29, 1936, contained the names of 13 schools which essentially met the minimum standards ratified by the House of Delegates in May 1936. Two years previously the Council had been directed by the Board of Trustees of the American Medical Association to proceed with the establishment of standards and a listing of qualified schools. Cooperating with the Council in this activity are the Council on Physical Medicine and Rehabilitation of the American Medical Association, the American Congress of Physical Medicine and the American Physical Therapy Association.

The 1948 list, herewith presented, includes the names of 26 approved schools, with 532 students enrolled in the regular courses. It is anticipated that the number of graduates in 1949 will be approximately 425 in the schools currently approved. This total may be further increased through additional courses that are now in the process of development. The accompanying tabulation gives the names of the medical director and the technical director of each school, entrance requirements, dura-

tion of course, time of admission, maximum enrolment and tuition and indicates whether a certificate, diploma or degree is granted on graduation. Applicants should fulfil one of the following requirements:

1. Graduation from an accredited school of nursing.
2. Graduation from an accredited school of physical education.
3. Two years of approved college training, including satisfactory courses in biology and other sciences.

Courses in general physics and chemistry, as well as biology, are highly recommended for all who seek to enter training in this field.

Acceptable schools for physical therapy technicians may be conducted by accredited universities, medical schools, colleges or hospitals. The Council on Medical Education and Hospitals will be glad to send application blanks to any school seeking approval. The American Registry of Physical Therapy Technicians, sponsored by the American Congress on Physical Medicine, accepts for examination graduates of schools listed by the Council. The offices of the Registry are at 30 North Michigan Avenue, Chicago 2.

APPROVED SCHOOLS FOR PHYSICAL THERAPY TECHNICIANS

Council on Medical Education and Hospitals of the American Medical Association

Name and Location of School	Medical Director and Technical Director	Entrance Requirements*	Duration of Course	Time of Admission	Maximum Enrolment	Tuition	Certificate, Diploma, Degree
Childrens Hospital, Los Angeles ¹	S. S. Mathews, M.D..... Miss Sarah S. Rogers	a-b-d	14 mos.	Sept	14	\$300	Cert. or Degree
College of Medical Evangelists, Los Angeles ¹	Fred B. Moor, M.D..... R. William Berdun	a-b-c	15 mos.	Sept	16	\$500	Cert. or Dipl.
University of Southern California, Los Angeles ¹	Charles L. Lowman, M.D..... Miss Charlotte W. Anderson	c-d	14-24 mos.	FebSept	20	\$560	Cert. or Degree
University of California Hospital, San Francisco ¹	Lucile M. Eising, M.D..... Mrs. Margery L. Wagner	d	12 mos.	Sept	16	\$320 ²	Cert. or Degree
Stanford University, Stanford University, Calif. ¹	W. H. Northway, M.D..... Miss Lucille Daniels	a-b-d	12 mos.	Varies	18	\$620	Cert. or Degree
University of Colorado Medical Center, Denver ¹	Harold Dinken, M.D..... Miss Mary Lawrence	a-b-d	12 mos.	Sept	12	\$300 ²	Cert. or Degree

APPROVED SCHOOLS FOR PHYSICAL THERAPY TECHNICIANS—Continued

Council on Medical Education and Hospitals of the American Medical Association

Name and Location of School	Medical Director and Technical Director	En- trance Require- ments*	Duration of Course	Time of Admis- sion	Maxi- mum Enrol- ment	Tuition	Certificate, Diploma, Degree
Northwestern University Medical School, Chicago.....	John S. Coulter, M.D..... Miss Gertrude Beard	a-b-d	12 mos.	Oct	16	\$150	Certificate
State University of Iowa Medical School, Iowa City ¹	W. D. Paul, M.D..... Mrs. Olive Farr	c	12 mos.	Sept	15	\$200	Certificate
University of Kansas School of Medicine, Kansas City ¹ ...	Donald L. Rose, M.D..... Mrs. Ruth G. Montelth	a-b-d	12 mos.	FebSept	15	\$ 60 ¹	Cert. or Degree
Bouve-Boston School of Physical Education, Boston.....	Howard Moore, M.D..... Miss Constance Greene	H.S.	4 yrs.	Sept	15	\$550	Dipl. & Degree
Simmons College, Boston.....	W. T. Green, M.D..... Miss Janet B. Merrill	H.S.-c	1½ ½ yrs.	Sept	25	\$550	Dipl. or Degree
Boston University College of Physical Education for Women, Sargent College, Cambridge, Mass.	Kenneth Christophe, M.D..... Miss Adelaide McGarrett	H.S.-c-d	1-4 yrs.	Sept	30	\$150	Cert. or Degree
University of Minnesota, Minneapolis ¹	M. E. Knapp, M.D..... Miss Ruby M. Green	H.S.	4 yrs.	Sept	16	\$550 ²	Degree
Mayo Clinic, Rochester, Minn. ¹	Earl C. Elkins, M.D..... Miss Helen Belknap	a-c	12 mos.	Sept	20	None	Certificate
Barnes Hospital, St. Louis ¹	Sedgwick Mead, M.D..... Miss Beatrice Schulz	c	2 yrs.	Sept	12	\$100	Degree
St. Louis University School of Nursing, St. Louis ¹	A. J. Kotke, M.D..... Sister Mary Imelda	H.S.	4 yrs.	JanSept	10	\$300	Degree
Albany Hospital, Albany, N. Y.....	J. W. Ghormley, M.D..... Miss Catharine Graham	a-b-d	12 mos.	Sept	6	\$250	Certificate
Columbia University College of Physicians and Surgeons, New York City ¹	William B. Snow, M.D..... Troy Pinkerton	a-c-c	1-2 yrs.	Sept	20	\$710	Cert. or Degree
New York University School of Education, New York City ¹	George G. Denver, M.D..... Miss Elizabeth Addoms	a ² -b-d	12 mos.	Sept	40	\$600	Cert. & Degree
Duke Hospital, Durham, N. C. ¹	Lenox D. Baker, M.D..... Miss Helen Kaiser	a-b-d	15 mos.	Oct	12	\$500	Certificate
D. T. Watson School of Physiotherapy, Leedsdale, Pa. ¹ ...	Jessie Wright, M.D..... Miss Kathryn Kelley	a-b-d	12 mos.	Oct	50	\$300	Diploma
Graduate Hospital of the University of Pennsylvania, Philadelphia ¹	George M. Piersol, M.D..... Miss Dorothy Baethke	a-b-d	12 mos.	Sept	20	\$400	Certificate
University of Texas School of Medicine, Galveston ¹	G. W. N. Eggers, M.D..... Miss Ruby Decker	b-d	12 mos.	Jan	8	\$162 ³	Certificate
Hermann Hospital, Houston ¹	Oscar O. Selke Jr., M.D..... Mary Elizabeth Kolb	a-b-d	12 mos.	Oct	12	\$500	Cert. or Degree
Baruch Center of Physical Medicine of the Medical College of Virginia, in affiliation with Richmond Professional Institute, Richmond ¹	Walter J. Lee, M.D..... Miss Susanne Hirt	H.S.-a-b-c-d-e	1-4 yrs.	Sept	54	\$275 ³	Dipl. or Degree
University of Wisconsin Medical School, Madison.....	Harry Rouman, M.D..... Miss Margaret A. Kohl	a-b-c H.S.	12 mos. 4 yrs.	FebSept Sept	20 20	\$120 ² \$120 ¹	Certificate Cert. & Degree

* Courses are so arranged that any of the entrance requirements will qualify students for training. a = Graduation from accredited school of nursing; b = Graduation from accredited school of physical education; c = Two years of college with science course; d = Three years of college with science course; e = Four years of college with science course. H.S. = High school graduation.

1. Male students are admitted.
2. R.N. plus one year college.
3. Nonresidents charged additional fee.

SCHOOLS FOR MEDICAL TECHNOLOGISTS

The accompanying list of 383 approved schools for medical technologists indicates the interest manifested in this field of technical training. During the past year 46 schools have been accepted as meeting the minimum standards for recognition. Prerequisites for admission to the approved schools, as included in the Essentials of an Acceptable School for Medical Technologists prepared by the Council on Medical Education and Hospitals of the American Medical Association with the cooperation of the American Society of Clinical Pathologists and ratified by the House of Delegates of the American Medical Association in May 1936, are as follows:

- Two years of college work, including general chemistry, quantitative chemistry and biology, from an accredited college or university. Bacteriology may be substituted for biology. Organic chemistry and physics are highly recommended; or
- Graduation from a school of nursing recognized by the state board of nurse examiners and, in addition, one year of college work—30 semester hours (45 quarter hours)—including courses in chemistry and biology.

The original list of 96 approved schools was published in 1936. Since that time there has been a constant annual increase in number of schools approved, enrolments and students graduated. Records of 1936 disclose a total of 711 students enrolled. Comparing

this with the 1948 enrolment of 2,751, it is apparent that the selection of this type of training by students who have completed at least two years of college will eventuate in a large proportion of hospitals obtaining qualified medical technologists in their clinical laboratory departments.

The 383 schools currently approved reported 1,499 graduates in 1948. This figure will be considerably augmented in the present calendar year, as many recently approved schools have now developed their training programs to accommodate additional students. At the same time, following former trends, enrolments in other approved schools will increase with a corresponding increase in the number of qualified graduates.

Minimum entrance requirements of two years of college are maintained by 274 of the 383 approved schools, whereas the remaining 109 schools require three years of college or a degree. Further detailed information regarding tuition, length of training and names of directors is available in the accompanying list.

Correspondence regarding schools for the training of medical technologists should be addressed to the office of the Council on Medical Education and Hospitals. Graduates of approved schools desiring registration should communicate with the Board of Registry of Medical Technologists, Ball Memorial Hospital, Muncie, Ind.

APPROVED SCHOOLS FOR MEDICAL TECHNOLOGISTS
Council on Medical Education and Hospitals of the American Medical Association

NOTE: Under "Tuition" the letter B indicates that a breakage fee is charged; the letter U indicates university fees. Students lacking the scholastic requirements should contact the registrar of the college or university and not the hospital. Those who wish to enroll in a course given by the college or university or who desire to transfer their credits should correspond with the registrar and not the hospital. Asterisk (*) after name of school indicates that male as well as female students are admitted.

Name and Location of School	College Affiliation	Pathologist in Charge	Minimum Pre- requisite College	Length of Train- ing in Months	Maximum Enrollment	Classes Begin	Tuition
ALABAMA							
Baptist Hospital, Birmingham.....	Alabama Coll.†; Howard Coll.†.....	A. E. Casey, M.D.....	3 yrs.	12	6	Varies	None
Carraway Methodist Hospital, Birmingham *...	.....	J. A. Cunningham, M.D.....	2 yrs.	12	6	JanJune	None
Jefferson and Hillman Hospital, Birmingham *...	Medical College of Alabama †.....	R. R. Kracke, M.D.....	3 yrs.	12	18	JuneSept	B
South Highlands Infirmary, Birmingham *.....	.....	J. A. Cunningham, M.D.....	2 yrs.	12	3	JanJuly	None
Employees Hospital, Fairfield *.....	.....	L. C. Posey, M.D.....	2 yrs.	12-18	6	JulySept	None
Mobile Infirmary, Mobile.....	.....	I. M. Wise, M.D.....	2 yrs.	12	2	.....	None
St. Margaret's Hospital, Montgomery *.....	.....	C. R. Lafferty, M.D.....	Degree	12	1	MarJuly	None
ARIZONA							
St. Joseph's Hospital, Phoenix *.....	Arizona State College,† Tempe.....	O. O. Williams, M.D.....	3 yrs.	12	5	July	\$50
ARKANSAS							
University Hospital, Little Rock *.....	Univ. of Arkansas School of Med.†..	A. Nettleship, M.D.....	2 yrs.	12	20	JulySept	\$180
CALIFORNIA							
Herriek Memorial Hospital, Berkeley *.....	.....	H. R. Fishback, M.D.....	Degree	12	2	FebJuly	None
Childrens Hospital, Los Angeles.....	.....	R. E. Knutti, M.D.....	Degree	12	9	Varies	None
Los Angeles County Hospital, Los Angeles *...	.....	E. M. Butt, M.D.....	Degree	14	20	Varies	None
St. Vincent's Hospital, Los Angeles.....	.....	J. E. Kahler, M.D.....	Degree	12	4	July	B
White Memorial Hospital, Los Angeles *.....	College of Medical Evangelists †.....	O. B. Pratt, M.D.....	3 yrs.	15	20	Quarterly	\$120
Collis P. and Howard Huntington Memorial Hospital, Pasadena .....	.....	A. G. Foord, M.D.....	Degree	12	9	July	B
Univ. of California Med. School, San Francisco *	University of California, Berkeley...	J. Hooper Jr., M.D.....	3 yrs.	12	18	Sept	\$105
St. John's Hospital, Santa Monica *.....	.....	G. J. Hummer, M.D.....	Degree	12	2	July	None
COLORADO							
Colorado General Hospital, Denver *.....	University of Colorado †.....	E. R. Mugrage, M.D.....	3 yrs.	12	24	Summer	U&B
Denver General Hospital, Denver *.....	.....	F. McConnell, M.D.....	2 yrs.	12	12	Varies	None
Mercy Hospital, Denver *.....	University of Denver †; Loretto Heights College †	A. W. Freshman, M.D...	3 yrs.	12	3	Quarterly	U&B
St. Anthony Hospital, Denver *.....	University of Denver †; Loretto Heights College †	A. W. Freshman, M.D...	3 yrs.	12	5	Quarterly	U&B
St. Joseph's Hospital, Denver *.....	St. Mary's College, Xavier, Kan.....	E. I. Dobos, M.D.....	4 yrs.	12	3	July	None
CONNECTICUT							
Danbury Hospital, Danbury *.....	.....	P. T. McIlroy, M.D.....	2 yrs.	12	3	Varies	None
Hartford Hospital, Hartford *.....	.....	P. T. Hough, M.D.....	2 yrs.	12	6	Sept	None
St. Francis Hospital, Hartford *.....	.....	L. P. Hastings, M.D.....	2 yrs.	12	4	July	None
Middlesex Hospital, Middletown.....	.....	C. E. McLeod, M.D.....	2 yrs.	12	2	.....	None
New Britain General Hospital, New Britain.....	.....	P. D. Rosahn, M.D.....	Degree	12	5	Oct	None
Charlotte Hungerford Hospital, Torrington.....	.....	L. Oppen, M.D.....	Degree	12	3	JanJuly	None
Waterbury Hospital, Waterbury.....	.....	J. O. Collins, M.D.....	2 yrs.	12	3	Oct	\$75
DELAWARE							
Delaware Hospital, Wilmington *.....	University of Delaware †.....	J. W. Howard, M.D.....	2 yrs.	12	4	July	\$100
Memorial Hospital, Wilmington *.....	University of Delaware †.....	J. W. Hooker, M.D.....	2 yrs.	12	2	July	\$100
Wilmington General Hospital, Wilmington *...	.....	J. V. Casella, M.D.....	2 yrs.	18	2	July	None
DISTRICT OF COLUMBIA							
Doctors Hospital, Washington *.....	American University †	O. B. Hunter, M.D.....	2 yrs.	12	6	Quarterly	None
Fredmen's Hospital, Washington *.....	Howard University	R. E. Kelso, M.D.....	3 yrs.	24	8	Sept	\$75-125
Garfield Memorial Hospital, Washington *.....	.....	E. C. Rice, M.D.....	2 yrs.	12	10	Varies	None
Georgetown University Hospital, Washington...	Georgetown University	C. F. Geschickter, M.D...	Degree	18-24	15	Sept	U&B
George Washington Univ. Hosp., Washington...	George Washington Univ. Med. Sch.	T. M. Peery, M.D.....	2 yrs.	12	6	FebSept	None
Providence Hospital, Washington.....	.....	H. H. Lefler, M.D.....	2 yrs.	12	4	Varies	None
Sibley Memorial Hospital, Washington *.....	American University †	O. B. Hunter, M.D.....	2 yrs.	12	6	Quarterly	None
FLORIDA							
Florida State Hospital, Chattahoochee *.....	Florida State University †.....	E. H. Ruediger, M.D.....	3 yrs.	12	5	JulySept	None
St. Vincent's Hospital, Jacksonville *.....	.....	N. A. Murray, M.D.....	Degree	12	3	July	None
Jackson Memorial Hospital, Miami.....	.....	Ph. R. Rezek, M.D.....	Degree	12	11	Monthly	None
GEORGIA							
Crawford W. Long Memorial Hospital, Atlanta *	.....	D. Ayer, M.D.....	2 yrs.	12	6	Varies	None
Georgia Baptist Hospital, Atlanta.....	.....	J. Funke, M.D.....	2 yrs.	12	2	Varies	None
Grady Memorial Hospital, Atlanta *.....	Emory University	W. Sheldon, M.D.....	2 yrs.	13	13	Varies	None
Piedmont Hospital, Atlanta.....	.....	W. B. Matthews, M.D...	Degree	12	4	Quarterly	None
St. Joseph's Infirmary, Atlanta.....	Emory University Medical School...	W. B. Matthews, M.D....	Degree	12	4	MarSept	None
University Hospital, Augusta *.....	Univ. of Georgia School of Medicine	W. L. Sheppard, M.D....	2 yrs.	12	2	Sept	\$100B
Veterans Admin. Hospital, Chamblee *.....	Emory University	L. N. Foster, M.D.....	2 yrs.	12	6	July	None
Columbus City Hospital, Columbus.....	.....	A. R. Monaco, M.D.....	2 yrs.	12-18	6	Varies	None
Emory University Hospital, Emory University...	Emory University	W. H. Sheldon, M.D.....	2 yrs.	12	7	JanSept	None
IDAHO							
St. Luke's Hospital, Boise *.....	.....	J. Beeman, M.D.....	2 yrs.	12	4	Varies	None
ILLINOIS							
Copley Memorial Hospital, Aurora.....	Aurora College †	C. C. Mason, M.D.....	3 yrs.	12	3	JanSept	B
St. Joseph's Hospital, Bloomington *.....	Illinois State Normal University.....	B. Markowitz, M.D.....	2 yrs.	12	4	Varies	\$25

APPROVED SCHOOLS FOR MEDICAL TECHNOLOGISTS—Continued

Name and Location of School	College Affiliation	Pathologist in Charge	Minimum Pre-requisite College	Length of Training in Months	Maximum Enrollment	Classes Begin	Tuition
ILLINOIS—Continued							
City of Chicago Municipal Tuberculosis Sanitarium, Chicago *	Roosevelt College †	H. C. Sweany, M.D.	2 yrs.	15	16	Quarterly	B
Grant Hospital, Chicago *		C. C. Mason, M.D.	2 yrs.	12	3	Quarterly	B
Michael Reese Hospital, Chicago		O. Saphir, M.D.	2 yrs.	38	18	Every 2 mo.	\$150
Mount Sinai Hospital, Chicago *	Roosevelt College †	I. David-ohn, M.D.	2 yrs.	12-18	15	Varies	\$180
Norwegian-American Hospital, Chicago *		A. Learner, M.D.	2 yrs.	12	4	Monthly	\$100
Passavant Memorial Hospital, Chicago	Northwestern Univ. Medical School †	O. E. Hopler, M.D.	2 yrs.	12-20	12	Monthly	\$50-100
Provident Hospital, Chicago *		E. F. Hirsch, M.D.	2 yrs.	12	7	Quarterly	\$200
St. Bernard's Hospital, Chicago *		C. S. Hagerty, M.D.	2 yrs.	12	8	Sept	\$200B
U. S. Marine Hospital, Chicago *	University of Illinois College of Med.	H. Conti, M.D.	2 yrs.	12	1	Sept	None
Wesley Memorial Hospital, Chicago *		T. C. Lapply, M.D.	2 yrs.	12	21	Monthly	\$175
Evanston Hospital, Evanston	Northwestern University	J. C. McCarter, M.D.	2 yrs.	12	6	Jan/July	\$50
St. Francis Hospital, Evanston *		D. W. Henry, M.D.	2 yrs.	12	6	Quarterly	\$50
Methodist Hospital of Central Illinois, Peoria *		J. O. Manshardt, M.D.	2 yrs.	12	3	Varies	\$65
St. Francis Hospital, Peoria *		J. E. Kraus, M.D.	2 yrs.	12	6	Sept	\$100B
Rockford Memorial Hospital, Rockford		M. O. Alexander, M.D.	2 yrs.	12	2	Varies	None
St. Anthony's Hospital, Rockford *		A. R. K. Matthews, M.D.	2 yrs.	15	7	Varies	\$25
Memorial Hospital, Springfield *		A. Voss, M.D.	2 yrs.	12	4	Feb/Sept	\$100
St. John's Hospital, Springfield	Quincy College †	H. M. Steen, M.D.	2 yrs.	12	12	Sept	\$50
St. Therese's Hospital, Waukegan	DePaul University, Chicago	G. J. Rukstinkt, M.D.	2 yrs.	12	8	Sept	\$100B
INDIANA							
Protestant Deaconess Hospital, Evansville *	Evansville College †	T. E. Mills, M.D.	2 yrs.	12	4	Varies	.....
St. Mary's Hospital, Evansville *	Evansville College †	A. W. Ratcliffe, M.D.	2 yrs.	12	5	Sept	\$150
St. Joseph Hospital, Fort Wayne *	St. Francis College †	S. M. Rabson, M.D.	2 yrs.	12	4	June/Sept	\$125B
Indiana University Med. Center, Indianapolis *	Indiana University, Bloomington †	J. L. Arbogast, M.D.	2½ yrs.	12	12	Sept	U&B
Methodist Hospital, Indianapolis	Butler University †; Franklin Coll.	L. H. Hoyt, M.D.	Degree	12	6	Varies	\$50
St. Elizabeth's Hospital, Lafayette *		J. M. McFadden, M.D.	2 yrs.	12	7	Oct	\$100B
South Bend Medical Foundation (Memorial and St. Joseph Hospitals), South Bend		A. S. Giordano, M.D.	2 yrs.	18	2	Jan/July	\$125
IOWA							
Mersey Hospital, Cedar Rapids		R. E. Wieland, M.D.	2 yrs.	12	4	Jan/July	None
St. Luke's Methodist Hospital, Cedar Rapids *		F. C. Bauer Jr., M.D.	2 yrs.	12	3	Jan/July	None
Mersey Hospital, Des Moines *		F. C. Coleman, M.D.	3 yrs.	12	2	July	None
St. Joseph Mercy Hospital, Dubuque *		E. T. Thorsness, M.D.	2 yrs.	12	4	July	None
St. Joseph Mercy Hospital, Sioux City	Briar Cliff College	E. A. Fullgrabe, M.D.	2 yrs.	12	4	Sept	None
KANSAS							
Bethany Hospital, Kansas City		W. W. Summerville, M.D.	2 yrs.	12	6	Monthly	None
Providence Hospital, Kansas City		V. B. Bulmer, M.D.	2 yrs.	12	3	July	None
University of Kansas Med. Center, Kansas City *	University of Kansas	L. H. Leger, M.D.	Degree	12	24	July	None
Lattimore Laboratories (Christ's, St. Francis and Stormont Hospitals), Topeka		J. L. Lattimore, M.D.	2 yrs.	12	4	June	None
Veterans Admin. Hospital, Wadsworth *	University of Kansas School of Med.	C. J. Weber, M.D.	Degree	12	5	July	None
St. Francis Hospital, Wichita	Wichita University †	A. A. Hellwig, M.D.	2 yrs.	12	10	Feb/Sept	\$150
Veterans Admin. Hospital, Wichita *		S. A. Jacobson, M.D.	Degree	12	2	July	None
Wichita Hospital, Wichita *	Sacred Heart Junior College	L. C. Murphy, M.D.	2 yrs.	12	6	June/Sept	\$150B
KENTUCKY							
Good Samaritan Hospital, Lexington *	University of Kentucky †	E. S. Maxwell, M.D.	3 yrs.	12	10	Quarterly	U&B
St. Joseph Hospital, Lexington		E. S. Maxwell, M.D.	2 yrs.	12	4	Jun/Sept	\$150
Kentucky State Department of Health School of Laboratory Technic, Louisville *		L. H. South, M.D.	2 yrs.	12	40	June/Sept	\$300
Norton Memorial Infirmary, Louisville *		M. L. Barnes, M.D.	2 yrs.	12	5	Varies	\$150
St. Anthony Hospital, Louisville	Ursuline College †	J. D. Allen, M.D.	2 yrs.	12	4	.....	None
St. Joseph Infirmary, Louisville	Nazareth College	S. H. Black, M.D.	3½ yrs.	12	7	July/Sept	\$75
SS. Mary and Elizabeth Hospital, Louisville	Nazareth College †	S. H. Black, M.D.	2 yrs.	12	4	Sept	\$120
Veterans Admin. Hospital, Louisville *	University of Louisville	H. Gordon, M.D.	2 yrs.	12	5	Full	None
LOUISIANA							
St. Francis Sanitarium, Monroe *		N. Klam, M.D.	2 yrs.	12	4	Jan/Sept	None
Charity Hospital of Louisiana, New Orleans *		E. S. Moss, M.D.	Degree	12	25	Monthly	None
Mersey Hospital-Soniat Memorial, New Orleans *	Loyola University	G. H. Hauser, M.D.	Degree	12	10	.....	None
Southern Baptist Hospital, New Orleans *		E. H. Lawson, M.D.	2 yrs.	18	6	July/Oct	None
U. S. Marine Hospital, New Orleans *		L. L. Swan, M.D.	2 yrs.	12	4	Sept	None
T. E. Schumpert Memorial Sanit., Shreveport *	Northwestern State College †	W. P. Butler, M.D.	2 yrs.	12	6	Varies	\$50
Shreveport Charity Hospital, Shreveport *	Northwestern State College †	W. R. Mathews, M.D.	2 yrs.	12	4	Jan/Sept	None
MAINE							
Eastern Maine General Hospital, Bangor *	University of Maine †	R. C. Wadsworth, M.D.	3 yrs.	18	6	Jan/July	\$150B
Central Maine General Hospital, Lewiston	Colby College †; Univ. of Maine †	I. I. Goodof, M.D.	2 yrs.	12	10	Varies	\$150
Maine General Hospital, Portland		J. E. Porter, M.D.	2 yrs.	12	8	July	None
MARYLAND							
Mersey Hospital, Baltimore	Mount St. Agnes College †	H. T. Collenberg, M.D.	2 yrs.	24	20	Sept	U&B
St. Joseph's Hospital, Baltimore *	Notre Dame College	H. L. Wollenweber, M.D.	2 yrs.	12	6	Varies	None
Union Memorial Hospital, Baltimore *		W. C. Merkel, M.D.	2 yrs.	12	5	Sept	\$150
MASSACHUSETTS							
Faulkner Hospital, Boston *	Simmons College	P. M. LeCompte, M.D.	Degree	12	2	Jan/Sept	None
Massachusetts Memorial Hospitals, Boston	Simmons College †	C. S. Keefer, M.D.	2 yrs.	12	12	Varies	None
New England Deaconess Hospital, Boston		S. Warren, M.D.	2 yrs.	16-18	4	June/Sept	None
New England Hospital for Women and Children, Boston	Colby Junior College †	G. L. Muller, M.D.	2 yrs.	12	5	July/Sept	B
Truesdale Hospital, Fall River *		W. Freeman, M.D.	2 yrs.	12	4	Varies	None
Burbank Hospital, Fitchburg *		H. J. Sparling Jr., M.D.	2 yrs.	12	2	Varies	None

APPROVED SCHOOLS FOR MEDICAL TECHNOLOGISTS—Continued

Name and Location of School	College Affiliation	Pathologist in Charge	Minimum Pre-requisite College	Length of Training in Months	Maximum Enrollment	Classes Begin	Tuition
MASSACHUSETTS—Continued							
Holyoke Hospital, Holyoke *	University of Massachusetts †	W. Kaufmann, M.D.	Degree	12	6	July	None
Lawrence General Hospital, Lawrence *		L. S. Jolliffe, M.D.	Degree	12	2	July	None
St. Luke's Hospital, Pittsfield *		E. E. Joslin, M.D.	2 yrs.	15	3	JanSept	B
Quincy City Hospital, Quincy		O. J. Pollak, M.D.	Degree	18	3		None
Salem Hospital, Salem *		D. A. Nickerson, M.D.	2 yrs.	12	2	Sept	None
Mercy Hospital, Springfield		J. Rini, M.D.	2 yrs.	12	5	Quarterly	None
Taunton State Hospital, Taunton *		C. C. Van Winkle, M.D.	2 yrs.	12	4	July	None
Tewksbury State Hospital and Infirmary, Tewksbury *		H. S. Glidden, M.D.	2 yrs.	12	2	Varies	None
Worcester City Hospital, Worcester *		R. H. Goodale, M.D.	2 yrs.	12	6	Every 2 mo.	None
Worcester State Hospital, Worcester *			2 yrs.	12	3	JanJuly	None
MICHIGAN							
University Hospital, Ann Arbor *	University of Michigan †	F. H. Bethell, M.D.	3 yrs.	12	16	June	U
Leila Y. Post Montgomery Hosp., Battle Creek *	Michigan State College	G. W. Schelm, M.D.	Degree	12	3	June	None
Mercy Hospital, Bay City *	Junior College	W. G. Gamble Jr., M.D.	2 yrs.	12	3	Varies	None
Veterans Admin. Hospital, Dearborn *	Wayne University	H. J. Linn, M.D.	3 yrs.	12	12	July	None
Chas. Godwin Jennings Hospital, Detroit		M. E. Maun, M.D.	2 yrs.	12	2	Varies	\$125
City of Detroit Receiving Hospital, Detroit	Wayne University †	O. A. Brines, M.D.	3 yrs.	12	12	July	\$100
Evangelical Deaconess Hospital, Detroit	Wayne University †	M. E. Madsen, M.D.	2 yrs.	12	2	JuneSept	\$50
Grace Hospital, Detroit	Wayne Univ.; Mich. State Coll.†	C. I. Owen, M.D.	2 yrs.	12	14	Varies	None
Henry Ford Hospital, Detroit	Wayne University †	F. W. Hartman, M.D.	Degree	18	18	Monthly	None
Mount Carmel Mercy Hospital, Detroit	Mercy College †	L. W. Gardner, M.D.	3 yrs.	12	12	Sept	\$150
Providence Hospital, Detroit *	Wayne University †	D. H. Kaump, M.D.	2 yrs.	12	14	Varies	\$100
St. Mary's Hospital, Detroit *	Mercy College †; Holy Name Coll.†	M. E. Maun, M.D.	2 yrs.	12	12	June	\$100
Woman's Hospital, Detroit	Wayne Univ.; Mich. State Coll.†	D. C. Beaver, M.D.	3 yrs.	12	7	JulySept	\$100
Wayne County Gen. Hosp. and Infirmary, Eloise	Wayne Univ.; Univ. of Detroit †; Michigan State College †	S. E. Gould, M.D.	Degree	12	10	Quarterly	None
Hurley Hospital, Flint *	Michigan State College †	R. J. Jermstad, M.D.	3 yrs.	12	6	Monthly	None
St. Joseph's Hospital, Flint *	Michigan State College †	G. R. Backus, M.D.	3 yrs.	12	2	July	None
Blodgett Memorial Hospital, Grand Rapids *	Michigan State College †	C. A. Payne, M.D.	3 yrs.	12	4	July	None
Butterworth Hospital, Grand Rapids *	Michigan State College †	P. A. Van Pernis, M.D.	2 yrs.	12	6	July	None
St. Mary's Hospital, Grand Rapids *	Aquinas College †	E. F. Ducey, M.D.	2 yrs.	15	3	JuneSept	None
Borgess Hospital, Kalamazoo *	Western Michigan College †; Michigan State College †; Nazareth College †	A. DeGroat, M.D.	2 yrs.	12	4	July	B
Bronson Methodist Hospital, Kalamazoo	Western Michigan College †; Michigan State College †	H. R. Prentice, M.D.	2 yrs.	12	5	JanJuly	B
Edward W. Sparrow Hospital, Lansing	Michigan State College †	O. E. Black, M.D.	3 yrs.	12	6	Varies	None
Michigan Department of Health, Bureau of Laboratories, Lansing *	1	H. E. Cope, M.D.	3 yrs.	12	45	Varies	None
Port Huron Hospital, Port Huron *		L. E. Dickelmann, M.D.	2 yrs.	12	3	Sept	None
Saginaw General Hospital, Saginaw	Michigan State College †	R. Bucklin, M.D.	2 yrs.	12	5	JanJuly	None
Wyandotte General Hospital, Wyandotte *	Wayne University	W. A. Stryker, M.D.	3 yrs.	12	2	July	\$100
MINNESOTA							
St. Luke's Hospital, Duluth	Mich. State Coll.†; Hamline Univ.†; Duluth State Teachers' College †	A. H. Wells, M.D.	2 yrs.	18	12	FebJuly	None
St. Mary's Hospital, Duluth	College of St. Scholastica †	W. V. Knoll, M.D.	2 yrs.	12	14	JuneAug	\$75B
Minneapolis General Hospital, Minneapolis	University of Minnesota †	S. S. Barron, M.D.	Degree	12	18	Every 3 wks.	None
Swedish Hospital, Minneapolis	Gustavus Adolphus College	M. A. Williams, M.D.	2 yrs.	12	10	Monthly	\$125
University of Minnesota Hospital, Minneapolis *	University of Minnesota †	G. T. Evans, M.D.	3 yrs.	12	60	Quarterly	U
St. Cloud Hospital, St. Cloud *		P. E. Stangl, M.D.	2 yrs.	12	5	Varies	\$75
Ancker Hospital, St. Paul		J. F. Noble, M.D.	3 yrs.	12	6	July	None
Charles T. Miller Hospital, St. Paul *	Macalester College †	K. Ikeda, M.D.	3 yrs.	12	12	FebJuly	\$110
MISSISSIPPI							
Mississippi Baptist Hospital, Jackson *		F. G. Bratley, M.D.	2 yrs.	12	4	Varies	None
Mercy Hospital-Street Memorial, Vicksburg *	Mississippi State College †	R. H. Fenstermacher, M.D.	2 yrs.	12	10	Varies	B
MISSOURI							
St. Louis County Hospital, Clayton	LeClerc College †	W. G. Brown, M.D.	2 yrs.	12	8	Quarterly	None
Kansas City General Hosp. No. 1, Kansas City *		V. B. Buhler, M.D.	2 yrs.	18	18	Monthly	None
Kansas City General Hosp. No. 2, Kansas City *		V. B. Buhler, M.D.	2 yrs.	18	4	Monthly	None
Menorah Hospital, Kansas City *		H. Cohen, M.D.	Degree	12	4	Varies	None
Research Hospital, Kansas City		H. K. B. Allebach, M.D.	2 yrs.	12	10	Every 6 wks.	None
St. Joseph's Hospital, Kansas City		R. W. Kerr, M.D.	Degree	12	14	Monthly	B
St. Luke's Hospital, Kansas City		F. C. Helwig, M.D.	2 yrs.	15	12	Monthly	None
St. Mary's Hospital, Kansas City *		A. E. Upsher, M.D.	2 yrs.	12	8	JuneOct	B
Trinity Lutheran Hospital, Kansas City		J. H. Hill, M.D.	Degree	12	2	Varies	None
Barnes Hospital, St. Louis *	Washington Univ. School of Medicine	G. J. Dammin, M.D.	2 yrs.	12	12	FebSept	\$100
Homer G. Phillips Hospital, St. Louis *		J. A. Saxton Jr., M.D.	2 yrs.	18-24	5	JanSept	None
Missouri Baptist Hospital, St. Louis *		W. E. B. Hall, M.D.	2 yrs.	12	4	JanJuly	None
St. Anthony's Hospital, St. Louis	Marquette University †	B. C. Portuondo, M.D.	3 yrs.	12	1	July	None
St. Louis City Hospital, St. Louis		J. A. Saxton Jr., M.D.	2 yrs.	15	8	Quarterly	None
St. Louis Univ. School of Nursing, St. Louis *	St. Louis University †	G. O. Brown, M.D.	3 yrs.	12	15	Sept	\$150
Burge Hospital, Springfield	Drury College †	E. B. Hanan, M.D.	2 yrs.	12	3	JuneSept	B
MONTANA							
St. Vincent's Hospital, Billings *	Montana State College †; Montana State University †	M. E. Martin, M.D.	3 yrs.	12	5	JanJune	B
Murray Hospital, Butte *	University of Montana †; Montana State College †	R. F. Peterson, M.D.	3 yrs.	12	4	June	B
Columbus Hospital, Great Falls *	College of Great Falls †	P. J. Gerity Jr., M.D.	4 yrs.	13	4	JuneSept	None
Montana Deaconess Hospital, Great Falls *		E. Hildebrand, M.D.	3 yrs.	12	10	July	None
NEBRASKA							
Bryan Memorial Hospital, Lincoln *	Nebraska Wesleyan University †	F. H. Tanner, M.D.	2 yrs.	12	8	Varies	B
Lincoln General Hospital, Lincoln *		F. H. Tanner, M.D.	2 yrs.	12	6	Quarterly	None
St. Elizabeth Hospital, Lincoln		J. M. Neely, M.D.	2 yrs.	12	3	Varies	None
Bishop Clarkson Memorial Hospital, Omaha *		M. E. Foster, M.D.	2 yrs.	12	6	Varies	\$25
Creighton Memorial St. Joseph's Hosp., Omaha *	Creighton University †	B. C. Russum, M.D.	3 yrs.	12	9	Quarterly	\$100
University of Nebraska Hospital, Omaha *	Univ. of Nebraska College of Med...	J. P. Tollman, M.D.	2 yrs.	12	8	JuneAug	\$75

APPROVED SCHOOLS FOR MEDICAL TECHNOLOGISTS—Continued

Name and Location of School	College Affiliation	Pathologist in Charge	Minimum Pre-requisite College	Length of Training in Months	Maximum Enrollment	Classes Begin	Tuition
NEVADA							
St. Mary's Hospital, Reno.....	University of Nevada †.....	L. Parsons, M.D.....	3 yrs.	18	2	Varies	None
NEW HAMPSHIRE							
Concord Hospital, Concord *.....	University of New Hampshire †.....	J. H. Park, M.D.....	Degree	12	4	Varies	None
Mary Hitchcock Memorial Hospital, Hanover *.....	Colby Junior College †; State Univ. †.....	J. Holyoke, M.D.....	2 yrs.	12	9	Quarterly	B
Elliot Hospital, Manchester *.....	.....	S. M. Brooks, M.D.....	2 yrs.	12	2	July	B
Notre Dame de Lourdes Hospital, Manchester *.....	Rivier College †.....	R. E. Bron, M.D.....	2 yrs.	15	2	Jan/July	\$100
NEW JERSEY							
Newark Beth Israel Hospital, Newark *.....	Newark University †.....	L. M. Goldman, M.D.....	2 yrs.	12	10	Varies	\$20
Newark City Hospital, Newark *.....	New York University †.....	H. S. Martland, M.D.....	3 yrs.	12	2	June	U&B
Presbyterian Hospital, Newark *.....	Rutgers University †.....	S. A. Goldberg, M.D.....	3 yrs.	12	4	Fall	U
St. Michael's Hospital, Newark *.....	Seton Hall College.....	S. J. Rose, M.D.....	2 yrs.	12	2	Sept	\$150
Mercer Hospital, Trenton.....	.....	T. K. Rathmell, M.D.....	2 yrs.	18	3	Sept	\$150
NEW YORK							
Bender School of Medical Technology, Albany *.....	Union University †.....	J. J. Cleginner, M.D.....	2 yrs.	18	15	Sept	\$200
Binghamton City Hospital, Binghamton *.....	.....	V. W. Bergstrom, M.D.....	2 yrs.	12	4	Varies	None
Jewish Hospital, Brooklyn *.....	Long Island College of Medicine.....	D. M. Grayzel, M.D.....	4 yrs.	18	6	Quarterly	None
Prospect Heights Hospital, Brooklyn *.....	.....	S. H. Polayes, M.D.....	2 yrs.	12	3	Jan/July	None
St. Mary's Hospital, Brooklyn *.....	.....	W. Moltrier Jr., M.D.....	2 yrs.	12	8	Varies	B
Buffalo General Hospital, Buffalo *.....	University of Buffalo †.....	S. L. Vaughan, M.D.....	2 yrs.	12	26	Varies	\$50
Edward J. Meyer Memorial Hospital, Buffalo *.....	University of Buffalo †.....	D. K. Miller, M.D.....	2 yrs.	12	10	Monthly	None
Arnot-Onden Memorial Hospital, Elmira *.....	.....	S. E. Cohen, M.D.....	2 yrs.	12	4	Varies	None
St. Joseph's Hospital, Elmira *.....	Nazareth College †.....	J. A. Mitchell, M.D.....	2 yrs.	12	6	June/Sept	\$100
Flushing Hospital, Flushing *.....	.....	J. Werne, M.D.....	2 yrs.	12-15	4	Jan/July	None
Mendowbrook Hospital, Hempstead *.....	Adelphi College.....	T. J. Curphey, M.D.....	2 yrs.	18	3	Every 6 mo.	None
Mary Immaculate Hospital, Jammelen.....	.....	M. Bevilacqua, M.D.....	2 yrs.	12	5	Oct	\$150
St. John's Long Island City Hospital, Long Island City *.....	.....	J. Werne, M.D.....	Degree	12-24	3	Jan/July	None
Montefiore Hospital for Chronic Diseases, New York City *.....	New York University.....	H. M. Zimmerman, M.D.....	4 yrs.	12	6	Jan/July	None
Rochester General Hospital, Rochester *.....	.....	M. G. Bohrod, M.D.....	Degree	18	12	Feb/Sept	\$100
St. Mary's Hospital, Rochester *.....	.....	J. Adler, M.D.....	2 yrs.	12	4	Sept	None
Ellis Hospital, Schenectady *.....	.....	E. Keller, M.D.....	2 yrs.	12	8	Monthly	\$100
U. S. Marine Hospital, Staten Island *.....	Wagner Memorial Lutheran College †.....	L. H. Sophian, M.D.....	3½ yrs.	12	6	Quarterly	B
Sammaritan Hospital, Troy *.....	Russell Sage College †.....	C. M. Alexander, M.D.....	2 yrs.	12	3	Sept	U
Grasslands Hospital, Valhalla *.....	New York University †.....	D. M. Spahn, M.D.....	3 yrs.	12	2	July	None
St. John's Riverside Hospital, Yonkers *.....	.....	C. E. DeAngeli, M.D.....	2 yrs.	12	3	Varies	None
NORTH CAROLINA							
Charlotte Memorial Hospital, Charlotte.....	Queen's College †.....	P. Kimmelstiel, M.D.....	4 yrs.	12-18	6	August	B
Mercy Hospital, Charlotte.....	Sacred Heart Junior College.....	T. Byrnes, M.D.....	2 yrs.	15	1	Varies	None
Duke Hospital, Durham *.....	Duke University.....	D. S. Martin, M.D.....	2 yrs.	18	20	Sept	\$75
Watts Hospital, Durham *.....	University of North Carolina.....	J. V. Gunter, M.D.....	2 yrs.	12	8	Jan/July	\$50
North Carolina Baptist Hosp., Winston-Salem *.....	Salem College †; Wake Forest Coll. †.....	C. C. Carpenter, M.D.....	2 yrs.	12	10	Oct	\$65
NORTH DAKOTA							
St. Alexis Hospital, Bismarck *.....	.....	L. W. Larson, M.D.....	2 yrs.	12	6	June/Sept	B
Grand Forks Deaconess Hospital, Grand Forks *.....	University of North Dakota.....	A. K. Sakl, M.D.....	2 yrs.	12	8	Feb/Sept	None
Trinity Hospital, Minot *.....	.....	P. J. Breslich, M.D.....	2 yrs.	12	4	Sept	None
OHIO							
Children's Hospital, Akron *.....	.....	M. R. Baker, M.D.....	2 yrs.	12	2	Jan/July	None
City Hospital, Akron *.....	.....	L. Catron, M.D.....	2 yrs.	12	9	Varies	None
Peoples Hospital, Akron.....	.....	G. R. Doelant, M.D.....	2 yrs.	12	5	Quarterly	B
St. Thomas Hospital, Akron.....	.....	G. G. Proskauer, M.D.....	2 yrs.	12-15	3	July	None
Aultman Hospital, Canton *.....	.....	D. G. Henderson, M.D.....	2 yrs.	12	4	Varies	\$100
Bethesda Hospital, Cincinnati *.....	University of Cincinnati †.....	R. J. Davis, M.D.....	3 yrs.	12	3	July	\$50
Christ Hospital, Cincinnati *.....	University of Cincinnati †.....	J. W. Lechlitter, M.D.....	3 yrs.	12	4	July	\$125 B
Good Samaritan Hospital, Cincinnati.....	Coll. of Mt. St. Joseph-on-the-Ohio †.....	W. M. Gorman, M.D.....	3 yrs.	12	5	Sept	\$80
Jewish Hospital, Cincinnati *.....	University of Cincinnati †.....	P. Wasserman, M.D.....	2 yrs.	12	4	Feb/July	\$125
Our Lady of Mercy Hospital, Cincinnati *.....	Our Lady of Cincinnati College.....	K. E. Lande, M.D.....	Degree	12	3	Varies	U&B
Mount Sinai Hospital, Cleveland.....	Western Reserve University †.....	B. S. Kluge, M.D.....	2 yrs.	12	12	Monthly	\$100
University Hospitals, Cleveland *.....	Western Reserve University †.....	H. Z. Lund, M.D.....	2 yrs.	12	10	Monthly	\$100
Mount Carmel Hospital, Columbus *.....	Ohio University †; College of St. Mary of Springs †.....	H. B. Davidson, M.D.....	2 yrs.	12	12	Varies	None
Ohio State University Hospital, Columbus *.....	Ohio State University †.....	H. L. Reinhardt, M.D.....	3 yrs.	12	40	Quarterly	U
Miami Valley Hospital, Dayton.....	University of Dayton †.....	M. Oosting, M.D.....	2 yrs.	12	6	July	None
St. Elizabeth Hospital, Dayton *.....	University of Dayton †.....	W. Abranson, M.D.....	2 yrs.	12	4	Sept	U
Veterans Admin. Center, Dayton *.....	University of Dayton †.....	C. Raven, M.D.....	2 yrs.	12	10	Varies	None
Huron Road Hospital, East Cleveland.....	.....	E. Goodsett, M.D.....	2 yrs.	12	12	Jan/July	\$50
Mercy Hospital, Hamilton *.....	Our Lady of Cincinnati College †.....	K. E. Lande, M.D.....	3 yrs.	12	6	Feb/July	U&B
Lakewood Hospital, Lakewood *.....	Baldwin-Wallace College †.....	O. Eltzon, M.D.....	2 yrs.	12	6	Varies	\$100
St. Rita's Hospital.....	.....	C. L. Blumstein, M.D.....	2 yrs.	12-21	1	Varies	None
Springfield City.....	.....	M. P. Hunter, M.D.....	2 yrs.	12	5	Sept	B
Maumee Valley.....	.....	G. T. Rich, M.D.....	2 yrs.	12	1	Quarterly	B
Mercy Hospital, Toledo *.....	University of Toledo †.....	J. B. Rucker, M.D.....	2 yrs.	12	4	June/Sept	None
Riverside Hospital, Toledo *.....	University of Toledo.....	A. E. Rhoden, M.D.....	Degree	12	2	July	None
St. Vincent's Hospital, Toledo *.....	University of Toledo †.....	M. F. Vidoll, M.D.....	2 yrs.	12	8	Varies	None
Toledo Hospital, Toledo.....	University of Toledo †.....	B. Steinhilber, M.D.....	3 yrs.	12	8	Feb/Sept	None
St. Elizabeth Hospital, Youngstown.....	.....	W. D. Collier, M.D.....	2 yrs.	12	2	Varies	None
Youngstown Hospital, Youngstown *.....	.....	H. K. Giffen, M.D.....	2 yrs.	12	12	Oct	\$50
OKLAHOMA							
Mercy Hospital, Oklahoma City.....	Univ. of Oklahoma School of Med... †.....	H. A. Stout, M.D.....	2 yrs.	12	2	Varies	None
St. Anthony Hospital, Oklahoma City.....	Univ. of Oklahoma †; Agricultural and Mechanical College †.....	H. Jeter, M.D.....	Degree	12	8	Varies	None
University Hospitals, Oklahoma City *.....	Univ. of Oklahoma; Univ. of Oklahoma School of Medicine.....	B. Halpert, M.D.....	Degree	12	6	Every 2 mo.	None
Wesley Hospital, Oklahoma City *.....	.....	W. F. Keller, M.D.....	Degree	12	2	Varies	None
St. John's Hospital, Tulsa *.....	University of Tulsa.....	E. E. Palk, M.D.....	Degree	12	8	Varies	None

APPROVED SCHOOLS FOR MEDICAL TECHNOLOGISTS—Continued

Name and Location of School	College Affiliation	Pathologist in Charge	Minimum Pre-requisite College	Length of Training in Months	Maximum Enrollment	Classes Beg'n	Tuition
OREGON							
Sacred Heart General Hospital, Eugene.....		E. D. Furrer, M.D.....	2 yrs.	12	4	JanJuly	None
Emanuel Hospital, Portland.....		H. H. Foskett, M.D.....	2 yrs.	12	2	Varies	B
Good Samaritan Hospital, Portland *.....		W. L. Lehman, M.D.....	2 yrs.	12	5	Varies	None
Portland Sanitarium and Hospital, Portland *..	University of Oregon Medical School	W. C. Hunter, M.D.....	2 yrs.	12	2	Varies	None
St. Vincent's Hospital, Portland.....		F. R. Menne, M.D.....	Degree	12	4	Sept	\$50
University of Oregon Medical School Hospitals and Clinics, Portland *.....	University of Oregon Medical School	R. D. Grondahl, M.D.....	2 yrs.	12	16	Varies	None
PENNSYLVANIA							
Ablington Memorial Hospital, Abington *.....		J. Eiman, M.D.....	2 yrs.	18	7	Every 2 mo.	None
Allentown Hospital, Allentown.....	Cedar Crest College †; Moravian College for Women †.....	J. J. Wenner, M.D.....	2 yrs.	12	4	June	\$75
Sacred Heart Hospital, Allentown *.....	Cedar Crest College †; Moravian College for Women †.....	D. E. Stader, M.D.....	3 yrs.	12	6	JuneSept	\$90
St. Luke's Hospital, Bethlehem.....	Moravian College for Women †.....	T. A. Cope Jr., M.D.....	2 yrs.	12	4	July	\$100
Bryn Mawr Hospital, Bryn Mawr *.....		M. M. Strumia, M.D.....	2 yrs.	15	7	Quarterly	\$150
Geo. F. Geisinger Memorial Hospital, Danville..	Bucknell University †.....	H. F. Hunt, M.D.....	2 yrs.	12	6	FebJuly	\$400
Fitzgerald-Mercy Hospital, Darby.....		A. Valdes-Dapena, M.D.....	2 yrs.	12	4	Varies	B
Easton Hospital, Easton *.....	Moravian College for Women †.....	N. W. Larkum, M.D.....	2 yrs.	12-24	2	JulySept	None
St. Vincent's Hospital, Erie *.....		K. L. Burt, M.D.....	2 yrs.	12	5	July	None
Harrisburg Hospital, Harrisburg.....		G. R. Moffitt, M.D.....	2 yrs.	12	10	Every 2 mo.	None
Harrisburg Polyclinic Hospital, Harrisburg.....		J. S. Forrester, M.D.....	2 yrs.	12	4	July	\$100
Hazleton State Hospital, Hazleton *.....	Pennsylvania State College.....	J. Folds, M.D.....	2 yrs.	12	6	FebSept	B
Mercy Hospital, Johnstown *.....	Mount Aloysius Junior College.....	H. B. Anderson, M.D.....	2 yrs.	12	4	June	B
Nesbitt Memorial Hospital, Kingston.....		T. Baker, M.D.....	2 yrs.	12	2	Varies	None
Lancaster General Hospital, Lancaster *.....		G. J. Heid Jr., M.D.....	2 yrs.	18	4	August	\$200B
St. Joseph's Hospital, Lancaster.....		E. E. Ziegler, M.D.....	2 yrs.	12-18	6	Monthly	B
Germantown Dispensary and Hosp., Philadelphia		F. B. Lynch Jr., M.D.....	2 yrs.	12	5	JanOct	\$200
Hahnemann Hospital, Philadelphia *.....	Hahnemann Medical College †.....	J. E. Gregory, M.D.....	2 yrs.	24	12	Sept	\$100B
Jefferson Medical College Hospital, Philadelphia	Jefferson Medical College.....	C. J. Bucher, M.D.....	2 yrs.	18	18	MarSept	\$100B
Jewish Hospital, Philadelphia *.....		C. Weiss, M.D.....	2 yrs.	12	6	Quarterly	\$100
Lankenau Hospital, Philadelphia.....		C. E. Brown, M.D.....	2 yrs.	12	4	Sept	\$100
Mount Sinai Hospital, Philadelphia.....	Hahnemann Medical College.....	D. R. Meranze, M.D.....	2 yrs.	18	3	Varies	\$150B
Pennsylvania Hospital, Philadelphia *.....		A. R. Crane, M.D.....	2 yrs.	12	15	Monthly	\$100
Pepper Laboratory of Clinical Medicine, University of Pennsylvania, Philadelphia.....	University of Pennsylvania.....	J. H. Austin, M.D.....	2 yrs.	18	6	Every 2 mo.	\$150
Philadelphia General Hospital, Philadelphia *..	Pennsylvania State College.....	J. H. Clark, M.D.....	2 yrs.	12	8	Quarterly	None
Presbyterian Hospital, Philadelphia *.....	University of Pennsylvania.....	R. P. Custer, M.D.....	2 yrs.	18	3	Varies	\$150
St. Agnes Hospital, Philadelphia *.....		R. Frohner, M.D.....	2 yrs.	12	5	Quarterly	B
St. Joseph's Hospital, Philadelphia *.....		J. Stasney, M.D.....	2 yrs.	12	3	FebSept	\$150B
Temple University Hospital, Philadelphia *.....	Temple University †.....	E. E. Aegerter, M.D.....	2 yrs.	22	33	FebSept	\$200
Montefiore Hospital, Pittsburgh *.....		K. Yardumian, M.D.....	2 yrs.	12	8	JulySept	\$100B
Pottsville Hospital, Pottsville *.....		R. E. Hobbs, M.D.....	2 yrs.	12	3	Varies	None
Community General Hospital, Reading *.....		H. S. Cook, M.D.....	2 yrs.	18-24	2	Varies	None
Reading Hospital, Reading.....	Albright College †.....	W. P. Jennings, M.D.....	2 yrs.	12	4	Sept	\$150
St. Joseph's Hospital, Reading *.....		G. P. Desjardins, M.D.....	2 yrs.	12	4	Varies	\$150
Robert Packer Hospital, Sayre *.....	Elmira College for Women.....	C. H. DeWan, M.D.....	2 yrs.	12	4	July	None
Moses Taylor Hospital, Scranton.....		C. L. Mattas, M.D.....	2 yrs.	12	4	Varies	None
Scranton State Hospital, Scranton *.....		E. P. Swartz, M.D.....	2 yrs.	18	5	JanJuly	None
Christian H. Buhl Hospital, Sharon *.....		P. C. Gillette, M.D.....	2 yrs.	12	2	JanJuly	B
Wilkes-Barre General Hospital, Wilkes-Barre *..		C. R. Tutbill, M.D.....	2 yrs.	12	3	Varies	B
Williamsport Hospital, Williamsport *.....	Bucknell University †.....	M. G. Colvin, M.D.....	2 yrs.	12	3	Sept	None
SOUTH CAROLINA							
Medical College of the State of South Carolina, Charleston *.....		D. W. Ellis, M.D.....	2 yrs.	15	20	Every 6 wks.	B
SOUTH DAKOTA							
McKenna Hospital, Sioux Falls *.....		E. Pekelis, M.D.....	2 yrs.	12	4	FebSept	\$70B
Sioux Valley Hospital, Sioux Falls *.....	University of South Dakota †.....	J. Y. Clarke Jr., M.D.....	3 yrs.	12	5	Varies	\$70B
Sacred Heart Hospital, Yankton.....	University of South Dakota †.....	J. C. Ohlmacher, M.D.....	2 yrs.	12	2	MarSept	\$34B
TENNESSEE							
Baroness Erlanger Hospital, Chattanooga.....	University of Chattanooga †.....	J. W. Adams Jr., M.D... 2 yrs.	12	8	Varies	None	
Knoxville General Hospital, Knoxville.....		R. H. Monger, M.D.....	2 yrs.	12	4	JanJuly	B
John Gaston Hospital, Memphis.....	Univ. of Tennessee College of Med.†	D. H. Sprunt, M.D.....	2 yrs.	15	8	MarSept	U&B
Methodist Hospital, Memphis.....		W. W. Tribby, M.D.....	2 yrs.	13	7	Monthly	\$100
St. Joseph Hospital, Memphis.....		T. C. Moss, M.D.....	2 yrs.	15	10	Every 2 mo.	B
Geo. W. Hubbard Hospital, Nashville *.....	Tennessee A. & I. State College †..	G. D. Holloway, M.D.... 2 yrs.	24	12	Sept	\$280	
Nashville General Hospital, Nashville *.....		W. A. DeMonbreun, M.D. 2 yrs.	12	6	Varies	None	
St. Thomas Hospital, Nashville.....		D. K. Gotwald, M.D.....	2 yrs.	12	4	Varies	None
Veterans Admin. Hospital, Nashville *.....		S. H. Auerbach, M.D.....	2 yrs.	12	4	Varies	None
TEXAS							
Brackenridge Hospital, Austin *.....		S. W. Bohls, M.D.....	Degree.	12	4	AprSept	None
Hotel Dieu Hospital, Beaumont *.....	Lamar College.....	E. D. Furey, M.D.....	2 yrs.	18	3	FebJune	B
St. Therese Hospital, Beaumont *.....	Lamar College.....	H. B. Williford, M.D.... 2 yrs.	18	3	FebSept	B	
Baylor University Hospital, Dallas.....	Baylor University †.....	J. M. Hill, M.D.....	2 yrs.	13	18	FebJuly	\$100
St. Paul's Hospital, Dallas *.....		J. L. Goforth, M.D.....	2 yrs.	12	4	JanJuly	None
Harris Hospital, Fort Worth.....	Texas Christian University †.....	J. J. Andujar, M.D.....	3 yrs.	12	10	Sept	U
Terrell's Laboratories, Fort Worth.....	North Texas State Teachers College †	T. C. Terrell, M.D.....	3 yrs.	12	3	FebJuly	None
John Sealy Hospital, Galveston *.....	University of Texas Medical Branch	P. Brindley, M.D.....	2 yrs.	12	13	Monthly	\$122B
Jefferson Davis Hospital, Houston *.....	University of Houston †.....	W. W. Coulter Sr., M.D. 2 yrs.	12	12	Monthly	\$50	
Methodist Hospital, Houston.....	Baylor Univ. College of Medicine †..	H. Davenport Jr., M.D. 2 yrs.	12	4	JanJuly	None	
St. Joseph's Infirmary, Houston.....	University of Houston †.....	P. M. Marcuse, M.D.....	2 yrs.	12	4	JuneSept	None

APPROVED SCHOOLS FOR MEDICAL TECHNOLOGISTS—Continued

Name and Location of School	College Affiliation	Pathologist in Charge	Minimum Pre-requisite College	Length of Training in Months	Maximum Enrollment	Classes Begin	Tuition
TEXAS—Continued							
St. Mary's Hospital, Port Arthur *	Northwestern State College †	H. B. Willford, M.D.	2 yrs.	12	4	June/Sept	None
Baptist Memorial Hospital, San Antonio *		A. O. Severance, M.D.	2 yrs.	12	6	Every 2 mo.	None
Nix Memorial Hospital, San Antonio		B. F. Stout, M.D.	2 yrs.	12	3	Varies	None
Santa Rosa Hospital, San Antonio		J. M. Moore, M.D.	2 yrs.	12	8	Quarterly	None
Scott and White Hospital, Temple	Baylor Univ.†; North Texas State Teachers College †	W. N. Powell, M.D.	2 yrs.	12	10	Monthly	None
UTAH							
St. Benedict's Hospital, Ogden *	University of Utah †	R. C. Ellis, M.D.	2 yrs.	12	4	Jan/July	\$75B
Thomas D. Dee Memorial Hospital, Ogden *	University of Utah †	E. D. Zeman, M.D.	3 yrs.	12	4	Jan/June	U
Dr. W. H. Groves Latter-Day Saints Hospital, Salt Lake City *	University of Utah †	J. H. Carlquist, M.D.	3 yrs.	12	4	Jan/July	None
Holy Cross Hospital, Salt Lake City *	University of Utah †; St. Mary's of the Wasatch †	C. McNeil, M.D.	3 yrs.	12	5	July/Sept	None
St. Mark's Hospital, Salt Lake City *	Brigham Young University †	O. A. Ogilvie, M.D.	2 yrs.	12	4	June/Sept	None
Salt Lake County Gen. Hosp., Salt Lake City *	University of Utah Medical School †	F. D. Gunn, M.D.	Degree	12	8	Varies	U
VERMONT							
University of Vermont College of Medicine, Burlington *	University of Vermont †	B. J. Pearson, M.D.	3 yrs.	15	12	Aug	U
VIRGINIA							
University of Virginia Hospital, Charlottesville *		W. E. Bray, M.D.	2 yrs.	12	12	Sept	B
DePaul Hospital, Norfolk *	Richmond Professional Institute †; William and Mary College †	A. J. Strauss, M.D.	2 yrs.	18	8	Varies	\$100
Norfolk General Hospital, Norfolk *		L. J. Matysen, M.D.	2 yrs.	15	10	Quarterly	B
Johnston-Willis Hospital, Richmond		W. A. Shepherd, M.D.	2 yrs.	12	2	Sept	\$100
Medical College of Virginia Hospital Division, Richmond *	Medical College of Virginia †	G. Z. Williams, M.D.	2 yrs.	18	16	Varies	\$25
Stuart Circle Hospital, Richmond	Richmond Professional Institute †	R. C. Beck, M.D.	2 yrs.	12	4	June/Sept	B
WASHINGTON							
King County Hospital, Seattle		C. R. Jensen, M.D.	4 yrs.	12	9	Quarterly	\$10
Providence Hospital, Seattle	Seattle University †	D. G. Mason, M.D.	2 yrs.	12	4	Quarterly	\$20
Deaconess Hospital, Spokane *	University of Idaho †	G. A. C. Snyder, M.D.	2 yrs.	12	4	Varies	None
Sacred Heart Hospital, Spokane *		M. M. Patton, M.D.	2 yrs.	12	6	July/Sept	None
St. Luke's Hospital, Spokane *		O. O. Christianson, M.D.	2 yrs.	12	12	Feb/Sept	\$10
St. Joseph's Hospital, Tacoma *	Seattle University †	C. R. McColl, M.D.	2 yrs.	12	5	Varies	None
Tacoma General Hospital, Tacoma *	Pacific Lutheran College †; College of Puget Sound †	C. P. Larson, M.D.	2 yrs.	12	7	Varies	None
WEST VIRGINIA							
Fairmont General Hospital, Fairmont *	Fairmont State College	L. E. Nolan, M.D.	4 yrs.	12	2	Feb/Aug	.....
School of Med., West Va. Univ., Morgantown *	West Virginia University †	W. G. Putschart, M.D.	3 yrs.	12	8	July	\$120B
Camden-Clark Memorial Hospital, Parkersburg		W. S. Dick, M.D.	2 yrs.	15	6	Varies	None
WISCONSIN							
St. Francis Hospital, La Crosse		P. C. Dietz, M.D.	2 yrs.	12	6	Sept	\$100
Madison General Hospital, Madison		L. M. Gury, M.D.	2 yrs.	12	5	Oct	None
St. Mary's Hospital, Madison	Mount Mary College †; College of St. Teresa †	L. F. Meyer, M.D.	2 yrs.	12	10	June/Sept	B
State of Wisconsin General Hospital, Madison	University of Wisconsin †	W. D. Stovall, M.D.	3 yrs.	12	20	Varies	U
Columbia Hospital, Milwaukee	Marquette University †	G. Ritchie, M.D.	2 yrs.	18	6	Jan/July	None
Evangelical Deaconess Hospital, Milwaukee		R. S. Hankohl, M.D.	2 yrs.	12	2	Sept	\$100
Milwaukee County Hospital, Milwaukee *	Marquette University †	J. F. Kuzma, M.D.	2 yrs.	18	8	Feb/July	None
Milwaukee Hospital, Milwaukee *		E. A. Birge, M.D.	2 yrs.	12	6	July	None
Mount Sinai Hospital, Milwaukee *		N. Ezer, M.D.	2 yrs.	12-24	2	Varies	None
St. Joseph's Hospital, Milwaukee	Marquette University †	W. A. D. Anderson, M.D.	2 yrs.	18	6	June/Oct	None
St. Mary's Hospital, Milwaukee	Marquette University †	S. B. Pessin, M.D.	2 yrs.	18	6	Varies	None
Veterans Admin. Center, Milwaukee (Wood) *		J. M. Lubitz, M.D.	2 yrs.	12	10	Varies	None
St. Mary's Hospital, Racine *		M. Shuster, M.D.	2 yrs.	12	3	June	B
WYOMING							
Memorial Hospital, Cheyenne	University of Wyoming †	S. S. Zuckerman, M.D.	2 yrs.	12	6	Apr/Sept	\$175
CANAL ZONE							
Board of Health Laboratory, Gorgas Hospital, Ancon *	Canal Zone Junior College	N. W. Elton, M.D.	2 yrs.	12	30	Quarterly	None
HAWAII							
Kuakuni Hospital, Honolulu	University of Hawaii †	I. A. Kawasaki, M.D.	3 yrs.	12	1	.....	None
Queen's Hospital, Honolulu *	University of Hawaii †	S. Price, M.D.	3 yrs.	12	3	July	None
St. Francis Hospital, Honolulu	University of Hawaii †	I. L. Tilden, M.D.	3 yrs.	12	2	.....	None
Tripler General Hospital, Moanalua, Honolulu *	University of Hawaii †	A. R. Thomas, M.D.	3 yrs.	12	4	.....	None
PUERTO RICO							
School of Tropical Medicine, University of Puerto Rico, San Juan *	University of Puerto Rico †	O. C. Mandry, M.D.	Degree	12	20	Aug	U&B

† College credit received during hospital training.

1. College credit allowed by each of the following affiliations: Michigan State College, University of Michigan, Western Michigan College of Education, Central Michigan College of Education, Albion College, Alma College, Michigan College of Mining and Technology.

2. College credit allowed by each of the following affiliations: Washington State College, Montana State College, University of Idaho, University of Montana, Lake Erie College.

THE JOURNAL OF THE
AMERICAN MEDICAL ASSOCIATION

535 NORTH DEARBORN STREET - - - CHICAGO 10, ILL.

Edited by

MORRIS FISHBEIN, M.D.

*Assistant Editor, AUSTIN SMITH, M.D.**Associate Editors*

JOHNSON F. HAMMOND, M.D. RICHARD J. PLUNKETT, M.D.

*Editor for Current Medical Literature, GEORGE HALPERIN, M.D.**Assistant to the Editor, JEWEL F. WHELAN*

Subscription price - - - - Twelve dollars per annum in advance

Cable Address - - - - "Medic, Chicago"

Please send in promptly notice of change of address, giving both old and new; always state whether the change is temporary or permanent. Such notice should mention all journals received from this office. Important information regarding contributions will be found on second advertising page following reading matter.

SATURDAY, MAY 7, 1949

THE PRESIDENT'S MESSAGE AND THE COM-
PULSORY HEALTH INSURANCE BILL

President Truman sent to the Congress on April 22 his proposals for the health of the nation. On April 25 Senate Bill 1679 was introduced by a group of senators, including Thomas of Utah, Murray of Montana, Wagner of New York, Pepper of Florida, Chavez of New Mexico, Taylor of Idaho, McGrath of Rhode Island and Humphrey of Minnesota, and in the House by Congressmen Dingell of Michigan and Biemiller of Wisconsin. Elsewhere in this issue (page 114) is a digest of the 163 page text of this measure and also a statement released to the press by Dr. Elmer L. Henderson, chairman of the Board of Trustees of the American Medical Association, as comment on the President's message.

Obviously the propaganda agencies that are devoted to the cause of compulsory sickness insurance provided the thought, if not the language, for President Truman's address. Here are many of the same old misrepresentations that have characterized their previous statements on this subject. Lacking only is reference to the "socialization of medicine"; apparently the proponents of nationalized political medical care have learned that the American people are exceedingly distrustful of socialism. No doubt the most important objection to medicine socialized by nationalization of its control is the well established fact that the taking over of medicine is but the first step toward nationalization of every interest and activity of the nation.

Senate Bill 1679 itself begins with seven premises, not one of which is supported by anything resembling acceptable evidence. The language of these seven premises seems deliberately chosen to frighten the American people. They speak of the "shattering cost" of serious or chronic illness and of the inability of

the people to meet such costs; of the inability of most people to benefit from modern preventive medicine; of the "critical" shortage of personnel; of the "critical" shortage of facilities; of "wholly inadequate" provision for farm families; of the "appallingly inadequate" development of research and of "serious maldistribution" of personnel and facilities. Then, with the impudent deception characteristic of these propagandists, comes the weird assertion that failure to correct these conditions will lead to governmental control, state medicine and regimented doctors. With this is the assertion that existing inadequacies cannot be remedied under the present system of payment for medical care or under any voluntary insurance system. This manipulation of thought and diction is characteristic of the political demagogue and bears no resemblance to anything that is tolerated in the field of medical science.

Incorporated in the 163 pages of text of this highly intricate and somewhat confused measure are Senator Pepper's proposals for aid to medical education, other proposals for aid to medical research, new proposals for the training of practical nurses, expansion of the Hill-Burton Act, special assistance to farmers' cooperatives and expansion of other phases of the Social Security Act concerned with health. No doubt either the present or some future Congress will proceed with the necessary expansion of the Hill-Burton Act; necessary aid to medical research, such as could be achieved by the National Science Foundation, and encouragement of aid in the care of the disabled and handicapped.

Primarily important to the medical profession is Title VII of the Act, "Prepaid Personal Health Insurance Benefits." Of the 163 pages of the Act, this section occupies approximately one third. Under these proposals medical care in the United States would be dominated by a National Health Insurance Board of five, who would be advised by a National Advisory Medical Policy Council. In every state there would be other boards and other advisory councils. In every area there would be more boards and more advisory councils and committees, and in every community there would be more such regulating agencies. Repeatedly the statement has been made that this is not political medicine. If the people who conduct the system are politically appointed and hold their offices only by political support, how could such a system fail to be politically controlled? Actually the measure provides that the federal agency may interfere in any state and take over the operation of the system in that state if the governor of any state should fail to set up the system.

The section of the bill dealing with medical care states that there shall be no discrimination on account of race, creed or color, but the section of the measure dealing with education says that any state which provides separate facilities for persons of different race or color is to duplicate for minority groups the facilities provided for majority groups.

In any community physicians would be asked to determine whether they will choose to be paid by the government on a fee for service basis, a panel system or a salary or varying combinations of these techniques. The decision is to be made in each area by a majority of medical practitioners or dental practitioners who agree to furnish the services, except that other methods will be provided for those who do not choose to vote with the majority if the authorities are convinced that the alternative method will promote the efficient and economical provision of medical services in the area. Presumably the agencies that control medical services in each area would conduct these elections. All of this seems so confused and muddled that even the British system by comparison is a veritable apotheosis of orderliness and logic. Since all such systems inevitably break down individual initiative and the desire of physicians to advance in their profession, an attempt is made to provide professional and financial incentives. The governing body would decide who gets them and for what, and who could go away and for how long to take postgraduate study and also who could take a vacation. Long, long ago a philosopher warned against the Greeks bearing gifts.

The proposed act does not make any positive statements as to the costs of the total service, but it does mention the percentage of the payroll that would be needed, according to the estimates of the authors, to make the act effective. It comes roughly to 3 per cent of the payroll. The message of the President was greeted by a majority of the American press with misgivings and doubts as to what it might do to medical care in our country. The *Washington Post* said plainly that the inability of the government to provide what it promised was apparent and that this was therefore a "gigantic fraud."

No doubt those who represent the American medical profession in any hearings that are held on this and related health measures will point out clearly to the appropriate committees of the House and the Senate the innumerable deficiencies and dangers that are so apparent in this monster measure. The public educational program of the American Medical Association will certainly inform the American people of the hazards to their individual health that would inevitably ensue on the passage of this bill. Unless a complete revolution in American thought, action and way of life should occur, the enactment of this measure would seem to be incredible.

HOSPITAL SERVICE IN THE UNITED STATES

The annual hospital report of the Council on Medical Education and Hospitals published in this issue of *THE JOURNAL* shows a new high in the utilization of hospital service in continental United States. The present bed capacity of 1,423,520 and the average daily census of 1,217,154 are nearly identical with the previous report, but the total of 16,422,772 admissions in 1948 represents an increase of 593,260 in the last year and exceeds also the earlier record of 16,257,402 in 1945. While increases occurred in both the governmental and the nongovernmental divisions, the expansion was not uniform throughout the hospital field. The federal hospitals, for example, reported a reduction of about 100,000 admissions, and the hospitals under "individual and partnership" control 33,000; yet the governmental institutions as a group had a net increase of 86,147 and the nongovernmental hospitals 507,113. The admissions, as here reported, do not include hospital births, which last year totaled 2,794,281 compared with the all time record of 2,837,139 in 1947.

The greatest increase in service was in the general hospitals, which reported 15,160,062 admissions and 2,715,645 births. These totals represent 92 per cent of all patients admitted and 97 per cent of the hospital births in 1948. Although the bed capacity of this group was reduced in the last year from 592,453 to 576,459, the number of admissions increased by 494,867. With an average daily census of 437,590 the general hospitals in 1948 carried 36 per cent of the daily patient load reported in all registered hospitals. The psychiatric hospitals with a capacity of 691,499 beds admitted 305,000 patients, an increase of 13,046 compared with the previous year. While this total represents less than 2 per cent of all admissions, the maintenance of an average daily census of 664,399 indicates that nearly 55 per cent of the occupied hospital beds are utilized for psychiatric care. An increase in tuberculosis hospitalization in the last year is apparent in the report of 105,588 admissions compared with 99,080 in 1947. The tuberculosis hospitals, which have a capacity of 81,993 beds, reported an average daily census of 66,484, or approximately 5 per cent of the total hospital load.

Although the number of beds remained practically unchanged in the last year, the increase in hospital admissions did not result in a proportionate gain in the percentage of beds occupied. This apparent discrepancy is clarified, however, by the reduced period of hospitalization in the general hospital group, to which 92 per cent of all patients were admitted. In 1947 the average patient in a general hospital remained 11.4 days, while in 1948 the average length of stay was 10.5. Last year the over-all hospital occupancy rate was 85.5 per cent as compared with 85.4 in 1947. The percentage in the governmental hospitals increased to 89.0 per cent, but there was a corresponding reduction in the nongovernmental hospitals to 76.7. The general hospitals

maintain an average occupancy of 75.9 per cent, but the increase to 96.1 in the psychiatric group indicates that many hospitals in this field operate well beyond their rated capacity.

While modern hospitals are primarily engaged in the care of the sick, they are also to an increasing degree participating in educational functions necessary to the maintenance of high standards of hospital service. The magnitude of this program is evident in the number of hospitals which have developed educational services for interns, resident physicians, student nurses and hospital technical personnel. Currently there are 807 hospitals approved for interns and 1,140 for the training of resident physicians. The accredited schools of nursing education, which now total 1,163, reported an enrolment of 100,174 student nurses in 1948. There are in addition 224 hospital schools approved for the training of x-ray technicians, 383 schools for medical technologists, 25 for occupational therapy technicians, 26 for physical therapy technicians and 13 for the training of medical record personnel. The generous support which these educational programs have received is a further contribution on the part of the hospital administration and the medical, nursing and technical staffs to the future needs of the hospital field.

Current Comment

TECHNICAL PERSONNEL

The technical schools approved by the Council on Medical Education and Hospitals continued to expand, particularly in the fields of medical technology and roentgen ray technic. Increased numbers of graduates were also observed in occupational therapy, but the reports did not show a corresponding gain in graduates concerned with physical therapy and medical records. The existing schools, even at their present stage of development, are not able, however, to supply the full needs of the expanding hospital field as well as the growing demand for technical personnel in doctors' offices, clinics, medical centers, health laboratories, governmental services, research laboratories and other beckoning fields. The student recruitment program must be further intensified with increased counseling at high school and college levels. Existing courses should be expanded to their full capacity, and additional schools should be developed in other hospitals, colleges and universities that are able to supply the necessary facilities and teaching personnel. Further attention should also be given to the establishment of preparatory courses in colleges and universities with the channeling of personnel into affiliated schools. Whenever possible, credit for time should be extended so that the period of practical hospital experience might be utilized in fulfilling the requirements for a degree. This plan has already been adopted in many centers and is functioning satisfactorily through the establishment of combined hospital and college or university courses. The growing interest in technical training

and the continued cooperation of schools and allied organizations give every indication that well qualified technical personnel will be available in increasing numbers to meet the expanding needs of the medical and hospital fields.

MATERNAL MORTALITY RATE AT A NEW LOW

The final tabulations of the number of births and maternal deaths in 1947 by the National Office of Vital Statistics indicate a new record low maternal mortality rate of 1.3 per 1,000 live births for the United States. The Summary of International Vital Statistics, 1937-1944, published by the National Office of Vital Statistics, does not cite any previous annual maternal death rate as low as the 1.3 achieved by the United States. Thus the maternal death rate for the United States in 1947 was the lowest reported for any nation, large or small, although rates for some nations since 1944 are not readily available. In 1933 the United States ranked eleventh among the leading nations in maternal mortality. The drop from 6.2 in 1933 to 1.3 in 1947, which amounted to 79 per cent, has undoubtedly raised the rank of the United States to first place or close to first place. No other nation has equaled the 79 per cent reduction recorded by the United States in the most recent period of the same duration for which data are available. The maternal mortality rate for whites was 1.1 and for nonwhites, 3.3. This contrasts with a rate in 1933 of 6.2 for the total population, 5.6 for whites and 9.7 for nonwhites. Thus in a period of a decade and a half the maternal mortality rate in the United States had dropped from 6.2 per thousand live births to 1.3. The maternal mortality rate by states is highly significant. Connecticut, Delaware, Iowa, Massachusetts, Minnesota, Oregon, Rhode Island, Utah and Wyoming reported a rate of less than 1.0 for 1947. The lowest rate was 0.6 for Minnesota. None of the states had a rate above 2.6. The phenomenal reduction in maternal mortality in the United States has not been restricted to any single state or group of states, but has been relatively uniform throughout the entire country. In 1933 none of the states had a maternal mortality rate lower than 4.3, while in 1947 no state had a rate higher than 2.6. In 1933 the spread in rates between the two states with the highest and lowest rates was 7.2 from 4.3 to 11.5; in 1947 the corresponding spread was only 2.0, from 0.6 to 2.6. The national maternal mortality rate for whites declined from 5.6 to 1.1 and for nonwhites from 9.7 to 3.3. Thus the declines for whites and nonwhites were 4.5 and 6.4 and the spread between the rates for whites and nonwhites declined from 4.1 (9.7-5.6) to 2.2 (3.3-1.1). It is also abundantly clear that this form of health progress has been extremely general throughout the United States during these fifteen years in which we rose from eleventh to first or second rank among the healthiest nations. This record on maternal mortality eloquently refutes the charge that large sections of the population of the United States are not enjoying the rapid health progress indicated by nationwide health statistics.

ORGANIZATION SECTION

STATEMENT ON TRUMAN HEALTH PLAN

Following is the text of the statement by Dr. Elmer L. Henderson, Chairman of the Board of Trustees of the American Medical Association, on President Truman's proposed national compulsory health insurance program:

President Truman's special message, asking enactment of a national compulsory health insurance program, deserves most careful scrutiny by Congress and by the American people, whose health would be seriously endangered if this Old World scourge is allowed to spread to our New World.

There is neither hope nor promise of progress in this system of regimented medical care. It is the discredited system of decadent nations which are now living off the bounty of the American people—and if adopted here it would not only jeopardize the health of our people but would gravely endanger our freedom. It is one of the final, irrevocable steps toward state socialism—and every American should be alerted to the danger.

One of the great dangers in political diagnosis of the health needs of the people is the temptation to oversimplification. President Truman has fallen into this error.

The President sets forth an objective which all of us can warmly endorse—namely, bringing adequate health services within the reach of all the people. The doctors of America, in cooperation with the prepaid medical and hospital care plans and the many splendid voluntary health insurance systems, have made great progress in achieving that objective, so we have no quarrel with the President on that score.

President Truman, however, proceeds from a desirable objective to a highly undesirable proposal for achieving that objective. There is a great deal of double talk in the President's message, but what he actually proposes is a national compulsory health insurance system which would regiment doctors and patients alike under a vast bureaucracy of political administrators, clerks, bookkeepers and lay committees.

Every wage earner, every self-employed person and every employer would be compelled to contribute exorbitant payroll taxes, eventually mounting to a tax of 8 or 10 per cent on every paycheck, to support this system—and the cost of medical care, instead of being reduced, would be doubled and trebled by bureaucratic overhead.

The record is clear in every country where compulsory health insurance has been adopted. It is cheap in quality, but extravagantly high in price.

The President's message, in some respects, was persuasive and disarming. The ideals and objectives were stated in glowing terms, but the message was completely lacking in any specific statement of the services to which the people would be entitled, or any estimate of the taxes which they would be compelled to pay.

Mr. Truman has been too long away from Missouri, if he believes the American people will sign a blank check for such an ambiguous program. The people will want to be shown.

There are many fallacies and misstatements in the President's message, some of which cannot go unchallenged.

President Truman, for example, is about a decade behind the times in his statistics on the growth of the voluntary health insurance systems.

He reports that only 3,500,000 people have insurance which provides adequate health protection. Ten or fifteen years ago that was true. Today, Mr. President, 55,000,000 Americans are protected under the voluntary health insurance systems of this country, against the costs of hospital care, and 37,000,000 policy holders are insured against surgical or medical bills.

Again, the President falls into the error of stating that only limited, inadequate health protection is available under the voluntary health insurance systems. Actually, the voluntary

systems are providing better coverage today than any compulsory program yet proposed—at about half the price.

President Truman also makes the amazing assertion that adequate medical care is now beyond the means of all but the upper income groups. On the contrary, any family which can afford a package of cigarettes a day, or a weekly movie, can afford the finest kind of prepaid medical and hospital protection. The cost is about the same.

The most serious misstatement in the President's message—and one which it is regrettable any President of the United States would have uttered—is the repetition of that now completely discredited statement that tens of thousands of persons die needlessly in this country, due to lack of medical care.

The President, in this instance, as in others, undoubtedly based his statement on the distorted report of the Federal Security Administrator, whose listing of "needless deaths" included 40,000 deaths from accidents and 115,000 from cancer and heart disease.

It is shocking that any Government department head would seek to impose on the credulity of the American people with such flagrant misrepresentations—and it is unfortunate, indeed, that the President of the United States should have repeated, even in part, the misinformation contained in this report.

There is a very real need in America for the budgeting of medical costs, and American medicine is proud of the part it has played in building the voluntary health insurance systems to meet that need. There is no need, however, for compelling the American people to join a government system.

The voluntary way is the American way—and the people will resolve this problem, in a very short span of years, under the voluntary systems now available to them.

THE PRESIDENT'S NEW NATIONAL HEALTH BILL

A Condensation Prepared by the Bureau of Legal Medicine and Legislation, American Medical Association, April 28, 1949

A new administration national health bill, apparently offered as a substitute for S.5, was introduced in the Senate, April 25, as S. 1679, by Senators Thomas of Utah, Murray of Montana, Wagner of New York, Pepper of Florida, Chavez of New Mexico, Taylor of Idaho, McGrath of Rhode Island and Humphrey of Minnesota. The bill was referred to the Committee on Labor and Public Welfare, of which Senator Thomas is Chairman.

Similar bills were introduced on the same day in the House of Representatives as H.R.4312 by Representative Dingell of Michigan and H.R.4313 by Representative Biemiller of Wisconsin. The House bills were referred to the Committee on Interstate and Foreign Commerce, of which Representative Crosser of Ohio is Chairman.

The title of the bill indicates that it will provide a program of national health insurance, and its proponents describe the program as constituting a national system of contributory health insurance.

There are seven titles to the one hundred and sixty-three page bill.

Prepaid Personal Health Insurance Benefits

This is the heading assigned to Title VII of the bill.

Administration.—On the federal level, there will be created in the Federal Security Agency a National Health Insurance Board of five members, three of whom will be appointed by the President by and with the advice of the Senate. The other two will be the Surgeon General of the United States Public Health Service and the Commissioner of Social Security. None of the appointed members, one of whom will be a licensed

doctor of medicine, will be permitted to engage in any other business, vocation or employment. The President will designate one of the appointed members as chairman of the board.

All functions of the board will be administered under the direction and supervision of the Federal Security Administrator. It will be authorized to make all necessary and permissible regulations. It may delegate all of its powers and duties, except the power to make regulations, to any of its members, officers or employees, or, if the Administrator agrees, to any other officer or employee of the Federal Security Agency.

There will be a National Advisory Medical Council. It will advise the board concerning matters of general policy and administration arising in connection with the making of regulations, the establishment of professional standards and the performance of its other duties. The chairman of the board will serve as chairman of the council, and sixteen additional members will be appointed by the Federal Security Administrator. Of the appointed members, at least eight must be persons familiar with medical and professional health services in urban or rural areas and must be representative of the interests of persons eligible for benefits, and at least six must be persons who are outstanding in the medical or other professions concerned with the provision of services provided as benefits and who are representative of the persons and organizations by whom services will be provided. The council would be authorized to appoint special advisory technical or professional committees.

On a state level, an approvable state plan must designate a single state administrative agency, and the bill suggests that that agency should be the state agency, so far as feasible, which administers or supervises the administration of the state's general public health and maternal and child health programs. The state must be divided into local health areas and the plan must provide for a decentralized administration of the program to such areas. A state advisory committee must be created to include members familiar with personal health needs in urban and rural areas and a majority of whom must be representative of the interest of persons eligible for benefits, and members chosen from the several professions, hospitals and other organizations in the state by whom such benefits will be provided. This advisory committee must make surveys of the resources and needs of the state and formulate a program for the administration of the benefits which gives reasonable assurance (1) that maximum use will be made of all available health personnel and facilities desiring to participate in the program, (2) that the method of allotting funds will give reasonable assurance of the availability of services in all health service areas and (3) that any maldistribution or other inadequacies in health personnel and facilities or in the quality of the services rendered will be progressively improved as rapidly as may be practicable. The state agency must make such reports to the federal board as it may require and must, on demand, give the board access to records.

A state plan must provide for cooperation, including, where necessary, entering into working agreements with other public agencies of the state or of its political subdivisions concerned with programs related to the purposes of this title, and with appropriate agencies of other states or of the United States administering this title, or benefits under it, in other states.

On a local level, there will be for each health service area a local administrative committee or, if a state so decides, a local administrative officer who will act with the advice and assistance of a local advisory committee to consist of not less than eight nor more than sixteen members. A majority of members must be representative of the interest of persons in the area who are eligible for benefits. The remaining members must be chosen from the several professions, hospitals and other organizations in the area by whom the benefits will be provided. Local administrative officers and committees will be appointed by the state agency. They will be required to make readily available to eligible persons in the area lists of the names of all persons who have agreed to furnish services, together with the class or classes of services which each has undertaken to furnish. They must disseminate pertinent information concerning the rights and privileges of eligible persons and of persons qualified to furnish personal health services and benefits. They will be required to maintain effective relationships with physicians, dentists, nurses and other persons who have entered into agreements to furnish services in the area in order to facilitate the furnishing of services in accordance with such agreements, to assure full and prompt payment for services furnished and to enlist their full cooperation in the administration of benefits.

Local professional committees are to be appointed, the members of which will be selected in accordance with methods set forth in a state plan, as will also the members of local advisory committees.

If a state has not, prior to July 1, 1950, an approved plan of operations, the board must notify the governor of a state that it will be required to administer the title in the state, commencing July 1, 1951. The board must publish such notice in at least two newspapers in the state. If within sixty days after such notification to the governor, the state has not submitted an approvable plan, the board will undertake the administration of the title, commencing July 1, 1951, and will continue such administration until one year after the submission and approval of a state plan of operations.

Fiscal Provisions.—There will be created on the books of the Treasury of the United States a separate account to be known as the "Personal Health Services Account," the funds in which will be used to finance the program. While reference has been made in press releases and over the radio to a tax on employers and employees on wages paid or received, up to and including \$4,800 a year, to provide revenue for the program, no such reference is contained in the bill. On the contrary, it provides that there shall be appropriated to the account for the fiscal year ending June 30, 1952 and for each fiscal year thereafter (1) sums equal to 3 per cent of all wages, up to and including \$4,800, estimated to be received during the fiscal year; (2) sums equal to the estimated cost of furnishing dental services and home nursing services during the fiscal year, and (3) any further sums required to meet the expenditures to carry out the title.

From this account will be made allotments to the states in accordance with a formula set forth in detail in the bill.

There will also be appropriated to the account in the fiscal year 1951 a sum equal to 1 per cent of the wages estimated to be received during the fiscal year, to constitute a reserve account for use in case of a disaster, epidemic or in case of any other cause which substantially increases, over the anticipated volume, the volume of service benefits required in any part of the United States.

The bill also authorizes for the fiscal year 1952 the sum of \$10,000,000, for the fiscal year 1953 the sum of \$15,000,000 and for each fiscal year thereafter an amount not to exceed 0.5 per cent of the amount expended for benefits in the last preceding calendar year, to be used in the training and education of professional and technical personnel engaged or undertaking to engage in the provision or administration of personal health services.

Eligibility for Benefits.—The requirements that must be met by a person to qualify him for benefits under the program are set forth in detail, such as, for example, the amount of compensation he must have received during the first four of the last six calendar quarters preceding the beginning of the benefit year. Noninsured needy and other persons may become entitled to benefits for any period for which equitable reimbursements to the account on behalf of such persons have been made or assured by public agencies of the United States, the several states or any of them or of their political subdivisions. No person otherwise eligible for benefits which are required by reason of any injury, disease or disability for which benefits are provided under the workmen's compensation law may receive benefits under the title unless equitable reimbursements are made to the Personal Health Services Account.

Participation of Physicians, Dentists, Nurses, Hospitals and Others.—Any licensed physician or dentist will be qualified to render services under this program. Any person found to possess skill and experience of a degree and kind sufficient to meet standards, established by the federal board, for a class of specialist services will be qualified to receive compensation for specialist services. Similar provisions obtain with respect to nurses and hospitals and for persons rendering auxiliary services. Agreements may be made, apparently by the state agency, with any organized group of physicians, any partnership, association or consumer cooperative, any hospital or any hospital and its staff, or any organization operating a voluntary health service insurance plan or other voluntary health service plan to render the services contemplated by this title.

Classes of Personal Health Services to be Made Available.—The personal health services that are to be made available as benefits are medical services, dental services, home nursing services, hospital services and auxiliary services. Medical

services will consist of (1) general medical services such as can be rendered by a general practitioner, including preventive, diagnostic and therapeutic care and periodic medical examinations, and (2) specialist services rendered by a physician who has been found to be a specialist by the federal board. These services may be rendered at the office, home, hospital or elsewhere, as necessary. Similar provisions are contained with respect to dental services and home nursing services. Payments for hospital services will be based on the least expensive multiple bed accommodations available in the hospital unless the patient's condition makes the use of private accommodations essential for his proper medical care. The federal board, after consultation with the Advisory Council and with representatives of interested hospital organizations, may by regulation prescribe maximum rates for hospitalization. Hospital services will not include hospitalization in a mental or nervous disease or tuberculosis hospital or institution, or hospitalization for any day more than thirty days following the diagnosis of tuberculosis or a psychosis.

Auxiliary services will consist of such chemical, bacteriologic, pathologic, diagnostic roentgenologic and related laboratory services, roentgen ray, radium and related therapy; physical therapy, services of optometrists and chiropodists and prescribed drugs which are unusually expensive, special appliances and eyeglasses, as the federal board, after consultation with the Advisory Council may, by regulation, designate. The board may, in addition, and again after consultation with the Advisory Council, if it finds that the personnel or facilities or funds that are or can be made available are inadequate to insure the provision of all services included as dental, home nursing or auxiliary services, may by regulation limit for a specified period such services.

The federal board must study and make recommendations as to needed services and facilities for the care of the chronic sick and for the care of persons afflicted with mental or nervous diseases, and as to needed provisions for the prevention of such conditions.

Free Choice by Beneficiaries.—The bill promises that each eligible beneficiary may select the physician, dentist, nurse, medical group, hospital or other person of his choice to render the services to which he will be entitled, provided the selectee has agreed to furnish the class of services required and consents to furnish the services to the beneficiary. The services of specialists, home nursing, hospital and auxiliary services may be obtained whenever the practitioner from whom the beneficiary is receiving medical or dental benefits refers him for such services, or whenever, on the request of the beneficiary, the administrative medical officer refers him for such services. The federal board is authorized by regulation to dispense with the necessity of referral in cases of emergency.

Payment for Services.—Agreements for the furnishing of medical or dental services must provide for payment (1) on the basis of fees for services rendered, according to a fee schedule (the bill is not clear as to who will prepare this fee schedule); (2) on a per capita basis, depending on the number of persons eligible for benefits who are on the practitioner's list; (3) on a salary basis, whole time or part time, or (4) on such combinations or modifications of these bases as may be approved by the state agency. The particular method of compensation, apparently, will be determined in each health service area as the majority of the medical practitioners or of the dental practitioners may elect. Practitioners who do not elect the method selected by the majority may be paid in accordance with another method if such alternative method promotes the efficient and economical provision of medical or dental services in the area.

With respect to the payment of specialists, agreements may provide for payments on the basis of fee for service, per case, per session, per capita, salary or other basis.

In any health service area where agreements provide for payment only on a per capita basis, the per capita payments with respect to those persons who have failed to select a practitioner or other person will be made on a pro rata basis among the practitioners and other persons under agreement to furnish services in the area.

Amount of Payments for Services.—Fees for particular services or classes of services will be adapted to take account of relevant regional, state, or local conditions and practices. In arriving at such fees, regard must be had for the annual income or its equivalent which the payments will provide, and to the degree of specialization, and to the skill, experience and responsibility involved in rendering the services. The fees must be adequate to provide professional and financial incentives

to practitioners to advance in their professions and to practice in localities where their services are most needed, to encourage high standards in the quality of services furnished, to give assistance in their use of opportunities for postgraduate study and to allow for adequate vacation; at least the bill so provides.

Panel Limits.—Maximum limits on the number of eligible persons with respect to whom any person may undertake to render services may be fixed by the local administrative committee or local administrative officer, on the basis of a recommendation of the professional committee in that area that such limitation is necessary.

Free Choice by a Physician.—A physician who enters into any agreement to furnish services to beneficiaries may terminate such agreement after reasonable notice and after suitable arrangements are made to fulfil professional obligations to eligible persons. The bill acknowledges his right to practice his profession in the locality of his own choosing and his right to accept or reject as a patient any person requesting his services.

Education of Health Personnel

Title I of the bill proposes federal aid for education in the medical, dental, dental hygiene, public health, nursing, sanitary engineering, hospital administration and related professions. It will authorize appropriations to assist schools in repairing and enlarging existing equipment. Additional appropriations will be made available for the construction of new schools.

For each fiscal year there will be authorized to be appropriated such sums as may be necessary to assist these schools to maintain and increase their enrolment of students. For the fiscal year ending June 30, 1950, and for each of the two succeeding fiscal years payments will be based on the number of students enrolled for such fiscal year. To each school of medicine \$300 will be granted for each student enrolled for such training up to its average past enrolment and \$1,700 for each student so enrolled in excess of that average. Similar payments for schools of dentistry, nursing, public health and schools of engineering offering courses in sanitary engineering will be authorized.

To obtain federal funds to aid in the costs of instruction and for construction and equipment, a school must file an application and give adequate assurance that conditions outlined in the bill will be observed.

Federal funds will be made available for payments to states to cover the costs of state scholarships awarded in each of the health fields. States must submit a plan for scholarships. A person receiving a scholarship must agree, among other things, to serve, on completion of his training, including internships and residencies, one year for each two academic years during which he received the benefit of the scholarship (1) in the rendition of service in an area designated by the state agency as one in need of additional personnel or (2) with the approval of the state agency, in the practice of his profession on full time active duty in a medical agency or unit of the United States Government.

There will be created a National Council on Education for Health Professions, consisting of the Surgeon General as chairman, the Commissioner of Education or his representative, the chief medical officer of the Veterans' Administration or his representative, a medical representative designated by the Secretary of Defense and twenty members appointed by the Surgeon General with the approval of the Administrator. Special advisory and technical committees may be appointed by the Surgeon General. Regulations with respect to payments authorized under this title to the various schools, and to the states, will be made apparently by the Surgeon General after consultation with the council.

Medical Research

Title II would authorize the Surgeon General of the United States Public Health Service with the approval of the Administrator to establish in the service institutes to conduct and support scientific research and professional training relating to the cause, prevention and methods of diagnosis and treatment of poliomyelitis, diabetes, arthritis and rheumatism, multiple sclerosis, cerebral palsy, epilepsy and other diseases or groups of diseases. Assistance may be given, too, to such researches conducted by public and private agencies. The creation of national advisory councils in relation to each of such diseases would be authorized.

Hospital Survey and Construction

Title III provides for an extension of the duration of the provisions of the Federal Hospital Survey and Construction Act until June 30, 1957, and will increase the amount authorized

to be allotted to the states for assisting and meeting the costs of construction of hospitals. It would also increase the amount of federal participation in the costs of construction of projects. It would specifically include in the building program a provision for the construction of facilities for group medical and dental practice and would authorize studies concerning the coordinated use of hospital facilities on a regional area basis.

The title would specifically authorize the Surgeon General to conduct research experiments and demonstrations relating to the effective development and utilization of hospital services, facilities and resources and, after consultation with the Advisory Council, to make grants-in-aid to states, political subdivisions, universities, hospitals and other public or private nonprofit institutions or organizations for projects for the conduct of research, experiments or demonstrations relating to the development, utilization and coordination of hospital services, facilities and resources.

Special Aid for Rural and Other Shortage Areas

The next title, number IV, proposes through grants and loans to expedite the location of physicians, dentists, nurses, hospitals, clinics and other requisites for medical service in areas which are short of such personnel and facilities. Grants may be made to aid in maintenance and operation of local facilities for group practice, health centers, clinics and hospitals. Loans, repayable in ten years, may be made for the cost of facilities, including construction and durable equipment, and grants and loans repayable in ten years may be made for the cost of construction and equipment of health centers or clinics for diagnostic, preventive or curative services, or of facilities for group practice. Loans may also be made for the construction of health centers, clinics and hospitals, and provision may be made for mobile clinics and for such ambulance service as necessary. Apparently the provisions of this title relating to loans and grants for the construction of hospitals or clinics will be tied in with the state plan that has been developed under the federal hospital survey and construction act.

Assistance will be given to farmers' cooperatives in selected rural areas to initiate and carry out experimental plans for providing comprehensive medical care for their members, as a means of demonstrating the practicality and effectiveness of such plans. For this purpose there will be authorized to be appropriated for the fiscal year ending June 30, 1950, the sum of \$10,000,000 and for each of the four succeeding fiscal years the sum of \$15,000,000.

Grants to States for State and Local Health Work

Title V would assist the several states in developing, extending and improving (1) basic state and local health organizations and the basic services provided thereby, (2) health services to the extent not otherwise available under title VII of the bill, for the prevention, treatment and control of disease, including services for the prevention, treatment and control of mental illness, tuberculosis, venereal disease, cancer, heart disease, other chronic diseases, disorders associated with aging, dental disorders, nutritional deficiency diseases, occupational and other diseases which constitute special health problems and services for the improvement of sanitation and other environmental factors affecting health and (3) the training of personnel for state and local health work and methods for extending health services throughout each state.

Research in Child Life and Grants to States for Maternal and Child Health and Crippled Children's Services

Title VI authorizes federal funds for investigation and report on all matters relating to the welfare of children and child life. Grants-in-aid to institutions, agencies and individuals are contemplated for research projects relating to the development of children and community aspects of child life. Research fellowships will also be established and maintained. A National Advisory Council on Research in Child Life will be created.

Additional funds will be made available to enable each state to extend and improve (1) the physical and mental health of mothers during maternity, of infants and of children under 18 years of age, particular attention being given to the correction in children of preschool and school age, defects likely to interfere with their normal development and educational

progress and (2) services and facilities for locating crippled or otherwise physically handicapped children under 21 years of age or children under such age who are suffering from conditions which lead to crippling or physical handicap and for providing medical, surgical, corrective, dental and other services and care, including diagnosis, treatment, hospitalization, after-care, appliances and whatever health services and facilities are needed for such children.

PREPAYMENT MEDICAL CARE

Report of the Council on Medical Service of the American Medical Association April 15, 1949

The rapid and orderly growth of voluntary prepayment medical and hospital care plans has been one of the striking and stimulating economic developments supported by American medicine during the past fifteen years. The initiating and propelling force of these plans was the medical profession acting through its local and state societies and later its national organization. This movement has attained national proportions. At the present time over 30,000,000 persons are covered by Blue Cross type hospital insurance and over 10,000,000 by Blue Shield type medical care insurance. This stimulus and the accumulated experience gained by these organizations have prompted many private insurance companies to enter this field, and they are making substantial contributions toward the accomplishment of our ultimate objective; namely, voluntary health insurance at a nominal cost for all the people in the United States. The total number of persons covered by all voluntary agencies is 55,000,000 for hospitalization and 37,000,000 for surgical or medical care.

The American Medical Association is not engaged in the insurance business and has no intention of giving a preferential standing to any one type of voluntary plan. The American Medical Association does believe, however, that it has a definite function to perform, that of evaluating any insurance plan presented to the people, thus protecting them as far as possible against unscrupulous or unsound plans. The American Medical Association further believes that the people should be free to purchase the type of health security they desire. To this end the Council on Medical Service has for the past four years critically examined various plans and has given its approval to numerous plans operating on a local or state basis. The Council has felt the need for a national organization which would act as a trade and coordinating agency for all medically sponsored plans.

We therefore recommend:

1. The formation of a national coordinating agency representing all qualified voluntary prepayment plans in accordance with the proposal made to the Board of Trustees by the Council on Medical Service.
2. That there shall be no official connection between the American Medical Association and the Associated Medical Care Plans. However, the American Medical Association will continue to approve or disapprove all voluntary medical care plans.
3. The recognition of the Associated Medical Care Plans as a trade organization of member plans and Blue Cross as occupying a similar position for voluntary prepayment hospital care plans.
4. The recognition of the responsibility of the American Medical Association to
 - A. Promote the principle of voluntary insurance by educating the people as to their need for such coverage and by obtaining full cooperation from state and county medical organizations in the local field.
 - B. Inform the American people of the availability of approved plans that propose to supply on a prepayment basis security against the economic hazards of serious illness.

RESOLUTIONS TO BE PRESENTED TO HOUSE OF DELEGATES AT ATLANTIC CITY SESSION

The Secretary of the Association has received the following resolutions, which he has been informed will be presented to the House of Delegates for action at the Atlantic City Session in June by the delegates of the Rhode Island Medical Society and the Connecticut State Medical Society respectively:

RESOLUTION ON DISPLACED PHYSICIANS

(Adopted by the House of Delegates of the Rhode Island Medical Society, Jan. 19, 1949)

WHEREAS, It is generally admitted that there is a need for more qualified physicians than are now available in this country; and

WHEREAS, There is at present a large group of physicians who, with their countrymen, have been rendered homeless and are now living as displaced persons under the care of the International Refugee Organization in Western Germany and elsewhere; and

WHEREAS, Many of the physicians are known to be highly trained specialists and practitioners; and

WHEREAS, Many of these physicians have entered the United States and many more will be resettled throughout the civilized world including the United States; therefore be it now

Resolved, That a special Committee on Displaced Physicians be appointed by the President of the American Medical Association, to consist of six members, whose duty it shall be to study the problems of displaced physicians generally and as far as possible to cooperate with the International Refugee Organization and the various state authorities in furthering the resettlement of these persons in a spirit of friendly cooperation with unfortunate colleagues.

RESOLUTION ON GENERAL PRACTITIONER'S AWARD

(Adopted by the House of Delegates of the Connecticut State Medical Society, Dec. 9, 1949)

WHEREAS, There are no proper and adequate criteria set forth for the qualifications for the Outstanding General Practitioner; and

WHEREAS, No practical method of choice exists; and

WHEREAS, Any choice would of necessity be arbitrary and in most instances, by inference, reflect unfavorably on those not chosen; and

WHEREAS, It has been voted to disapprove the annual selection of an Outstanding General Practitioner within Connecticut or throughout the country; therefore be it

Resolved, That the delegates from the Connecticut State Medical Society to the House of Delegates of the American Medical Association be instructed to introduce this resolution before the House of Delegates of the American Medical Association at its annual meeting in 1949 and to oppose the continuation of the annual General Practitioner's Award by the Association.

The following resolutions have been received from a delegate of the California Medical Association, who states that he expects to introduce them at the Atlantic City Session:

RESOLUTION ON GOVERNMENT COMPETITION WITH PRIVATE ENTERPRISE

WHEREAS, America is the product of a people's faith in constitutional law designed to protect the property and enterprises of each citizen from political competition or confiscation; and

WHEREAS, Attacks on this principle have produced many governmental agencies which are now in active conflict with the individual enterprises of the American people; and

WHEREAS, Many proposals now before Congress will, if adopted by a mere majority, further jeopardize the rights of the American people to their individual property and enterprises; and

WHEREAS, The intent and purpose of the Tenth Amendment to the Constitution was to prohibit governmental exercise of powers not specifically delegated to it; and

WHEREAS, The intention of the Fifth Article of the Constitution was to provide a means for the proper delegation of powers to government through a procedure which requires a two thirds majority of both houses of Congress and the approval of three quarters of the states; therefore be it

Resolved, That we, the members of the American Medical Association House of Delegates in regular session assembled this . . . day of June, 1949, exercise our Constitutional power to petition the Congress to preserve the intent and purposes of the Constitution by initiating an amendment to the Constitution, for submission to the people of the various states, to provide that:

The Government of the United States shall not engage in any business, professional, commercial or industrial enterprise in competition with its citizens except as specified in the Constitution; and be it further

Resolved, That a copy of these resolutions be spread on the minutes of this meeting, and that copies of it be sent to (1) the President of the United States, (2) members of the United States Senate, (3) members of the House of Representatives, (4) the Governors of the States, and (5) two copies to the American Progress Foundation, 569 I. W. Hellman Building, 124 West 4th St., Los Angeles 13, for the record of American vigilance being compiled.

Washington Letter

(From a Special Correspondent)

May 2, 1949.

Administration Drive for Compulsory Plan Under Way

President Truman's special message of April 22 was the signal for opening an intensive campaign in behalf of compulsory health insurance. Three key points of the drive are the White House, Congress and the Federal Security Agency. Within a matter of days, the President's request for Congressional enactment of the payroll tax plan had been followed up by introduction of the Administration bill (S.1679 in the Senate, H.R.4312 in the House), radio speeches in support, a press conference by Congressional sponsors, a statement by Senator Pepper and out of town speeches by Acting Federal Security Administrator J. Donald Kingsley and Assistant Administrator John Thurston.

However, the only unexpected development was the acceptance by Senator Thomas (Democrat, Utah) of the invitation to be chief sponsor of the Administration bill. Although the chairman of the Labor and Public Welfare Committee is an avowed Roosevelt "New Dealer," he had never previously committed himself on this sickness insurance issue.

At the press conference, Senator Thomas was asked point blank whether he favors compulsory health insurance. He replied that he most decidedly does. Senator Murray added that the fact that the committee chairman is the prime sponsor of S.1679 means that it is the Administration's bill. Other co-sponsors, besides Murray, are Senators Wagner, Pepper, Chavez, Taylor, McGrath and Humphrey. In the House, the leader in the fight for enactment of the bill is Representative John D. Dingell (Democrat, Mich.). Inasmuch as Senator Wagner is no longer active in Congress, the measure probably will become known as the Thomas-Murray-Dingell bill. Previous versions have been called the Murray-Wagner-Dingell bill.

Hearings on Health Legislation Scheduled

Public hearings on health legislation, which are expected to continue with little or no interruption until the end of the present session of Congress, have been scheduled by the Senate Labor and Public Welfare Committee. Plans of the Murray health subcommittee are to attempt to dispose of comparatively noncontroversial bills before taking up the national health insurance issue.

May 3 was designated for hearing of testimony on the Tobey bill (S.102) to stimulate multiple sclerosis research. The Langer bill (S.659) on epilepsy was set for hearing May 4 and the Neely bill on cerebral palsy (S.1538) May 5. On May 9, the arthritis research measure (S.705), sponsored by Senators Pepper, Murray, Chavez and Magnuson, is scheduled for hearing.

Witnesses will be asked to express their views on S.1651, introduced by Senator Magnuson, which is similar in principle to the special disease bills listed but which would leave the establishment of special institutes within the United States Public Health Service to the Surgeon General's discretion.

A special subcommittee headed by Senator Hill will hold hearings May 4, 5 and 9 on S.614, to amend the Hill-Burton hospital construction act by doubling federal contributions to \$150,000,000 annually and liberalizing the law's fund-matching provisions. On May 10 the subcommittee will hold hearings on S.522, which would authorize expansion of government aid to the states for improvement of local public health units.

Once public hearings are launched by the Murray subcommittee on the major national health bills—S.1456, S.1581 and S.1679—they are expected to last about six weeks, according to the chairman.

Dr. Dean Will Receive Gorgas Award

The Association of Military Surgeons of the United States has selected Dr. H. Trendley Dean, director of the National Institute of Dental Research, to receive the Gorgas Award for 1949 "for outstanding contributions in the field of military medicine." It will be presented at the association's annual meeting in Washington on November 11.

Medical Legislation

STATE LEGISLATION

California

Bill Introduced.—S. 36, to amend the business and professions code, proposes that a physician and surgeon whose name appears on the eligible list for state civil service is not required to hold a physician's and surgeon's certificate issued by the board in order to practice medicine as an employee of the state within state institutions, prisons or homes, provided that before such person is certified the state personnel board shall obtain from the board of medical examiners a certificate that the person is eligible to take the examination for physician's and surgeon's certificate under the provisions of the law.

Colorado

Bill Enacted.—S. J. Res. 26 was adopted April 19, 1949. It creates a commission with authority to investigate the functions, organizations, policies, procedures and operations of all state institutions.

Connecticut

Bill Introduced.—H. 1625 proposes to permit the practical training of medical and dental students, prior to their receiving licenses to practice their respective professions. The training may be given under the supervision of a licensed dentist or physician in a dental or medical school or in a hospital, infirmary, clinic or dispensary affiliated with such school.

Bill Enacted.—H. 467 has become Special Act No. 22 of the Acts of 1949. It provides that in order to promote uniformity in diagnostic laboratory work throughout the state, the commissioner of health may purchase serologic reagents, test such reagents for standard quality and distribute them at cost price to laboratories approved by the department for use in performing tests for which approval has been extended.

Florida

Bills Introduced.—H. 83, relating to the qualifications of the state health officer, proposes that he shall be a physician who shall be an expert in diagnosis of infectious, contagious and communicable diseases, and who must be a person of recognized ability with no less than four years of experience in public health work with a public agency; he shall be skilled in hygiene, sanitary science and a graduate of a school of medicine recognized by the Council on Medical Education of the American Medical Association and licensed by the state board of medical examiners as a medical doctor. H. 187 and S. 107 propose to authorize the board of commissioners of state institutions to acquire a site for a hospital for the treatment of chronic alcoholic addicts and to erect thereon and equip such a hospital. H. 306 proposes to authorize the use in evidence, where a defendant is charged with being under the influence of intoxicating liquor, of the results of a chemical analysis of the defendant's blood, breath, urine or other bodily substance. H. 312 and S. 180 propose the creation of a Florida board of medical technology and define medical technology as the science, art or technique of performing any laboratory tests or examination on or of the blood, blood serum, feces, urine, sputum, exudates, transudates, organ contents or any by-products thereof, from the human body, living or deceased, the results of which are used or interpreted by a practitioner of the healing arts in the practice of his profession. S. 109 proposes that it shall be unlawful for any person to practice naturopathy in the state of Florida and proposes further that any license or authority to practice naturopathy granted by any board or authority is declared to be void. S. 112 proposes an appropriation to the state tuberculosis board for acquiring sites and for constructing and equipping tuberculosis sanatoriums. S. 175 proposes an appropriation to the state board of health to conduct research relative to the causes, prevalence and prevention of diabetes and to distribute information obtained therefrom to the public.

Maine

Bill Introduced.—H. 309 proposes that the use of electrolysis for the removal of hair is not a part of the practice of hairdressing and beauty culture and is prohibited except under the direction of a licensed physician.

Massachusetts

Bills Introduced.—S. 620 App. B proposes the creation of a commission for the purpose of making an investigation and study relative to supplying to licensed institutions unclaimed and unwanted animals which are held in the public pounds, the making of records of animals obtained by institutions for experimentation, the advisability of the commonwealth's making available to dog owners a method of permanently identifying and licensing their dogs and the making of such regulations for the care and treatment of animals under medical control for experimentation purposes as will insure the minimum of suffering consistent with the safeguarding of public health and the advancement of medical and surgical science. S. 622 proposes the appointment of an unpaid commission to make an investigation and study relative to the department of mental health and the institutions under the control of said departments.

Rhode Island

Bill Introduced.—S. 359, to amend the medical practice act, proposes that any person graduated with the degree of doctor of medicine who has served an internship or residency in a Rhode Island hospital during the period of the national emergency from Dec. 7, 1941, to Dec. 31, 1946, shall be admitted to examination for licensure for medicine in the state.

Coming Medical Meetings

American Medical Association, Atlantic City, June 6-10. Dr. George F. Lull, 535 N. Dearborn St., Chicago 10, Secretary.

American Academy of Neurology, French Lick, Indiana, French Lick Springs Hotel, June 1-3. Dr. Joe R. Brown, 19 Millard Hall, University of Minnesota, Minneapolis 14, Secretary.

American Academy of Tuberculosis Physicians, Atlantic City, Hotel Dennis, June 4. Dr. Oscar S. Levin, P. O. Box 7011, Denver 6, Colo., Secretary.

American Association of Genito-Urinary Surgeons, White Sulphur Springs, W. Va., Greenbrier Hotel, May 9-11. Dr. Norris J. Heckel, 122 S. Michigan Ave., Chicago 3, Secretary.

American Association of Railway Surgeons, Chicago, Drake Hotel, June 30-July 2. Dr. Chester C. Guy, 5800 Stonely Island Ave., Chicago 37, Secretary.

American Association of the History of Medicine, Lexington, Ky., Lafayette Hotel, May 23-24. Dr. Benjamin Spector, 416 Huntington Ave., Boston 15, Secretary.

American College of Radiology, Atlantic City, Chalfonte-Haddon Hall, June 5. Mr. William C. Stronach, 20 N. Wacker Drive, Chicago 6, Secretary.

American Dermatological Association, Hot Springs, Va., May 23-26. Dr. Louis A. Brunsting, 102 Second Ave. S.W., Rochester, Minn. Secretary.

American Gastro-Enterological Association, Atlantic City, Claridge Hotel, June 3-4. Dr. Dwight L. Wilbur, 655 Sutter Street, San Francisco 2, Secretary.

American Gaiter Association, Madison, Wis., Hotel Loraine, May 26-28. Dr. Thomas C. Davison, 478 Peachtree St., N.E., Atlanta 3, Ga., Secretary.

American Laryngological Association, New York, May 16-17. Dr. Louis H. Clerf, 1530 Locust St., Philadelphia, Secretary.

American Neurological Association, Atlantic City, June 13-15. Dr. H. Houston Merritt, 710 W. 168th St., New York 32, Secretary.

American Ophthalmological Society, Hot Springs, Va., The Homestead, June 2-4. Dr. Maynard C. Wheeler, 30 W. 59th St., New York, Secretary.

American Orthopedic Association, Colorado Springs, May 18-21. Dr. C. Leslie Mitchell, Henry Ford Hospital, Detroit 2, Secretary.

American Otological Society, New York, May 18-19. Dr. Gordon D. Hoople, 713 E. Genesee St., Syracuse, N. Y., Secretary.

American Proctologic Society, Columbus, Ohio, May 31-June 4. Dr. W. Wendell Green, 1838 Parkwood Ave., Toledo 2, Ohio, Secretary.

American Psychiatric Association, Montreal, Canada, May 23-27. Dr. Leo H. Bartemeier, General Motors Bldg., Detroit 2, Secretary.

American Radium Society, Atlantic City, June 5. Dr. Hugh F. Hare, 605 Commonwealth Ave., Boston 15, Secretary.

American Therapeutic Society, Atlantic City, June 2-5. Dr. Oscar B. Hunter, 915 Nineteenth St. N.W., Washington, D. C., Secretary.

American Urological Association, Los Angeles, Hotel Biltmore, May 16-19. Dr. Thomas D. Moore, 899 Madison Ave., Memphis 3, Tenn., Secretary.

Arizona State Medical Association, Tucson, May 8-10. Dr. Frank J. Milloy, 15 E. Monroe St., Phoenix, Secretary.

Association for the Study of Internal Secretions, Atlantic City, June 3-4. Dr. Henry H. Turner, 1200 N. Walker St., Oklahoma City 3, Secretary.

California Medical Association, Los Angeles, May 8-11. Dr. L. Henry Garland, 450 Sutter St., San Francisco 8, Secretary.

Georgia Medical Association of Savannah, Hotel De Soto, May 10-13. Dr. Edgar D. Shanks, 478 Peachtree St., N.E., Atlanta, Secretary.

Idaho State Medical Association, Sun Valley, June 20-23. Dr. Alfred M. Popma, 220 N. First St., Boise, Secretary.

Illinois State Medical Society, Chicago, Palmer House, May 16-18. Dr. Harold M. Camp, 224 S. Main St., Monmouth, Secretary.

International Congress on Rheumatic Diseases, New York, Hotel Waldorf-Astoria, May 30-June 3. Dr. Philip S. Hench, Mayo Clinic, Rochester, Minn., Chairman, American Committee.

Kansas Medical Society, Topeka, May 9-12. Dr. D. D. Vermillion, 512 New England Bldg., Topeka, Secretary.

Maine Medical Association, Poland Spring, Poland Spring House, June 19-21. Dr. Frederick R. Carter, 142 Hight St., Portland 3, Secretary.

Massachusetts Medical Society, Worcester, May 24-27. Dr. H. Quimby Gallupe, 8 Fenway, Boston 15, Secretary.

Minnesota State Medical Association, St. Paul, Municipal Auditorium, May 9-11. Dr. B. B. Souster, 496 Lowry Medical Arts Bldg., St. Paul 2, Secretary.

Mississippi State Medical Association, Biloxi, May 10-12. Dr. T. M. Dye, Box 295, Clarksdale, Secretary.

New Hampshire Medical Society, Newcastle, Hotel Wentworth, June 14-15. Dr. Carleton R. Metcalf, 5 S. State St., Concord, Secretary.

North Carolina Medical Society of the State of Pinehurst, The Carolina, May 9-11. Dr. Roscoe D. McMillan, P. O. Box 232, Red Springs, Secretary.

North Dakota State Medical Association, Minot, May 14-17. Dr. O. A. Sedlak, 702 First Ave. S., Fargo, Secretary.

Oklahoma State Medical Association, Tulsa, Mayo Hotel, May 15-19. Mr. R. H. Graham, 210 Plaza Court Bldg., Oklahoma City, Secretary.

Rhode Island Medical Society, Providence, May 11-12. Dr. Morgan Cutts, 106 Francis St., Providence 3, Secretary.

Society for Investigative Dermatology, Atlantic City, Ritz Carlton Hotel, June 11-12. Dr. S. William Becker, 55 E. Washington St., Chicago 2, Secretary.

Society of American Bacteriologists, Cincinnati, May 15-20. Dr. John Blair, Hospital For Joint Diseases, New York, Secretary.

Society of Biological Psychiatry, Atlantic City, Chalfonte-Haddon Hall, June 12. Dr. George N. Thompson, 1136 W. Sixth St., Los Angeles, Secretary.

South Carolina Medical Association, Myrtle Beach, May 17-19. Dr. Julian P. Price, 15 W. Cheves St., Florence, Secretary.

South Dakota State Medical Association, Yankton, May 22-24. Dr. Roland G. Mayer, 22½ S. Main St., Aberdeen, Secretary.

Southeastern Surgical Congress, Biloxi, Miss., May 23-26. Dr. Benjamin T. Beasley, 45 Edgewood Ave. S.E., Atlanta 3, Ga., Secretary.

Western Branch of American Public Health Association, Los Angeles, Hotel Biltmore, May 30-June 1. Mr. Walter S. Mangold, University of California, Berkeley, Calif., Secretary.

Medical News

(Physicians will confer a favor by sending for this department items of news of general interest: such as relate to society activities, new hospitals, education and public health. Programs should be received at least two weeks before the date of meeting.)

ALABAMA

Organize Post Graduate Assembly.—The Black Belt Post Graduate Assembly was organized recently at Marion by members of eleven Black Belt county medical societies. Its purpose is to present refresher courses on recent scientific discoveries and to bring doctors together for round table discussions. Dr. Arthur F. Wilkerson, Marion, is president. The first assembly will be held in Marion May 12.

COLORADO

Postgraduate Courses.—A postgraduate course in diseases of the chest sponsored by the Trudeau society will be held at the University of Colorado Medical Center, Denver, July 18-30. Admission to this course is open to all physicians interested in chest diseases. The tuition will be \$100 for the two weeks; attendance will be limited to forty. Applicants should write directly to the American Trudeau Society, 1790 Broadway, New York. Applications for scholarships may be made through the Colorado Tuberculosis Association, Denver.

A postgraduate course in obstetrics and gynecology will be held at the University of Colorado Medical Center, May 20-21, under the sponsorship of the department of obstetrics and gynecology of the University School of Medicine. It is open to all general practitioners and specialists who are graduates of approved medical schools and are members of their constituent medical societies. The guest lecturer will be Dr. Charles E. McLennan, Stanford University School of Medicine, Stanford University-San Francisco, whose subject will be "Use of Hormones in Obstetrics and Gynecology." For information address the Director of Graduate and Postgraduate Medical Education, University of Colorado Medical Center, Denver.

CONNECTICUT

Cancer Detection Centers.—The Medical Advisory Committee of the Connecticut Cancer Society is reviewing the experience of its three centers in Hartford, New Haven and Bridgeport, which have been in operation from one to two years. Public interest has exceeded the capacity of the centers, and a large backlog of persons waiting for appointment has developed at the New Haven and Bridgeport centers. The delay is a primary concern to the society, whose aim is to promote prompt diagnosis. The committee appointed includes Drs. Alfred L. Burgdorf, chairman; Allan J. Ryan, Meriden, chairman of the Committee on Tumor Study of the Connecticut State Medical Society, and Francis A. Sutherland, Torrington, chairman of the Connecticut Association of the Tumor Clinics. The committee believes that some way must be found to increase the use of doctors' offices as detection centers through cooperation between physicians and the society.

GEORGIA

Personal.—Dr. Cornille J. Heymans, professor of pharmacology of the University of Ghent, Belgium, has been appointed visiting professor of pharmacology at Emory University School of Medicine, Atlanta, during the spring quarter.

Atlanta Radiological Society.—At a meeting March 11 an Atlanta Radiological Society was organized with Dr. James J. Clark, president, and Dr. William W. Bryan, secretary and treasurer. The society will hold monthly meetings except during the summer.

Course in Office Endocrinology.—The University of Georgia School of Medicine, Augusta, announces a graduate course in office endocrinology to be given May 23-28. The course is offered as a refresher and guide in those aspects of basic endocrinology which have practical and clinical application. The lectures will deal with the endocrine problems which arise in everyday practice. Registration is limited to fifty. Enrollment is open to all qualified physicians. Applications should be addressed to the Registrar, University of Georgia School of Medicine, Augusta.

ILLINOIS

Annual State Meeting.—The annual meeting of the Illinois State Medical Society will be held at the Palmer House, Chicago, May 16-18, under the presidency of Dr. Percy E. Hopkins, Chicago. Out of state speakers on the general scientific program include:

- Edward L. Turner, Seattle, A Dean Looks at Medical Education and Practice.
- J. Arnold Bergen, Rochester, Minn., Amebiasis (Amoebic Colitis): Its Present Day Management.
- Nathan C. Foot, New York, Limitations and Pitfalls of Cytologic Diagnosis.
- Joseph Hardy, St. Louis, Functional Uterine Bleeding.
- William A. Sodeman, New Orleans, How Does Malaria Interest the Practitioner in Illinois?
- Robert Elman, St. Louis, Intestinal Obstruction in Infancy.
- Wendell G. Scott, St. Louis, The Importance of Diagnosing Early Carcinoma of the Colon.
- Ralph O. Rychener, Memphis, Tenn., Retrorenal Fibroplasia.
- Harris B. Shumacker Jr., Indianapolis, Treatment of Peripheral Vascular Disorders.
- Nathaniel G. Alcock, Iowa City, Tumors of the Kidney.

At the annual dinner Monday at 7 p. m. Mr. William A. Richardson, editor of *Medical Economics*, who has just returned from a two months' stay in England, will speak on "Britain's Medical Experiment: One Year Later." Section meetings will be held. The Woman's Auxiliary to the association will hold its program at the LaSalle Hotel May 16-17. Other special societies and alumni groups have scheduled meetings or luncheons.

Chicago

Influenza Research.—The U. S. Public Health Service has awarded a grant of \$5,500 to the University of Illinois College of Medicine for a second year of study on the physiologic effects of the influenza virus on the host, under the supervision of Dr. John E. Kempf in the department of bacteriology.

Grants for Research.—Six grants totaling \$22,825 have been awarded to the University of Illinois College of Medicine for research studies. The Pope Foundation, Inc., has made a \$10,000 grant for research in neuromuscular skeletal pathology. Bristol Laboratories, Inc., Syracuse, N. Y., has renewed a \$7,000 grant for research on pharmacology of synthetic penicillin derivatives and analgesic drugs. The National Institutes of Health are supporting a study of the role of amino acid metabolism in leukemia with a grant of \$4,200. Other grants have been received from the American Medical Association, \$625 for the study of the effect of beta radiation from radium D on the eye; the G. D. Searle Company, \$600 for a preliminary study of the antacid compounds, and Abbott Laboratories, \$400 for experimental study of the effect of penicillin and streptomycin in peritonitis; \$4,000 from the Mallinckrodt Chemical Works, St. Louis, for a pharmacologic study of alkyl carbonates; \$3,600 from the Josiah Macy Jr. Foundation for the continuance of study of carbohydrate metabolism in mental diseases, and \$3,500 from Swift and Company for a study of the assimilation and excretion of amino acids as related to nutrition.

IOWA

Organize School Health Program.—In cooperation with school authorities, physicians of the Waterloo Medical Society have inaugurated a system of their own for school health. Examinations in high schools were begun last year to insure safety in gymnasium and swimming activities. The physicians have decided that children will be examined in kindergarten and every four years thereafter until they graduate from high school. The doctors are assigned by lot to various schools, and the Board of Education decides on a nominal fee for the medical society after conferring with the doctors. Many physicians work at the schools on Thursday afternoons, their traditional holiday. Dr. Charles A. Waterbury Jr. is medical chairman of the program.

KANSAS

Residencies in Neurology.—Three appointments to residencies in neurology are available at Veterans Administration Hospital, Topeka, which has been accredited for two years of residency training in neurology. The program provides for clinical and didactic instruction, including laboratory training in neuroanatomy, electroencephalography and neuropathology. The number of neurologic admissions per year is approximately 400, and the average number of neurologic patients on the service is 75. Residents in neurology have the opportunity for clinical assignments in neurosurgery and psychiatry. Applications should be sent to the Director of Professional Education, Veterans Administration Hospital, Topeka.

LOUISIANA

Annual State Medical Meeting.—The annual meeting of the Louisiana State Medical Society was held at the Roosevelt Hotel, New Orleans, May 5-7. Out of state speakers included:

- Merrill W. Everhart, San Angelo, Texas, Abdominal Emergencies in Infancy and Childhood.
 - Martin H. Fischer, Cincinnati, Blood Vessel Disease.
 - Arthur B. Hunt, Rochester, Minn., Difficult Labor in Relation to Forceps Delivery.
 - Mr. Robert F. Hurligh, Chicago, Fallacies of Socialism.
 - Robert Lich Jr., Louisville, Ky., Retropubic Prostatectomy.
 - E. Sterling Nichol, Miami, Fla., Clinical Use of Heparin and Dicumarol.
 - Oran V. Prejean, Dallas, Texas, Conservative Management of Cervicitis.
- Scientific and technical exhibits were on display.

MAINE

Society of Anesthesiologists.—The Maine Society of Anesthesiologists was formed recently when physicians interested met at Veterans Administration Facility at Togus. Officers elected were Drs. Gilbert Clapperton, Lewiston, president, and John R. Lincoln, Portland, secretary-treasurer. The purpose of the society is to advance the science and art of anesthesiology and to stimulate interest in the specialty.

MICHIGAN

Dr. Buggs Goes to Dillard University.—Charles W. Buggs, Ph.D., associate professor of bacteriology at the Wayne University College of Medicine, Detroit, has left to become chairman of the Division of the Sciences and professor of biology at Dillard University in New Orleans. He will also serve as consultant in premedical education to a group of Negro institutions of higher learning in connection with a long range project supported by a Rockefeller Foundation grant. Dr. Buggs taught at Dillard for eight years before coming to Wayne University in 1943.

Hillsdale Plan for Tumor Detection.—The Cancer Control Committee of the Michigan State Medical Society reports that during the first year of operation the Hillsdale Plan for Tumor Detection discovered 35 cases of cancer among 1,077 persons who were examined by physicians of that county in their offices during regular office hours. Cancer was found in 3.25 per cent of those examined, in contrast to 0.8 per cent reported by the American Cancer Society in a nationwide survey of 125 cancer detection centers. The Hillsdale Plan makes every physician's office a cancer detection unit, conserves the physician's time and eliminates cost of equipment and maintenance of special detection centers. The plan can be adopted by any medical society, it is reported, with such changes as are necessary to meet local conditions.

NEW YORK

Postgraduate Lectures.—The Medical Society of the State of New York with the cooperation of the New York State Department of Health has arranged a postgraduate lecture for the Jefferson County Medical Society to be given May 17 at 8:30 p. m. at the Black River Valley Club, Watertown. Dr. Henry C. Shaw, Rochester, will speak on "Common Diseases of the Skin."

Regional Cancer Teaching Day.—Members of the county medical societies of Broome, Chemung, Chenango, Cortland, Delaware, Otsego, Schuyler, Tioga and Tompkins counties are invited to a Cancer Teaching Day program May 25 at the City Hospital, Binghamton, beginning at 2:30 p. m. and extending into the evening. Following the motion picture, "Cancer: The Problem of Early Diagnosis," the speakers will be:

- Henry D. Diamond, New York, Significance of Enlarged Lymph Nodes.
- Harold A. Solomon, D.D.S., Buffalo, Clinical and Radiographic Diagnosis of Oral Tumors.
- William A. Cooper, New York, Gastric Cancer—Newer Diagnostic Methods.
- Clyde L. Randall, Buffalo, Abnormal Vaginal Bleeding.

The program has been arranged by the state, county and city medical societies in cooperation with the state health department.

New York City

Eighth Harvey Lecture.—Sam Granick, Ph.D., associate, The Rockefeller Institute for Medical Research, will deliver the eighth Harvey Lecture of the current series at the New York Academy of Medicine May 19 on "Heme and Chlorophyll."

Personals.—Dr. Arthur A. Knapp recently returned from Cuba where, at the invitation of the Cuban Ophthalmological Society, he lectured on "Surgery of the Eye" and "Shrinking the Human Eye—Therapeutically."—Dr. Edward P. Eglee has

been elected chairman of the executive committee of the New York Tuberculosis and Health Association, Inc., succeeding Dr. Donald B. Armstrong. Myron I. Borg Jr. was reelected secretary.—Dr. Walsh McDermott, associate professor of medicine, Cornell University Medical College, was named honorary professor of clinical medicine by the University of Guadalajara, Mexico, February 8, in recognition of his part in the investigation there last summer on the use of aureomycin, chloromycetin® and polymyxin in the treatment of typhoid, typhus and brucellosis.—Dr. George T. Pack has accepted an invitation to deliver a series of lectures and tumor conferences sponsored by the Cancer Society of Hawaii and the Hawaii Territorial Medical Association during the early part of May. He will stay in Hawaii about three weeks.

OREGON

Personal.—Dr. Samuel B. Osgood, former head of the Josephine County health unit, has been appointed director of the venereal disease section of the Oregon State Board of Health.

Postgraduate Convention in Ophthalmology and Otolaryngology.—The Oregon Academy of Ophthalmology and Otolaryngology will hold its annual spring postgraduate convention in Portland June 19-24. Round table luncheon discussions will be held each noon at the medical school cafeteria. Guest speakers will be: Drs. Lawrence R. Boies, Minneapolis; Leland G. Hunnicutt, Pasadena, Calif.; James H. Allen, Iowa City, and Edmund B. Spaeth, Philadelphia. Arrangements for hotel accommodations should be made through Dr. David D. DeWeese, secretary, 1216 S. W. Yamhill Street, Portland 5. The fee of \$75 includes the cost of daily luncheons and a printed abstract of the lectures given by guest speakers.

VERMONT

Appointment at University.—Dr. John F. Daly, New York, has been appointed assistant professor of dermatology at the College of Medicine at the University of Vermont and State Agricultural College, Burlington, effective April 4. Dr. Daly, a graduate of Long Island College of Medicine, Brooklyn, 1937, was in private practice in Oklahoma until entering the Army Medical Corps in 1940. Since his discharge in 1946 he has done graduate work in dermatology at Columbia University. He is a specialist certified by the American Board of Dermatology and Syphilology.

WEST VIRGINIA

Plan to Relieve Doctor Shortages.—The Public Health Council, which will go out of existence June 30, has scheduled what may be its last meeting before the new law providing for a medical licensing board becomes effective. The meeting will be held May 12 to consider the report of a special committee on the proposed plan for the temporary employment of interns and residents to help relieve the acute shortage of doctors in parts of the state.

Conference on Medical Care.—A statewide conference on medical care will be held at Jackson's Mill May 21 beginning at 10 a. m., under the sponsorship of the Public Relations Committee of the West Virginia State Medical Association. The object of the conference is to seek a solution to the problems of medical care in rural, industrial and small town areas. Dr. Frank J. Holroyd, Princeton, chairman of the committee, is trying to reach all consumer groups so that medical care for such groups in every area of the state may be considered. The doctor shortage in the state is showing no improvement.

WISCONSIN

Dr. MacKay Succeeds Dr. Waters.—Dr. Alexander M. MacKay has been named subchairman of the department of anesthesiology at the University of Wisconsin Medical School, Madison, succeeding Dr. Ralph Waters, who retired in January (THE JOURNAL, February 5, p. 391). Dr. MacKay came to the University in July 1948. He is a native of Nova Scotia and received an M.D. degree from Dalhousie University Faculty of Medicine, Halifax, Nova Scotia. During World War II he served with the Seventh Canadian General Hospital in England, and on the continent. From July 1945 to July 1948 he worked at Radcliffe Infirmary, Oxford University, England. He holds the diploma in anesthetics of the Royal College of Physicians and Surgeons of England and has been certified as a specialist in anesthetics by the Royal College of Surgeons, Canada.

GENERAL

Vice Presidents' Breakfast.—The past vice presidents' breakfast will be held at the Brighton Hotel, Garden Room, Atlantic City, June 7, 8 a. m.

Society Changes Name.—The American Society for Research in Psychosomatic Problems, Inc., has changed its name to the American Psychosomatic Society.

Academy of Neurology Meeting.—The first annual meeting of the American Academy of Neurology will be held in French Lick Springs, Ind., June 1-3. Dr. Abe B. Baker, Minneapolis, is president of the newly formed organization (THE JOURNAL, April 30, p. 1288).

Health Educators Conference.—The Middle States Region Health Educators Conference will be held in Milwaukee May 11-13, with headquarters at the Hotel Pfister. Discussions will be held on the following subjects: The Health Educator in the School, The Health Educator in the Community, The Health Educator Around the Clock, and The Health Educator Uses Tools.

Bacteriologists' Annual Meeting.—The Society of American Bacteriologists will hold its general meeting in Cincinnati, May 17-20 with headquarters at the Netherland Plaza. The program includes numerous presentations on antibiotics, tuberculosis, immunology, and influenza. Any person interested in bacteriology is invited to attend. The registration fee is \$2 except for nonmembers, for whom it is \$3.

Meeting of Pathologists.—The College of American Pathologists, the Ohio State Society of Pathologists and the Cleveland Society will hold a North Central Regional meeting May 27-28 at the Institute of Pathology, Western Reserve University, Cleveland. A dinner in honor of Dr. Howard T. Karsner will be held 7-9 p. m. on Friday. Dr. Karsner is leaving Western Reserve University to assume duties as consultant to the Surgeon General of the Navy on medical research. Colonel James E. Ash, Washington, D. C., of the Army Institute of Pathology, will serve as toastmaster.

Rehabilitation Conferences.—The National Rehabilitation Association will hold a regional conference May 16-18 in Toledo with headquarters at the Commodore Perry. Working harmony among management, labor, the client and the counselor is the subject for the opening session. The afternoon and evening programs will be devoted to a discussion of rehabilitating and placing the blind. Tuesday's program includes plastic surgery, speech therapy, physical medicine, crippled children's camps and Alcoholics Anonymous in relation to vocational rehabilitation. The banquet speaker Tuesday night will be Dr. Charles F. Shook, medical director, Owens-Illinois Glass Company, Toledo.

The Western States Conference of the National Rehabilitation Association will be held June 1-2 at the Benjamin Franklin Hotel, Seattle. Rehabilitation developments in occupational, physical and manual arts therapy, vocational counseling, social work and physical medicine will be discussed. Panels will be led by national and regional authorities on rehabilitation. Reservations should be made by writing Mr. Max S. Smith, Textile Tower, Room 910, Seattle.

Meeting of Otolological Society.—The American Otolological Society, Inc., will hold its annual meeting at the Hotel Biltmore, New York, May 18-19, under the presidency of Dr. Marvin F. Jones, New York. Those presenting papers by invitation include:

Hallowell Davis, St. Louis, Sound and Ultra Sound as Hazards to Hearing.

Frank D. Lathrop, Boston, Surgery of Ménière's Syndrome: Evaluation of Neurosurgical and Otolological Procedures.

Thursday afternoon's program includes a Symposium on the Various Methods Used to Prevent or Improve Hearing Impairment in Children. The address of the guest of honor, Dr. Harris P. Mosher, Marblehead, Mass., will be given at the opening session. The annual dinner will be Wednesday evening.

National Foundation Allocates \$2,500,000.—At the most recent meeting of the National Foundation for Infantile Paralysis board of trustees, \$2,565,159 was allocated for research on poliomyelitis and educational projects. This brings to \$23,600,000 the total amount authorized for education and research by the national foundation since it was established in 1938. Twenty-four of the projects will provide for research, and the remaining seventeen will underwrite educational programs. The University of Southern California, University of Kansas, University of Utah and the University of Pittsburgh are engaged in related investigations to determine the number and characteristics of various poliomyelitis viruses. In the field of education fellowships are being awarded in

orthopedic surgery, virology, pediatrics, epidemiology, and clinical neurology. Orthopedic nursing courses and expanded professional teaching programs are also being provided.

Conference on Industrial Ophthalmology.—The department of ophthalmology, University of Pittsburgh School of Medicine, and the Industrial Hygiene Foundation at Mellon Institute are sponsoring a Conference on Industrial Ophthalmology at the institute May 16-18. Speakers include:

John A. Hutcheson, Ph.D., Pittsburgh, Application of Electromagnets in Ophthalmology.

Raymond J. Gray, Pittsburgh, Treatment of Intraocular Foreign Bodies.

E. C. Barnes, East Pittsburgh, Eye Irritants Occurring in Industrial Atmospheres.

Dudley A. Irwin, Pittsburgh, Ophthalmological Problems Facing the Medical Director.

Jay G. Linn Jr., Pittsburgh, Ocular Symptoms of Head Injuries.

Robert F. Rohm, Pittsburgh, Lacerations of Eye Ball; Preparation of Patient for Transfer to Ophthalmologist or Hospital.

F. Bruce Fralick, Ann Arbor, Mich., Care of Orbital Injuries.

Hedwig S. Kuhn, Eyes for Industry.

John C. Dunbar, Pittsburgh, Pathology of Eye Trauma.

Ralph S. McLaughlin, Charleston, W. Va., Treatment of Chemical Burns of the Eye.

Samuel M. Dupertuis, Pittsburgh, Reconstruction of Deformities of the Eye Lids.

Grants by Research Corporation.—Sixty-five grants totaling nearly \$250,000 to aid scientific research in colleges, universities and institutes were announced last month by Research Corporation. New grants bring to a total of nearly \$1,500,000 the Corporation grants now in force. In general they are assigned to men in smaller colleges and institutes that need help in supporting research programs. Projects include research in medicine, nuclear physics, chemical engineering and general human welfare. Research Corporation was founded in 1912 by the late Frederick G. Cottrell, Ph.D., who assigned to it patents on his process for cleansing industrial gases by electrical precipitation. Other income is derived from the management of patents assigned to it by individuals and institutions. The Williams-Waterman Fund, administered by the corporation, derives its income from patents on the synthesis of vitamin B₁₂ and its grants go chiefly to aid research into dietary deficiency diseases. Research Corporation is completely non-profit and distributes its total net income in grants to aid research. It maintains offices in New York, Chicago and Los Angeles.

CORRECTION

Dosage of Streptomycin in Tuberculous Meningitis: Inquiries have been received concerning the dosage of streptomycin in the treatment of tuberculous meningitis discussed by the authors on pages 756 and 757 of the paper entitled "Specific Therapy of Bacterial Infections of Central Nervous System" in THE JOURNAL of March 19. These inquiries were referred to the authors, who make the following explanation: "Because of the toxicity of streptomycin when it is used over a long period of time, it was felt that a small dose on the order of 9 mg. per kilogram per day should be used, but if it was felt necessary—due to the critical condition of a patient—up to 2 Gm. per day may be used. It might be added that since this paper was written, the appearance of the less toxic antibiotic—dihydrostreptomycin—for clinical use, would allow the dosage schedule to be revised upward."

Marriages

LEE BUCKINGHAM BROWN, Norfolk, Va., to Miss Kathryn Jackson Fahys of Garden City, N. Y., in New York, in March.

GUY OTIS KELLER JR., Rochester, N. Y., to Miss Beverly Ruth Splitt of Pittsford, N. Y., March 26.

EDWARD KINZEL RUSSELL, Abingdon, Va., to Miss Ann Katherine Ransom in Atlanta, March 26.

NATHAN G. HALE to Miss Dorothy Neelley, both of Sacramento, Calif., in New York, January 1.

WILLIAM BANTA ATEN to Mrs. Kathryn Johns Hinckley, both of Binghamton, N. Y., March 8.

MAURICE M. MALTINSKY to Miss Ruth Lee Cohn, both of Rochester, N. Y., March 6.

CHARLES BROWN VAN GORDER, Lombard, Ill., to Miss Elaine Carol Atkinson of Melrose Park, February 26.

HELEN CAROLYN AMMON, Detroit, to Mr. Edward Moore of Chicago, December 4.

LAWRENCE S. MORSE to Miss Joan Pinanski, both of Brookline, Mass., April 3.

Deaths

William James Carson ☉ Milwaukee; born in Harmerville, Pa., in 1892; Maryland Medical College, Baltimore, 1913; member of the founders group of the American Board of Surgery; fellow of the International College of Surgeons and the American College of Surgeons; member of the Western Surgical Association, American Association for the Study of Trauma and the American Urological Association; formerly associate professor of pathology at the University of Maryland School of Medicine in Baltimore and on the faculty of Marquette University School of Medicine; served during World War I; on the staffs of Johnston Emergency and West Side hospitals; formerly surgeon to St. Luke's Hospital; consulting surgeon to St. Alphonsus Hospital in Port Washington; killed in an automobile accident near Delafield February 12, aged 56.

William Albert Plummer ☉ Rochester, Minn.; born in Racine, Minn., June 30, 1883; Northwestern University Medical School, Chicago, 1910; entered the Mayo Clinic as assistant in medicine in June 1910, and became head of a section in medicine Feb. 1, 1917; later became associate professor of medicine in the Mayo Foundation and senior consultant in a division of medicine of the Mayo Clinic; specialist certified by the American Board of Internal Medicine; member of the Minnesota Society of Internal Medicine, Central Society for Clinical Research, American Association for the Study of Goiter and the Association for the Study of Internal Secretions; fellow of the American College of Physicians; died March 22, aged 65, of heart block and chronic rheumatic endocarditis.

Henry Woodruff Titus ☉ New Rochelle, N. Y.; born in Auburn, N. Y., March 6, 1876; Columbia University College of Physicians and Surgeons, New York, 1902; specialist certified by the American Board of Pediatrics; fellow of the American Academy of Pediatrics and the New York Academy of Medicine; past president of the Westchester County Medical Society; served overseas during World War I; for many years a member of the governing board of the New Rochelle Public Library and at one time its president; formerly director of the pediatric service at Grasslands Hospital in Valhalla; director of pediatrics, served on the board and in various capacities on the staff at New Rochelle Hospital, where he died March 17, aged 73, of multiple myeloma and chronic nephritis.

Herbert Ashley Durfee ☉ Burlington, Vt.; born in Poultney, Vt., Aug. 14, 1897; University of Vermont College of Medicine, Burlington, 1920; professor of obstetrics at his alma mater; specialist certified by the American Board of Obstetrics and Gynecology, Inc.; member of the New England Obstetrical and Gynecological Society and New England Surgical Society; fellow of the American College of Surgeons; affiliated with Fanny Allen Hospital in Winooski, Mary Fletcher Hospital and the Bishop de Goesbriand Hospital; died February 24, aged 51, of carcinoma.

Elbert William Wright, Bowie, Texas; Fort Worth School of Medicine, Medical Department of Fort Worth University, 1910; member of the American Medical Association; in 1944 vice president of the State Medical Association of Texas; past president of the Clay-Montague-Wise Counties Medical Society and the Thirteenth District Medical Society; for many years a member and at one time chairman of the state board of health; served during World War I; affiliated with the Bowie Clinic and Hospital; died January 3, aged 61, of coronary thrombosis.

Edwin Study Africa ☉ Warren, Pa.; Hahnemann Medical College and Hospital of Philadelphia, 1907; died in Warren General Hospital December 30, aged 69, of carcinoma of the urinary bladder.

George Albert Canfield, Cincinnati; University of Michigan Medical School, Ann Arbor, 1946; certified by the National Board of Medical Examiners; affiliated with Christ Hospital, where he died January 26, aged 25, of virus B encephalomyelitis.

Joseph Light Daugherty, Mechanicsburg, Pa.; Medico-Chirurgical College of Philadelphia, 1910; member of the American Medical Association; died December 31, aged 64, of coronary occlusion and general arteriosclerosis.

Benjamin Davis ☉ Cushing, Okla.; St. Louis University School of Medicine, 1906; died January 20, aged 69, of heart and kidney complications following neurodermatitis.

Reuben J. Dice, Randlett, Okla.; Fort Worth School of Medicine, Medical Department of Fort Worth University, 1904; died December 16, aged 84.

Frank S. Hundley, Baltimore; University of Maryland School of Medicine, Baltimore, 1916; served during World War II; died January 25, aged 57, of gastric hemorrhage and esophageal varices.

Charles Grant Johns, Chicago; Jenner Medical College, Chicago, 1910; died in Cook County Hospital December 30, aged 69, of bronchopneumonia.

John Keely, Jacksonville, Fla.; Jefferson Medical College of Philadelphia, 1901; died January 23, aged 73, of coronary thrombosis.

Merton Ray Kittredge, Bryan, Ohio; Ohio State University College of Medicine, Columbus, 1916; on the staff of the Cameron Hospital; died in the State Hospital, Toledo, January 5, aged 62, of cerebral arteriosclerosis.

Bertha C. Lietze, Cincinnati; Laura Memorial Woman's Medical College, Cincinnati, 1897; died in the Hamilton County Home and Chronic Disease Hospital January 15, aged 75, of cerebral arteriosclerosis.

Thomas Clifton McCurdy, Denison, Texas; University of Texas School of Medicine, Galveston, 1903; served during World War I; during World War II medical examiner for Selective Service in Archer County; formerly practiced in Archer City, where he was city and county health officer; died in Waco, December 16, aged 71, of cerebral accident.

Horace MacField McDaniel, Stephenville, Texas; Fort Worth School of Medicine, Medical Department of Fort Worth University, 1905; member of the American Medical Association; past president of the Brown-Comanche-Mills-San Saba Counties Medical Society; for many years member of the school board in May; formerly superintendent of the Austin State School Farm Colony; died January 2, aged 67, of multiple myeloma.

Frank Washington Milburn, Spokane, Wash.; George Washington University School of Medicine, Washington, D. C., 1912; also a graduate in pharmacy; member of the American Medical Association; on the staffs of the Sacred Heart, St. Luke's and Deaconess hospitals; died January 30, aged 61, of acute heart disease.

Carl Mund, Manorville, N. Y.; College of Physicians and Surgeons, medical department of Columbia College, New York, 1892; died in Southampton, January 19, aged 81, of hemiplegia, hypertension and arteriosclerosis.

James Robert Norton ☉ Port St. Joe, Fla.; University of Arkansas School of Medicine, Little Rock, 1936; member of the American Association of Industrial Physicians and Surgeons; served as secretary-treasurer of the Franklin-Gulf Counties Medical Society; died December 29, aged 43, of coronary occlusion.

Elmer Onstott ☉ Saltsburg, Pa.; College of Physicians and Surgeons of Chicago, 1889; an Associate Fellow of the American Medical Association; died December 2, aged 87, of hypostatic pneumonia and arteriosclerosis.

Isaac Swartz Plymire ☉ Petersburg, Pa.; Jefferson Medical College of Philadelphia, 1903; died in the J. C. Blair Memorial Hospital, Huntingdon, December 8, aged 80, of arteriosclerosis.

Oscar William Renz, Erie, Pa.; College of Physicians and Surgeons, Baltimore, 1915; member of the American Medical Association; affiliated with St. Vincent's and Hamot hospitals; died February 3, aged 56, of hypertensive cardiovascular disease.

Griff Ross ☉ Mount Enterprise, Texas; Baylor University College of Medicine, Dallas, 1915; died December 15, aged 67, of nephritis.

Herman Spitz ☉ Nashville, Tenn.; Vanderbilt University School of Medicine, Nashville, 1912; specialist certified by the American Board of Pathology; member of the American College of Allergists and the American Society of Clinical Pathologists; city bacteriologist; died in the Vanderbilt Hospital February 4, aged 63, of cardiovascular disease.

Joseph Eber Stover, Truscott, Texas; University of Nashville (Tenn.) Medical Department, 1900; member of the American Medical Association; died in Quanah, December 29, aged 71, of coronary occlusion.

Fitch Henry Van Orsdale, Auburn, N. Y.; University of Buffalo School of Medicine, 1891; member of the American Medical Association; died January 29, aged 89, of uremia.

Edwin Merritt Wilson, Twin Bridges, Mont.; Omaha Medical College, 1895; died January 3, aged 79.

Foreign Letters

PARIS

(From Our Regular Correspondent)

March 17, 1949.

New Professors

The first professorship of rheumatology in Europe has been created at the Paris Faculty of Medicine and entrusted to Professor F. Coste, well known in France and abroad on account of his works on this matter. Another new professorship, on infantile neuropsychiatry, has been entrusted to Professor G. Heuyer, whose authority is universally acknowledged.

M. Desoille has been appointed professor of industrial medicine; M. Gaillard professor of parasitology; Professor *agregé* Merle D'Aubigne professor of surgical orthopedic clinics, and Professor *agregé* de Gaudart D'Allaines professor of surgical pathology at the same faculty.

Coming Meetings

The Twenty-Fifth Congress of Forensic Medicine, Social Medicine and Industrial Medicine of the French Language will take place in Bordeaux May 11-15. On the agenda, among other items are biologic and clinical study of pregnancy in forensic medicine; the metabolism of solvents in industrial medicine, and medicolegal psychiatry. The general secretary is Professor Muller, Institut Medico-Legal, Boulevard Paul-Painlevé, Lille.

The Thirteenth French Congress of Gynecology will take place June 7-11 in Biarritz. On the agenda are dyspareunia and anaphrodisia in women. The general secretary is M. Fabre, 1, Rue Jules Lefebvre, Paris 9.

The general meeting of the International League Against Trachoma will take place in Paris at the end of May. On the agenda is "Scheme of Unification of World Legislation Against Trachoma" (C. Montincho, Lisbon). Apply to: J. Sedan, 94 Rue Sylvabelle, Marseilles.

ITALY

(From Our Regular Correspondent)

NAPLES, March 7, 1949.

Herniated Disk and Sciatica

Until now there had not been in Italy an exhaustive work on herniated disk which could have been looked on as authoritative. Consequently the ample study carried out by Prof. Francesco Delitala and Prof. A. Bonola which has just been published may assume great value. Delitala, a major Italian orthopedist, occupies the chair of orthopedics at the University of Bologna, being the director of the Rizzoli Orthopedic Institute, the preceding director of which was the late Prof. Vittorio Putti.

In the United States there was enthusiasm at first in favor of surgical intervention in cases of herniated disk, but we have witnessed a warm invitation to caution.

On the contrary, according to Professor Delitala, the treatment of the herniated intravertebral disk can be surgical only. All the other methods of treatment provide for only temporary relief. The longer intervention is delayed the more the consequences are aggravated because of the pressure exerted by the hernia on the nerve roots. The use of plaster of paris casts for immobilization of the vertebral column makes things worse; in fact it hastens the paralytic phase. Professor Delitala

does not exclude a spontaneous cure, but in the presence of hernia with its characteristic acute subjective and objective symptoms early operation is imperative.

At the Rizzoli Orthopedic Institute the clinical histories of 7,000 cases of arthritis and sciatica have been reviewed. From 1934 to 1948 Delitala operated on 217 patients, and 170 of them were followed up for many years. The results were excellent in 34.1 per cent of the cases, with regard to the disappearance of pain, capacity for work being restored to normal; there were no recurrences. Results were satisfactory in 31.7 per cent of the cases, with disappearance of the painful symptoms and with normal working capacity, but for two to three years there persisted some deficiency of the reflexes and sensibility (absence of the achilles tendon reflex, of the medium plantar reflex); there were small hypesthetic areas, sometimes Lasègue's sign. Results were fair in 25.2 per cent of the cases: the pain subsided, but reappeared promptly with slight attacks of cough or on pressure of the jugular veins; while the subjective symptoms were attenuated, one could still observe signs of sensorimotor paresis; the patients could do even hard work. Results were mediocre in 7.6 per cent of the cases, with headache, insomnia, excessive fatigue, and coccygia months after the operation. One and one-tenth per cent of the patients were not helped; pain had not disappeared but was associated with sexual impotence as a sequela of the intervention. From this analysis, the author concludes that the intervention warrants utmost optimism and that surgeons should not hesitate to operate on patients with manifest hernia of the disk. Only postponement may aggravate the prognosis with regard to post-operative recovery.

Mechanism of Herniated Disk.—Delitala and his co-worker, Professor Bonola, studied the mechanism by which protrusion of the herniated disk may be determined experimentally under pressure. The nucleus pulposus, as is known, is not situated in the center of the fibrous ring of the intervertebral disk, but is somewhat eccentric in the posterior space, and that applies particularly to the lumbar section of the vertebral column. At the same time, the portion of the fibrous ring which is situated in front of the pulposus is far more dense and consistent than the portion of the fibrous ring which is situated behind in the posterior space. And that is the reason, according to Delitala, for the high incidence of herniated disk in the lumbar section, where these anatomic conditions are accentuated. The nucleus pulposus may suffer deformation, but cannot be compressed because of its rich content of fluid. One may consider a small cushion of water, a liquid medium adapting itself passively to the pressure of the fibrosis which conversely is elastic because of its fibers. When one passes from the horizontal to the vertical position, the nucleus pulposus is submitted to a pressure of 45 Kg. When one passes from flexion to extension of the spinal column, the nucleus pulposus sustains a pressure of 90 to 127 Kg. One may imagine the pressure when one lifts heavy objects. Delitala exerted mechanical pressure of 500 Kg. on portions of the vertebral column which had been removed from cadavers, an amount which may come near to that to which the vertebral column is subjected when one lifts a heavy rock. Delitala always observed that the herniated disk protruded according to the mechanism of the incompressible cushion, which breaks the annulus fibrosus.

Surgical Technic.—The technic preferred by Delitala is always the intradural. Occasionally he interposes a cotton pad between the roots and the hernia to avoid trauma of the nerve

roots. His meticulous and gentle technic is that of a great orthopedist, and he employs many instruments designed by Professor Putti for intervention on the spinal cord. Complications such as cerebrospinal fistulas or suppuration did not occur in the 217 patients operated on. Occasionally a mild temporary meningism was observed.

The work of Delitala, carried out in the most famous Italian university institute of orthopedics, will appear in print in one volume.

Correspondence

DENAZIFIED DOCTORS

To the Editor:—Dr. F. Kenneth Albrecht's letter in *THE JOURNAL* of March 26, page 870, necessitates an important correction. Dr. Albrecht regrets that "thousands of competent and qualified German physicians are banned from practicing their profession because they are not yet de-Nazified, having held an honorary rank in the S.S. or S.A. Such rank was mostly commensurate with professional achievement rather than their political views. You might say it corresponded to our American College of Surgeons." This is not a fact. Only on ardent disciples of Nazism was bestowed the "honor" of holding a rank in the S.S., irrespective of professional ability or achievement. Albrecht's statement can only be explained by the fact that he was ignorant of the principles of Nazi hierarchy and that he apparently believed what he was told by the Germans. He seems to be unaware that lying is recognized common practice, not detestable according to the Nazi code if it is believed to further the cause of the German "super race." Many credulous Americans, who did not meet Nazis during the fighting but only after their defeat, size up these people according to standards of normal civilization and ethical principles. They do not realize that Nazis, and especially members of the S.S., whether physicians or not, must not be so considered. These Nazis are victims of the most amazing and dangerous mass psychosis that ever occurred in the history of mankind.

JULIUS BAUER, M.D., Los Angeles 28.

THE NATIONAL PHYSICIANS COMMITTEE

The National Physicians Committee has sent the following letter to all of its contributors and to coordinating organizations.—Ed.

Ten years ago, a group of officers and fellows of the American Medical Association realized that the American Medical Association was not as active in certain functions as was deemed necessary, some of which seemed at that time inappropriate for the American Medical Association to perform. As a result, the National Physicians Committee for the Extension of Medical Service was created and has worked during these intervening years within the policies established by the House of Delegates of the American Medical Association.

Several times during those years, the House of Delegates has expressed confidence in the work of this organization.

Two years ago, a Committee of the House of Delegates reported that "the American Medical Association should and must do its own public relations work."

In December, 1948, the House of Delegates took action to create a new agency to carry on public relations activities and to further the extension of medical care. This new agency has been created and is functioning. The program as planned and now being carried on by the American Medical Association repre-

sents the fulfillment of the objectives for which the National Physicians Committee was created and toward which it has been working.

Its aims having been accomplished, the Board of Trustees of the National Physicians Committee met in Chicago on April 10, 1949 and voted (1) to approve the action of its Management Committee in authorizing cessation of all activities as of April 1, 1949 and (2) to liquidate the affairs of the National Physicians Committee in an orderly manner.

It planned further to hold its next meeting in Atlantic City in June, 1949 and at that time to consider further action looking toward dissolution of the organization.

During its ten years of activity, the National Physicians Committee has brought about the formation of forty-seven state committees of physicians and forty-six state committees of dentists, in addition to other local organizations, that have functioned vigorously and well. The Board of Trustees now suggests to the physicians making up the personnel of these state committees that they offer their services to the new American Medical Association agency.

EDWARD H. CARY, M.D., Chairman
N.P.C. Board of Trustees

ANAPHYLAXIS TO PENICILLIN

To the Editor:—I wish to take exception to a clinical note that appeared in *THE JOURNAL*, February 19, page 526, and that attributes the death of a patient to a (possibly intravenous) injection of penicillin. The author of the note, George L. Waldbott, believes that his patient's death was due to anaphylactic shock caused by the intravenously administered penicillin.

Unfortunately, an autopsy was not performed; moreover, it is to be lamented that the patient's mouth was not opened, because, in my opinion, the case looks much like one of "edema of the glottis" as manifestation of an angioneurotic reaction. In fact, the signs and symptoms described by Waldbott may well be due to edema of the glottis ("tightness" in the nose and throat, cyanosis, itching "all over"—probably first manifestation of a generalized urticaria) and not to anaphylactic shock. Incidentally, this side effect of treatment with penicillin (especially with the older products) is a rather frequent phenomenon, but its occurrence in Waldbott's patient may well be due to her hyposensitizing injection: in fact, I once saw a typical example of it. The distinction between both physiopathologic possibilities that could lead to the patient's death may seem academic hair splitting, but, as a matter of fact, the distinction is of value, for against angioneurotic edema a certain armamentarium is available, although rather inconstant in its effects (Salomon, M. I.: *New York State J. Med.* 47: 12 [June 15] 1947); besides, in extremis, a tracheotomy could be life saving in case of edema of the glottis, but, naturally, of no value in anaphylactic shock.

MARDOQUEO I. SALOMON, M.D., Bronx, N. Y.

NOTE.—The letter was referred to Dr. Waldbott, who replies:

To the Editor:—Angioneurotic edema of the glottis cannot be ruled out. This would be a part of the syndrome of anaphylactic shock. The explanation that this situation was due to the antigenic injection given four hours previously does not seem tenable for the following reasons: 1. Symptoms started within a few seconds after the injection of penicillin. 2. Reactions after an antigenic injection usually occur within two hours (except for those from bacterial antigens). Symptoms arising later would not be severe, certainly not fatal. (See references cited in the paper.) 3. There was blood on the area of the injection, which is suggestive of accidental puncture of a vein.

GEORGE L. WALDBOTT, M.D., Detroit.

Medical Examinations and Licensure

COMING EXAMINATIONS AND MEETINGS

NATIONAL BOARD OF MEDICAL EXAMINERS

NATIONAL BOARD OF MEDICAL EXAMINERS: *Parts I and II*. Various Centers. June 20-22, Sept. 12-14. *Part III*. June, various centers. Exec. Sec., Mr. E. S. Elwood, 225 S. 15th St., Philadelphia 2.

EXAMINING BOARDS IN SPECIALTIES

AMERICAN BOARD OF ANESTHESIOLOGY, INC. *Written*. Various Centers. July 15. *Oral*. Oct. 16-20. Sec., Dr. Curtiss B. Hickcox, 745 Fifth Ave., New York 27.

AMERICAN BOARD OF INTERNAL MEDICINE: *Oral*. Philadelphia, June 1-3. *Written*. Oct. 17. Final date for filing application is May 1. Asst. Sec.-Treas. Dr. W. A. Werrell, 1 Main St., Madison 3, Wis.

AMERICAN BOARD OF NEUROLOGICAL SURGERY: *Oral*. Chicago, June 1949. Sec., Dr. W. J. German, 310 Cedar Street, New Haven, Conn.

AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY, INC.: *Oral*. Chicago, May 8-14. Sec., Dr. Paul Titus, 1015 Highland Building, Pittsburgh 6.

AMERICAN BOARD OF OPHTHALMOLOGY: *Oral*. New York, June 11-15; St. Louis, Oct. 15-19; Boston, December. Sec., Dr. S. J. Beach, 56 Ivie Rd., Cape Cottage, Maine.

AMERICAN BOARD OF ORTHOPAEDIC SURGERY. *Part I*. Indianapolis, May 6-7 and Denver, May 13-14. *Part II*. New York City, Jan. 1950. Final date for filing application for Part II is Aug. 15. Address: Dr. Francis M. McKeever, 1136 W. 6th St., Los Angeles 14, Calif.

AMERICAN BOARD OF OTOLARYNGOLOGY: New York, May 11-14; Chicago, Oct. 4-7. Sec., Dr. D. M. Lierle, University Hospital, Iowa City.

AMERICAN BOARD OF PEDIATRICS: *Written*. Under local monitors, June 24. *Oral*. Cleveland, Sept. 16-18; New York City, Oct. 21-23; Chicago, Dec. 9-11. Sec., Dr. John McK. Mitchell, 6 Cushman Road, Rosemont, Pa.

AMERICAN BOARD OF PHYSICAL MEDICINE. Philadelphia, June 4-5. Sec., Dr. R. L. Bennett, 30 N. Michigan Blvd., Chicago.

AMERICAN BOARD OF PLASTIC SURGERY: Examinations are given in June and November of each year in the home town of applicants. Sec., Treas., Dr. Louis T. Byars, 400 Metropolitan Bldg., St. Louis, Mo.

AMERICAN BOARD OF PREVENTIVE MEDICINE AND PUBLIC HEALTH: Washington, D. C., May 14-16. Sec.-Treas., Dr. Ernest L. Stebbins, 615 North Wolfe St., Baltimore.

AMERICAN BOARD OF PSYCHIATRY AND NEUROLOGY, INC. *Special Examination*, October. Place to be announced. Final date for filing application is July 15. December. New York City. Sec. Dr. F. J. Braceland, 102-110 Second Ave., S.W., Rochester, Minn.

AMERICAN BOARD OF RADIOLOGY. Atlantic City, June 2-4. Sec., Dr. B. R. Kirklin, 102-110 Second Ave., S.W., Rochester, Minn.

AMERICAN BOARD OF SURGERY: *Written*. Various Centers, October 26. Final date for filing application is July 1. Sec., Dr. J. Stewart Rodman, 225 S. 15th St., Philadelphia.

AMERICAN BOARD OF UROLOGY: *Written*, December. *Oral and Clinical*. Chicago, Feb. 11-15. Final date for receipt of case histories is Sept. 1, 1949. Sec., Dr. Harry Culver, 7935 Sunnyside Road, Minneapolis 18, Minn.

BOARDS OF MEDICAL EXAMINERS

ALABAMA: *Examination*. Montgomery, June 28-30. Sec., Dr. D. G. Gill, 519 Dexter Ave., Montgomery.

ARKANSAS: * Little Rock, June 9-10. Sec., Dr. L. J. Kosminsky, Texarkana. *Eclectic*. Little Rock, June 9-10. Sec., Dr. C. H. Young, 1415 Main St., Little Rock.

CALIFORNIA: *Examination*. San Francisco, June 21-23. Sec., Dr. Frederick N. Scatena, 1020 N St., Sacramento.

COLORADO: * *Examination*. Denver, June 20-22. Sec., Dr. W. W. King, 831 Republic Bldg., Denver.

DELAWARE: Dover, July 12-14. Sec., Dr. J. S. McDaniel, 229 South State St., Dover.

DISTRICT OF COLUMBIA: * *Written*. Washington, May 9-10. Sec., Dr. George C. Ruhland, 4130 Municipal Bldg., Washington.

FLORIDA: * *Examination*. Jacksonville, June 26-28. Sec., Dr. Frank D. Gray, 12 N. Rosalind Ave., Orlando.

GEORGIA: *Examination*. June 8-9, Atlanta and Augusta. *Reciprocity*. Atlanta, June. Sec., Mr. R. C. Coleman, 111 State Capitol, Atlanta.

GUAM: *Endorsement*. Agaña, Last Friday of each month. Sec., Capt. C. K. Youngkin, Dept. of Public Health, Guam. % F.P.O., San Francisco, Calif.

HAWAII: * *Examination*. Honolulu, July 11-14. Sec., Dr. S. E. Doolittle, 881 S. Hotel St., Honolulu.

IDAHO: Boise, July 11-13. Sec., Miss Estella S. Mulliner, Bureau of Occupational Licenses, 355 State House, Boise.

INDIANA: *Examination*. Indianapolis, June 21-23. Sec. Board of Medical Registration and Examination. Dr. Paul R. Tindall, 416 K. of P. Bldg., Indianapolis.

IOWA: * *Examination*. Iowa City, June 13-15. Sec., Dr. M. A. Royal, 506 Fleming Bldg., Des Moines.

KANSAS: Kansas City, June 1-2. Sec., J. F. Hassig, 905 North 7th St., Kansas City, Kans.

KENTUCKY: *Examination*. Louisville, June 15-17. Sec., Dr. Bruce Underwood, 620 S. 3rd St., Louisville 2.

MAINE: Augusta, July 5-6. Sec., Dr. Adam P. Leighton, 192 State St., Portland.

MARYLAND: *Examination*. Baltimore, June 21-24. Sec., Dr. Lewis P. Gundry, 1215 Cathedral St., Baltimore. *Homopathic*. Baltimore, June 14-15. Sec., Dr. John A. Evans, 612 West 40th St., Baltimore.

MASSACHUSETTS: *Written*. Boston, July 12-15. Sec., Dr. George L. Schadt, 413 E. State House, Boston.

MICHIGAN: * *Written*. Detroit and Ann Arbor, June 13-15. Sec., Dr. J. Earl McIntyre, 203 Hollister Bldg., Lansing.

MISSISSIPPI: Jackson, June 21-22. Asst. Sec., Dr. R. N. Whitfield, State Board of Health, Jackson.

MISSOURI: *Examination*. St. Louis, May 30-31 and June 8-10. Exec. Sec., Mr. John A. Hailey, Box 4, Jefferson City.

MINNESOTA: * Minneapolis, June 21-23. Sec., Dr. Julian F. DuBois, G. Leveck, S. Siegal and L. Ginzburg.—p. 989.

MONTANA: Helena, Oct. 3-5. Sec., Dr. Otto G. Klein, First National Bank Bldg., Helena.

NEBRASKA: * *Examination*. Omaha, June 6-8. Dir., Bureau of Examining Boards, Mr. Oscar F. Humble, 1009 State Capitol Building, Lincoln 9.

NEW JERSEY: *Examination*. Trenton, June 21-24. Sec., Dr. E. H. Hallinger, 28 West State Street, Trenton 8.

NEW YORK: Albany, Buffalo, New York and Syracuse, June 28-July 1, Sec., Dr. Jacob L. Lochner, 23 South Pearl St., Albany.

NORTH CAROLINA: *Endorsement*. Pinehurst, May 9. *Examination*. Raleigh, June 23-25. Sec., Dr. Ivan Procter, 226 Hillsboro St., Raleigh.

NORTH DAKOTA: * *Written*. Grand Forks, July 5-7. *Reciprocity*. Grand Forks, July 8. Sec., Dr. C. J. Glaspel, Grafton.

OHIO: *Examination*. Columbus, June 15-18. *Endorsement*. Columbus, July 5. Sec., Dr. H. M. Platter, 21 W. Broad St., Columbus.

OKLAHOMA: * Oklahoma City, June 8-9. Sec., Dr. Clinton Gallaher, 813 Bramm Bldg., Oklahoma City.

PENNSYLVANIA: *Examination*. Philadelphia and Pittsburgh, July. Acting Sec., Mrs. B. G. Steiner, 351 Education Bldg., Harrisburg.

PUERTO RICO: San Juan, Sept. 6-10. Sec., Dr. Luis Cueto Coll, Box 3717, Santurce.

RHODE ISLAND: * *Examination*. Providence, July 7-8. Chief, Mr. Thomas B. Casey, 366 State Office Bldg., Providence.

SOUTH CAROLINA: *Examination*. Columbia, June 27-29. *Endorsement*. Columbia, May 2, June 27-28, Aug. 1, Sept. 5 and Oct. 3. Sec., Dr. N. B. Heyward, 1329 Blanding St., Columbia.

SOUTH DAKOTA: * *Examination*. Pierre, July 19. Sec., Dr. G. J. Van Heuvelen, Capitol Bldg., Pierre.

TEXAS: *Examination*. Austin, June 16-18. Sec., Dr. M. H. Crabb, 209 Medical Arts Bldg., Fort Worth 2.

UTAH: *Endorsement*. Salt Lake City, May 25. *Examination*. Salt Lake City, July 13-15. Sec., Dept. of Registration, Miss Rena B. Loomis, 324 State Capitol Bldg., Salt Lake City.

VIRGINIA: *Examination*. Richmond, June 17-18. *Reciprocity*. Richmond, June 16. Dr. K. D. Graves, 631 First St., S.W., Roanoke.

WASHINGTON: * Seattle, July. Sec., Mr. Edward C. Dohm, Department of Licenses, Olympia.

WISCONSIN: * *Examination*. Milwaukee, June 28-30. Sec., Dr. C. A. Dawson, Tremont Bldg., River Falls.

WYOMING: Cheyenne, June 20. Sec., Dr. Franklin D. Yoder, Capitol Bldg., Cheyenne.

* Basic Science Certificate required.

BOARDS OF EXAMINERS IN THE BASIC SCIENCES

ALASKA: Feb. 1950. Sec., Dr. C. Earl Albrecht, Box 1931, Juneau.

ARIZONA: Tucson, June 21. Sec., Mr. Francis A. Roy, Science Hall, University of Arizona, Tucson.

ARKANSAS: *Examination*. Little Rock, May 3. Sec., Mr. L. E. Gebauer, 1002 Donaghey Bldg., Little Rock.

COLORADO: *Examination*. Denver, June 1-2. Sec., Dr. Esther B. Starks, 1459 Ogden St., Denver.

CONNECTICUT: New Haven, June 11. Exec. Asst., State Board of Healing Arts, Miss Mary G. Reynolds, 110 Whitney Ave., New Haven 10.

FLORIDA: *Examination*. Gainesville, June 11. Sec., Mr. M. W. Emmel, University of Florida, Gainesville.

MICHIGAN: *Examination*. Detroit and Ann Arbor, May 13-14. Sec., Miss Eloise LeBeau, 101 N. Walnut St., Lansing 15.

MINNESOTA: *Examination*. June and Oct. Sec.-Treas., Dr. Raymond N. Bieter, 105 Millard Hall, Univ. of Minnesota, Minneapolis.

OREGON: Portland, June 18, Sept. 3 and Dec. 3. Sec., Mr. Charles D. Byrne, State Board of Higher Education, Eugene.

SOUTH DAKOTA: Vermillion, June 3-4. Dr. G. M. Evans, 310 E. 15th St., Yankton.

TENNESSEE: Memphis, July 8-9. Sec., Dr. O. W. Hyman, 874 Union Ave., Memphis 3.

WISCONSIN: Milwaukee, June 4, Sept. 24 and Dec. 3. Sec., Prof. W. H. Barber, Ripon College, Ripon.

Current Medical Literature

AMERICAN

The Association library lends periodicals to members of the Association and to individual subscribers in continental United States and Canada for a period of three days. Three journals may be borrowed at a time. Periodicals are available from 1938 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 18 cents if three periodicals are requested). Periodicals published by the American Medical Association are not available for lending but can be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below

American Journal of Ophthalmology, Chicago

31:1539-1675 (Dec.) 1948

- Fascia of Orbit: Its Anatomy and Clinical Significance. R. C. Scobee. —p. 1539.
- Vertical Element in Causation of So-Called Horizontal Concomitant Strabismus: Surgical Principles for Vertical Corrections. E. B. Spaeth. —p. 1553.
- Histology of Retina in Case of Tay-Sachs's Disease. J. A. MacMillan. —p. 1567.
- *Effect of Exposure to Sunlight on Night Vision. S. Hecht, C. D. Hendley, S. Ross and P. N. Richmond.—p. 1573.
- Uveopigmentary Sensitization. H. H. Joy.—p. 1581.
- Etiology, Symptomatology and Treatment of Juvenile Glaucoma. O. H. Ellis.—p. 1589.
- Sympathetic Nervous System and Intraocular Pressure. N. S. Jaffe. —p. 1597.
- Sulfathiazole Sensitivity with Review of Literature. A. A. Albright and E. L. Seretan.—p. 1603.
- Local Anesthesia in Ophthalmology. W. S. Atkinson.—p. 1607.
- Eczematous Keratitis and Ariboflavinosis. H. J. Stern and J. Landau. —p. 1619.

Exposure to Sunlight and Night Vision.—Hecht and his associates state that reports from North Africa and the South Pacific during the last war suggested that night vision deteriorates after exposure to very strong sunlight, particularly on coral islands. The authors found that exposures to ordinary sunlight produced temporary and cumulative effects on night vision. A single exposure of two or three hours delayed the onset of rod dark adaptation by ten minutes or more and slowed the process itself so that the normal night vision threshold was not reached for several hours afterward. After repeated daily exposures to sunlight the delay in reaching the normal threshold persisted overnight, and the threshold after complete dark adaptation rose higher each day for about ten days and remained at a higher level. This elevated threshold corresponds to an average deterioration of about 50 per cent in visual acuity, range of visibility, contrast discrimination and in the frequency of picking up a target when it is barely visible. The effect shows considerable individual variation, but the average loss in night vision is nearly the same as is suffered by flying at 12,000 feet at night without oxygen. It is recommended that sunglasses transmitting 10 per cent or less of visible light be used by all persons who work in bright sunlight during the day and are expected to perform critical night duties soon afterward.

Bulletin New York Academy of Medicine, New York

24:687-752 (Nov.) 1948

- Psychological Phenomena in Cardiac Patients. C. Binger.—p. 687.
- Role of Sodium Chloride in Mechanism and Treatment of Congestive Heart Failure. L. Leiter.—p. 702.
- Recent Advances in Field of Cardiovascular Disease. H. M. Marvin. —p. 720.

24:755-816 (Dec.) 1948

- *Surgical Treatment of Gastric, Duodenal and Gastrojejunal Ulcer, Including Present Status of Vagotomy. R. Colp.—p. 755.
- History of Neurology in Last One Hundred Years. H. R. Viets.—p. 772.
- Recent Advances in Our Knowledge of Contagious Diseases of Childhood. M. H. Bass.—p. 784.
- Development of Hydrotherapy. J. D. Currence.—p. 803.

Surgical Treatment of Gastroduodenal Ulcers.—Colp and his co-workers performed vagotomy on 126 patients with duodenal, gastric and jejunal ulcer during the period from December 1945 to February 1948. In the first 33 patients the supradiaphragmatic approach and in 93 the infradiaphragmatic approach was employed. Vagotomy alone was practiced in 46

patients, vagotomy plus gastroenterostomy in 26 and vagotomy plus subtotal gastrectomy in 54. Vagotomy as a sole procedure has been abandoned in the treatment of unobstructed duodenal ulcer as a result of the author's experiences in a series of 22 cases because 7 of them required further surgical treatment, 2 for recurrent duodenal ulcer and 5 for gastric dilatation and atony. The completeness of the division of the vagi as evidenced by the insulin test bears no relationship to the clinical results. The addition of gastroenterostomy to vagotomy seems to have eliminated the undesirable effects of gastric atony in the 26 cases of duodenal ulcer in which it was performed. Whether the incidence of gastrojejunal ulceration will be lessened by the combination of vagotomy and gastroenterostomy, as compared with gastroenterostomy alone, only long range follow-up studies will determine. Gastroenterostomy combined with bilateral infradiaphragmatic vagotomy is the preferred procedure in cases of duodenal ulcer unsuitable for subtotal gastrectomy. The latter operation still remains the method of choice in duodenal ulcer. The immediate results of vagotomy in the treatment of gastrojejunal ulceration following gastroenterostomy and subtotal gastrectomy have been excellent. In patients considered to be good operative risks, a subtotal gastrectomy with infradiaphragmatic vagotomy is preferable to vagotomy alone for gastrojejunal ulceration following gastroenterostomy. In gastrojejunal ulceration following subtotal gastrectomy, resection of the ulcer and further gastric resection combined with infradiaphragmatic vagotomy would seem preferable to the severance of the vagus nerves alone. Vagotomy is not indicated in the treatment of gastric ulcer.

Experimental Medicine and Surgery, Brooklyn

6:329-490 (Nov.) 1948. Partial Index

- Notes on Electron Microscopy of Tissue Sections: Submicroscopic Spherical Bodies in Human Carcinoma II. A. E. Gessler, C. E. Grey and K. McCarty.—p. 329.
- Electron Histology of Heart I. B. Kisch, C. E. Grey and J. J. Kelsch. —p. 346.
- Use of Electron Microscope and High-Speed Microtome in Medicine. C. E. Grey and J. J. Kelsch.—p. 368.
- Electron Microscopic Findings in Malignant Tissue. J. Gregory.—p. 390.
- Further Studies on Antithyrototoxic Factor of Liver. B. H. Ershoff. —p. 438.

Illinois Medical Journal, Chicago

94:277-336 (Nov.) 1948

- *Intrathecal Therapy Contraindicated for Meningitis. A. L. Hoyne. —p. 295.
- Differential Diagnosis of Poliomyelitis. H. W. Woltman.—p. 299.
- New Method of Cholecystenterostomy. C. Werelius.—p. 306.
- Deep Mycotic Infections in Illinois. Esther Meyer and M. S. Kagen. —p. 308.
- *Unnecessary Rectal Operations Done in Presence of Cancer of Large Bowel. R. W. McNealy and D. Smith.—p. 315.
- Direct and Indirect Therapy of Acute Respiratory Infections. B. E. Goodrich.—p. 317.
- Precocious Puberty in Three Year Old Girl. L. P. Sarrelangue.—p. 322.

Intrathecal Therapy Contraindicated for Meningitis.—Hoyne maintains that on the basis of experience acquired in two contagious disease hospitals during a number of years there seems to be no justification for treating meningitis intrathecally. The objections to intrathecal therapy far outweigh any possible benefits. Objections to intrathecal therapy include the following: It causes the patient discomfort and pain; it has a tendency to produce opisthotonos; there is uncertainty that the amount injected is sufficient to control the infection; repeated spinal punctures increase the chances of introducing secondary infections; intervertebral disks may be injured which may result in permanent disability; it may cause hemorrhage or thrombosis of vessels, resulting in degenerative changes in the spinal cord, and it may produce adhesions, blocks and hydrocephalus and may retard recovery.

Rectal Operations and Undiscovered Cancers of Large Bowel.—McNealy and Smith were impressed by the frequency with which rectal operations had been performed in the presence of undiscovered cancer of the bowel. They reviewed the records of patients with carcinoma of the lower gastrointestinal tract. The survey was restricted to patients in whom a tumor mass could be felt by digital examination of the rectum, so as to preclude the common excuse that a lack of diagnostic instruments was responsible for the failure to discover the malignant

lesion. In 56 of 95 cases the tumor could be felt by digital examination; yet 42.8 per cent of this group were treated for bowel conditions other than carcinoma. A considerable percentage had undergone hemorrhoidectomies or fistulectomies or had hemorrhoids injected with sclerosing material. A correct diagnosis was not made because cancer was not suspected. The authors stress that coexisting rectal lesions are present in many patients with carcinoma of the rectum and that hemorrhoidectomy or other rectal surgery should not be performed until the presence of carcinoma is definitely ruled out.

Northwest Medicine, Seattle

47:775-860 (Nov.) 1948

- Effect of Sulfhydryl Compounds on Action of Organic Mercurial Diuretics. A. Farah.—p. 798.
Chylous Ascites and Chylorhax. R. L. Griffith.—p. 800.
Endocrine Research Through the Andes. W. H. Orr.—p. 803.
Improved Receiptacle for Bile Collection. O. J. Penna.—p. 804.
Medical Treatment of Emuresis. V. B. Lombardini, R. Heilpern and J. R. Morrison.—p. 805.

Surgery, St. Louis

24:917-1084 (Dec.) 1948

- *Problem of the Solitary Lung Tumors. D. B. Effler, B. Blades and E. Marks.—p. 917.
Carcinoma of Superior Mediastinal Segment of Esophagus: Technic for Resection with Restoration of Continuity of Alimentary Canal. R. H. Sweet.—p. 929.
Studies on 151 Patients at University Hospital in Relation to Daily Weight Fluctuations. A. Sullivan Jr.—p. 939.
Production of Gastrointestinal Ulcers in Dog by Continuous Subcutaneous or Intravenous Administration of Histamine. M. E. Hanson, M. I. Grossman and A. C. Ivy.—p. 944.
Studies in Nitrogen Metabolism: Influence of Caloric Intake and Route of Administration of Amino Acids upon Nitrogen Balance: Effect of Nitrogen Intake upon Food Intake. W. T. Mok, D. D. Koroll and K. A. Meyer.—p. 952.
*Intrapelvic Obturator Neurectomy for Relief of Chronic Arthritis of Hip. J. A. Key and F. C. Reynolds.—p. 959.
*Simple Combined Approach to Obturator and Femoral Nerves. L. W. Freeman.—p. 968.
Experimental Study of Wound Healing: I. New Technic and Study of Effect of Detergents and of Antacid on Wound Healing. S. Scheinberg, S. P. Bralov and H. Necheles.—p. 972.
Effectiveness of Drugs in Preventing Postoperative Penile Erections. R. A. Price and O. J. Penna.—p. 980.
Benign Adenoma of Liver: Successful Surgical Resection of Tumor Involving Both Right and Left Lobes. W. P. Longmire Jr. and H. W. Scott Jr.—p. 983.
*Pseudocellulitis, A Reaction to Penicillin in Peanut Oil and Beeswax. G. Lesnick, S. Siegal and L. Ginzburg.—p. 989.
Advances in Anesthesia. J. S. Lundly.—p. 995.
Application of Myotomy to Tendon Repair in Fingers. L. Blum.—p. 999.
Multiple Primary Carcinoma. F. T. H'Doubler and A. D. Vail.—p. 1002.
Duplication of Entire Colon and Lower Ileum, with Termination of One Colon Into Vaginal Anus. A. Brunswick, H. W. Dargeon and W. A. Russell.—p. 1010.
Gaseous Distention of Latex Bag in Use of Single Lumen Intestinal Tube: Its Cause and Prevention. A. E. Lewis and W. Leff.—p. 1013.
Onlay Gauze Pressure Dressing. P. S. Nagle.—p. 1016.

Solitary Lung Tumors.—Effler and his associates point out that in the past, the accepted procedure has been observation over varied periods for the normal person who has an undiagnosed solitary lesion in the lung. The authors report 24 patients observed for eighteen months. Each of the 24 patients had a roentgen examination of the chest during a routine physical examination, and a round pulmonary lesion was discovered, which was completely asymptomatic. All of these patients were hospitalized and examinations were performed to make a concrete clinical diagnosis. There was never complete unanimity of opinion among the clinicians and radiologists as to the specific diagnosis. All tumors were considered benign, but operation was advised on the premise that diagnosis without tissue biopsy is only conjecture. In each case a thoracotomy was performed. Four of the 24 patients were found to have malignant lesions, and 7 had tuberculomas. The authors regard it as unfortunate that most doctors consider a tuberculoma an innocuous lesion, if it is not accompanied with roentgen evidence of active parenchymal disease. One of the cases here presented illustrates the complications that may follow in a patient with an untreated tuberculoma. This tumor was observed for almost two years while it progressed to central cavitation, whereupon the patient's sputum demonstrated acid-fast bacilli for the first time. Today thoracic surgeons generally agree that all tubercu-

lomas should be excised. The patients whose cases are presented here were comparatively young, having been observed in a military hospital. The authors believe that groups with a higher average age than this one would probably show a higher incidence of malignant tumors. The authors conclude that the question of malignancy can be answered only by tissue study of the entire lesion. Prolonged observation may prove disastrous in certain instances. With the continued refinement of surgical and anesthetic technics, exploratory thoracotomy has become an accepted procedure in all age groups.

Intrapelvic Obturator Neurectomy for Chronic Arthritis of Hip.—Key and Reynolds evaluate various operative attacks on painful hip, but concern themselves chiefly with intrapelvic obturator neurectomy, which is relatively simple and has a short convalescence. During the past one and one-half years they have performed this operation in 18 patients on one side and in 2 patients on both sides. The diagnoses in these patients were as follows: malum coxae scilicet, 7; old slipping of the femoral epiphysis, 2; traumatic arthritis following fracture of the hip, 2; proliferative arthritis both hips, 1; old pyogenic infection of the hip, 3; Paget's disease, 2; congenital subluxation of the hip, 1; congenital dislocation of both hips, 1; and a postoperative vitallium[®] cup arthroplasty, 1. Relief of pain was satisfactory in all except 4 of the patients. Since the intrapelvic section of the obturator nerve may cause almost complete paralysis of the adductors and result in weakness, instability and lack of endurance in the extremity, this operation would be reserved for those cases in which adductor spasm or contracture, or both, is judged to be a factor in the disability; in most instances in which an obturator neurectomy is to be performed the nerve should be exposed in the thigh at its exit from the canal and its deep or posterior branch and with it the sensory branch to the hip should be sectioned. This may or may not be combined with an acetabuloplasty. The surgeon should warn the patient that this is a palliative procedure and that it will not restore the hip to normal, but offers considerable lessening of the pain in about 80 per cent of the cases and that in most of these an appreciable improvement in the function of the hip may be expected.

Combined Approach to Obturator and Femoral Nerves.—In the course of treating patients with spasticity resulting from traumatic injury to the spinal cord, Freeman realized that ambulation with braces and crutches was often thwarted by the presence of adduction spasm. Frequently the spasticity seen in patients with paraplegia is flexor in nature. Adduction is principally accomplished through the muscles innervated by the obturator nerve, whereas flexion of the thigh is largely subserved by the muscles innervated by the femoral nerve. The author describes and illustrates a simple method for the combined bilateral section of the obturator and femoral nerves for the adequate relief of flexion and adduction spasm in patients with paraplegia.

Pseudocellulitis from Penicillin in Peanut Oil and Beeswax.—Lesnick and his associates observed 4 cases of severe delayed local reaction to penicillin in oil and beeswax. The reactions appeared seven to ten days after the first injection. They were characterized by the rapid appearance of tense painful swelling of the entire buttock associated with severe tenderness, generalized malaise and a temperature up to 102 F. In addition there was an erysipeloid skin eruption circular in shape, the center of the circle corresponding with the site of the needle puncture of the original injection. The central zone of this eruption was somewhat cyanotic and the edge of the eruption sharp and raised. The lesion reached its peak in forty-eight hours and then receded spontaneously in seven to ten days, leaving merely a small residual tender nodule in the subcutaneous tissues along the track of the original needle puncture. This nodule then slowly receded in a further fifteen to forty-five days. This reaction may be fairly common, since these 4 cases were observed in a series of 50 in which penicillin in peanut oil and beeswax had been administered. Other physicians have told the authors of similar experiences. Physicians and surgeons should be aware of this type of localized allergic reaction to penicillin in oil and beeswax, since it can be readily confused with an inflammatory lesion caused by infection.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

2:1007-1048 (Dec. 11) 1948

- Prophylaxis of Virus Infections, with Special Reference to Use of Vaccines. C. H. Andrewes.—p. 1007.
Streptomycin Resistance in Pulmonary Tuberculosis. J. Crofton and D. A. Mitchison.—p. 1009.
Streptomycin in Gonorrhea with Its Effect upon Dark-Field Positive Lesions of Syphilis. R. R. Willcox.—p. 1015.
*Laryngeal Paralysis Associated with Cardiac Hypertrophy: Report of 4 Cases. F. T. Land.—p. 1018.
Purpura Hemorrhagica as Complication of Pregnancy. J. A. Chalmers.—p. 1020.
*Poliomyelitis: Effect of Exertion During Pre-Paralytic Stage. E. R. Hargreaves.—p. 1021.

Laryngeal Paralysis Associated with Cardiac Hypertrophy.—Land reports 4 cases in which laryngeal paralysis was attributable to a coexisting cardiac lesion. There was huskiness, hoarseness or weakness of voice. He discusses the theories that have been advanced with regard to the pathogenesis of this laryngeal paralysis and describes in a diagram the relations of the structures involved. Although the paucity of reports on this condition may indicate that it is infrequent, the author has gained the impression that it occurs more often than the scarcity of recorded cases might suggest.

Exertion During Preparalytic Stage of Poliomyelitis.—Hargreaves analyzed the effect of exertion during the preparalytic stage of poliomyelitis on the prognosis in 30 cases which occurred in Cornwall during 1947-1948. His observations support those of Russell, namely, that severe physical activity during the preparalytic stage is associated with grave prognosis. Severe mental strain, such as driving a car over long distances, appears to be equally disastrous, whereas paralysis tends to be mild in patients confined to bed during the preparalytic stage.

Edinburgh Medical Journal

55:577-640 (Oct.) 1948

- The Medical Man in the Witness Box. T. B. Simpson.—p. 577.
The Medical Man in the Witness Box. J. K. Slater.—p. 585.
Psychogenic Pain. R. G. Gordon.—p. 596.
Argument on Neural Tumors and Their Allies. W. F. Harvey.—p. 612.

Journal of Bone and Joint Surgery, London

30 B:579-754 (Nov.) 1948

- Ischemic Necrosis of Anterior Tibial Muscles Due to Fatigue. J. R. Hughes.—p. 581.
Developmental Coxa Vara. A. B. Le Mesurier.—p. 595.
Congenital Elephantiasis Associated with Constriction by Anomalous Bands. A. W. Farmer.—p. 606.
Spinal Extradural Cysts. J. G. Du Toit and M. H. Fainsinger.—p. 613.
Arthrodesis of Ankle Joint. W. E. Gallie.—p. 619.
Fatigue Fracture of Ulna. I. D. Kitchin.—p. 622.
Etiology of Peroneal Spastic Flat Foot. R. I. Harris and T. Beath.—p. 624.
*Denervation of Elbow Joint for Relief of Pain: Preliminary Report. J. E. Bateman.—p. 635.
*Ischio-Femoral Arthrodesis. H. A. Brittain.—p. 642.
Posterior Dislocation of Shoulder Joint. C. K. Warrick.—p. 651.
Squamous-Celled Carcinoma of Nail Bed. V. H. Ellis.—p. 656.
Horizontal Approach to Medial Semilunar Cartilage. J. Charnley.—p. 659.
Knee Joint Changes After Meniscectomy. T. J. Fairbank.—p. 664.
Congenital Discoid Meniscus. I. S. Smillie.—p. 671.

Denervation of Elbow Joint.—Bateman performed neurectomy on the elbow joint of 11 patients between the ages of 27 and 56, with post-traumatic arthritis and osteoarthritis. In each case the patient complained before operation of pain in the elbow, aggravated by activity and persisting at night. Based on the study of the innervation of 152 elbow joints from the ulnar, median, radial and musculocutaneous nerves, denervation as complete as possible and full exposure with stripping of nerve trunks are recommended. There were no complications. Immediately after operation there was a changed sensation in the elbow. Dragging and aching sensation had disappeared. When the wounds were healed, sharp and stabbing pain on movement was no longer experienced. The patient was able to sleep undisturbed. On resumption of activity, carrying the arm at the side was no longer painful, and the previous range of movement was regained without discomfort. Forced movement caused discomfort described as "stiffness" but without acute pain. In

all cases but one, improvement was maintained and the patients went back to their former occupations. There was recurrence of pain after six months in 1 patient with acute rheumatoid arthritis; in such cases denervation is not recommended until further study is completed. The results in this small series of cases are encouraging, but patients should be warned that there will be no significant increase in the range of movement and that a normal joint is not to be expected. Articular neurectomy is still on trial. If the limitations are recognized, the procedure may have a useful place in the relief of pain in the elbow joint.

Ischiofemoral Arthrodesis.—Brittain performed ischiofemoral arthrodesis on 95 patients, 38 of whom had tuberculosis of the hip, 52 osteoarthritis of the hip and 5 infective arthritis of the hip. The basis of this operation is the use of a wide tibial graft, which is more certain to engage in bone in the ischium. The osteotomy performed in an ischiofemoral operation confers a unique advantage on the tuberculous hip, in that the disease can be changed from the serious problem of joint disease to the less serious one of bone disease. One of the essential features of the operation is that it is closed, and its success may depend on this. Wider exposures which mobilize both femoral fragments lose the advantage of fixation of the graft between the fragments and may cause nonunion. Thirty-two fusions occurred in the 38 patients with tuberculosis of the hip; forty-five fusions occurred in the 52 patients with osteoarthritis, and fusion occurred in all 5 patients with infective arthritis of the hip. Thus the proportion of successful fusions in this series of patients treated by ischiofemoral arthrodesis was over 80 per cent.

Medical Journal of Australia, Sydney

2:537-564 (Nov. 6) 1948

- Radio-Isotopes: Their Production and Uses. C. E. Eddy.—p. 537.
Some Uses of Artificial Radioactive Elements for Investigation and Treatment. R. K. Scott.—p. 539.
Self-Retaining Abdominal Retractor. C. Gale.—p. 545.

2:593-620 (Nov. 20) 1948. Partial Index

- Fractures of Neck of Femur. T. G. H. Hogg.—p. 593.
*Intraperitoneal Hemorrhage Due to Rupture of Graafian Follicle with Presentation of 3 Cases. W. Lowen.—p. 597.
Reiter's Disease. M. W. Fletcher.—p. 600.

Intraperitoneal Hemorrhage and Rupture of Graafian Follicle.—Lowen reports 3 young women, aged 18, 21 and 15, respectively, who had intraperitoneal hemorrhage due to a ruptured graafian follicle. Laparotomy was done in all 3, and in 1 a tear was observed on the right ovary through which an oval piece of tissue protruded. This was shelled out and the rent in the ovary was oversewn. Microscopic examination of the removed specimen suggested a graafian follicle distended with blood clot. In the other 2 patients ruptured cysts were found on an ovary. Cases of intraperitoneal hemorrhage due to rupture of a graafian follicle or corpus luteum retention cyst are not excessively rare. The total number of cases reported to date is approximately 500. The peritoneum may contain from a few cubic centimeters to 1,500 cc. of blood. The symptoms vary accordingly. The condition is most frequently misdiagnosed as acute appendicitis. The next most common mistake is confusion with a ruptured ectopic pregnancy. In the severe forms of rupture of the graafian follicle, a preoperative diagnosis is difficult, but laparotomy is usually done anyway. The following are the main points which are to help in the differentiation of this condition: 1. It occurs most commonly in the second and third decades of life. 2. The onset of symptoms occurs between the fourteenth and the twenty-first day after the last menstrual period. 3. Pain is invariably present. It is of sudden onset and usually starts in either right or left iliac fossa. Later it is diffused. 4. Nausea is present in the majority of cases, but vomiting is rare. 5. Tenderness varies in degree. 6. The temperature is normal or only slightly elevated. 7. Vaginal examination can help occasionally. Usually the cysts are too small to be palpable, but ovarian tenderness may help in distinguishing this condition from appendicitis. Unless signs of massive intra-abdominal hemorrhage are present, the treatment should be conservative. In cases in which preoperative diagnosis of appendicitis is made and is not confirmed at operation, the condition should be borne in mind and looked for.

Acta Medica Scandinavica, Stockholm**132:1-96 (Nov. 15) 1948. Partial Index**

- Studies of Erythrocyte Counting: III. Physiologic Variations. H. F. Lange and H. Palmer.—p. 1.
- Paroxysmal Ventricular Fibrillation with Recovery. P. Bechgaard.—p. 9.
- Reaction of Liver to Small Doses of Vitamin K as Liver Function Test. (Diagnostic Aid in Differential Diagnosis Between Obstructive and Parenchymatous Jaundice.) H. Begtrup and P. From Hansen.—p. 29.
- Spontaneous Hypoglycemia: Considerations on Indications and Result of Operation. G. F. van Balen and G. A. Lindeboom.—p. 41.
- *Methylthiouracil in Treatment of Congestive Heart Failure and Angina Pectoris. Results of Prolonged Treatment. A. Rune Frisk and Inga Lindgren.—p. 69.

Methylthiouracil in Congestive Heart Failure.—Frisk and Lindgren gave methylthiouracil to 7 patients with chronic congestive heart failure and to 9 patients with angina pectoris. None of the patients showed signs of hyperthyroidism. The initial dose was 400 or 500 mg. per day (divided into 100 mg. doses). After discharge from the hospital the dose was reduced to three daily doses of 100 mg. each. Later the dose was further reduced to 200 or 100 mg. per day. Four of the 7 patients with congestive heart failure were considerably improved and for a long time remained in this condition. Three patients showed moderate improvement. In 2 of these cases further therapy was stopped because of toxic reactions to the drug; the third patient relapsed in spite of continuous treatment. In 8 of 9 patients with angina pectoris there was lasting improvement during long-standing treatment with methylthiouracil. It was possible to record this improvement objectively by means of hypoxemia tests and exercise tolerance tests. As a rule, three to six months of treatment must elapse before improvement is noticed, and, with the dosage used, six to eight months of therapy were required before reduction of the thyroid function could be clinically proved. When the thyroxin storage of the thyroid gland is exhausted it becomes easy to maintain the metabolic rate at a desired low level with small daily doses (15 to 50 mg.). The authors aimed at metabolic values of about minus 15 per cent. In most cases there was a coincidence of symptomatic response and of response of the basal metabolic rate. In 5 cases in which there was definite improvement, however, there was no pronounced lowering of the basal metabolism. In these cases there was usually a rise in serum cholesterol indicating the blocking effect of the drug on the synthesis of thyroxin.

Arquivos de Neuro-Psiquiatria, São Paulo**6:301-420 (Dec.) 1948. Partial Index**

- *Folic Acid in Treatment of Nervous Syndrome of Pernicious Anemia: Behavior of Vibrating Sensation. M. Abu Jamra, H. Martins Canelas and J. M. Taques Bittencourt.—p. 301.

Folic Acid in Treatment of Nervous Syndrome of Pernicious Anemia.—Abu Jamra and collaborators administered folic acid to 7 patients with pernicious anemia, complicated by combined degeneration of the spinal cord. The clinical evolution was studied by repeated neurologic examinations, special attention being given to the vibratory sense. Tuning forks with frequencies of 32 (C¹), 65 (C), 128 (c) and 256 (c¹) double vibrations per second were used. The results obtained proved that the hematologic effect is not as pronounced as that which is obtained with liver extract. The pyramidal and posterior cord symptoms greatly improved in 2 cases. The pyramidal symptoms, but not the posterior cord symptoms, were improved in the 2 cases, whereas the reverse occurred in 1. The neurologic symptoms did not change in 2 cases.

Paris Médical**2:513-520 (Dec. 4) 1948**

- *Sulfur and Arteries. J. Vignalou.—p. 513.
- Diaphragmatic Hernia and Diaphragmatic Eventration. M. Demoulin.—p. 517.

Sulfur and Arteries.—Animal experiments by Vignalou showed that administration of sodium hyposulfite for eight days reduces the hypertension produced by venous perfusion with tyramine. The lowering of the arterial tension does not occur after the first injections but requires some time, suggesting that the effect of the drug depends on its combination with one of the substances which are responsible for the hypertension. A tyramine sulfuric acid was obtained by Loeper and Parrod by combining in vitro sulfur and tyramine. When injected into

animals this compound no longer possesses any of the vasoconstrictor and hypertensor properties of tyramine. Animal experiments showed that hypertension is less pronounced and of shorter duration in an animal to which a tyramine injection was given after 3 Gm. of sodium hyposulfite had been administered previously in the course of several days. A supposition seems to be warranted that the tyramine combines with the sulfur in the organism as in vitro and that in the blood the sulfur causes a true blockage of the hypertensor phenylamines. Progressive lowering of the arterial tension resulted in 4 of 10 patients with hypertension to whom intravenous injections of 1 to 2 Gm. of sodium hyposulfite were given daily. Two of 7 additional patients with hypertension, who were given the same treatment, were definitely improved; the blood pressure was lowered and the tyramine level was reduced after the third or fourth week of the treatment. In 1 of them, a young woman with severe hypertension, the improvement persisted for several months during which treatment was continued with a series of ten to twelve injections per month. In 3 other cases the functional sensory disturbances were rapidly relieved but lowering of the arterial tension was only transitory. In 2 treatment was a failure. Sodium hyposulfite is effective in patients with neurovascular hypertension whose arterial lesions are discrete and in whom the carotid sinus reflex is considerably increased.

Revista Clínica Española, Madrid**30:351-420 (Sept. 30) 1948. Partial Index**

- *Treatment of Chronic Infectious Rheumatism with Congo Red. C. Jiménez Díaz, E. López García and D. Centenera.—p. 365.

Therapy of Infectious Rheumatism with Congo Red.—Jiménez Díaz and collaborators report on the treatment of chronic infectious rheumatism with congo red by the intravenous route. The authors used a 1 per cent solution of congo red in doses varying from 5 to 10 cc. of the solution. The injection should be given slowly to prevent reaction. It is given every other day, up to a total of twenty injections in forty days. The treatment can be repeated after an interval of rest of three weeks. The authors report good results in a group of patients.

Semaine des Hôpitaux de Paris**24:3063-3100 (Dec. 18) 1948. Partial Index**

- Precocious Puberty and Tumor of Hypothalamus. P. Masson and A. Royer.—p. 3063.
- *Acute Osteomyelitis of Infants and Adolescents Treated with Sulfonamides and Penicillin. J. C. Favreau.—p. 3069.
- Meningitis Due to Hemophilus Influenza Treated with Streptomycin. J. Saucier and P. M. Larivière.—p. 3072.
- Some Therapeutic Trials with Bacteriophages of Type VI for Typhoid Fever. J. M. Desranleau.—p. 3073.

Acute Osteomyelitis of Infants and Adolescents.—Favreau reports 30 cases of acute osteomyelitis in infants and adolescents. Ten patients between the ages of 2 and 19 years were treated before 1937; i. e., before the era of the sulfonamide compounds. Treatment consisted of trephining of the medullary canal, curettage of the necrotic zone, autovaccine and plaster cast. Two patients died. The average hospital stay was two hundred and fifty-four days and the average time required for recovery was twenty-six months. Ten patients between the ages of 4 and 15 years were treated during the period from 1939 to 1944. Treatment consisted of local and oral administration of sulfonamide compounds in addition to trephining, curettage and plaster cast. There was not a single fatal case; the average hospital stay was sixty-nine days and the average time required for recovery was seven months. The response of the infants to the treatment with sulfonamide compounds was better than that of the adolescents. Pneumococcus rather than Staphylococcus aureus was demonstrated as the causative agent in the infants. Ten patients between the ages of 2 weeks and 11 years were treated during the period from 1944 to 1946. Treatment consisted of local administration of sulfonamide compounds and injections of 200,000 to 630,000 units of penicillin in addition to trephining, curettage and plaster cast. There was not a single fatal case, the average hospital stay was thirty-three days and the average time required for recovery was three months. Mortality disappeared. The course of the acute osteomyelitis was influenced most favorably by chemotherapy combined with surgical treatment.

Book Notices

The Therapeutic Value of Penicillin: A Study of 10,000 Cases. By Donald G. Anderson, M.D., Secretary, Council on Medical Education and Hospitals, American Medical Association, Chicago, and Chester S. Keefer, M.D., Professor of Medicine, Boston University School of Medicine, Boston. Fabrikoid. Price, \$7. Pp. 297. J. W. Edwards, 300 John St., Ann Arbor, Michigan, 1948.

This book is of special historic interest, since it represents the report of the first extensive nationwide study to determine the clinical use of a chemotherapeutic agent. Before penicillin became generally available for use in this country, its distribution and use were controlled by the Committee on Therapeutics and Other Agents of the National Research Council. During the period between 1942 and 1945, detailed reports of the use of penicillin in more than 10,000 patients were submitted to this committee. The reports were arranged according to etiologic and anatomic diagnoses and analyzed statistically, and the findings were commented on by the authors.

The conclusions reported in this book are only very generally applicable to the administration of penicillin at the present time. The doses and methods of the administration of penicillin have changed greatly, even in the short period that has elapsed since this study was undertaken. In the early months of penicillin therapy, the antibiotic was used largely in carefully selected patients, many of whom were seriously ill when therapy was begun and had failed to respond to other forms of therapy. The book presents much valuable information, however, since the experience recorded represents the largest number of cases of certain of the more unusual diseases treated with penicillin yet reported.

Health Progress 1936 to 1945: A Supplement to Twenty-Five Years of Health Progress. By Louis I. Dublin, Ph.D., Second Vice-President and Statistician, Metropolitan Life Insurance Co., New York. With the collaboration of the Staff of the Statistical Bureau. Paper. Pp. 147, with illustrations. Metropolitan Life Insurance Co., 1 Madison Ave., New York 10, 1948.

Excluding deaths from enemy action, the standardized death rate from all causes decreased 26 per cent in the decade 1936-1945 among persons insured by Metropolitan Life Insurance Co. at ages 1 to 74. Decline in mortality was experienced by each of the four color-sex groups. Reductions in mortality were observed in every age group, particularly in the younger age groups. Partial elimination of infectious and childhood diseases, which accounted for the sharp decline in mortality at the younger ages, enabled persons to live to an older age and as a result increased the importance of diseases of the aged.

Tuberculosis and pneumonia dropped to sixth and eighth place. Accidents moved up to fifth place as a major cause of death.

Standardized death rates for color, sex and age have declined markedly in communicable diseases of childhood, with a decline of 85 per cent in scarlet fever. For all forms of tuberculosis combined the standardized death rate among the insured declined 41 per cent over the ten year period, with material improvements in each color-sex and age group. However, it is still a primary cause of death among the young.

Pneumonia and influenza have been sharply reduced through the introduction of the wonder drugs. In 1945 these two diseases accounted for only 4 per cent of all deaths among the insured.

The percentage of deaths due to the diseases of the aged, such as cardiovascular-renal diseases and cancer, has increased throughout the interval studied. In spite of this increase the death rates for these diseases decreased when standardized for the aging of the population. In fact, there was a drop in the standardized mortality rate for all causes of death except accidents. Even though the importance of tuberculosis and pneumonia has been reduced they still account for a large number of deaths. The conquest of certain types of pneumonia requires further medical research. Newer methods of treatment, expansion of nursing facilities and improved health habits will assist in the control of all causes including those peculiar to the aged, but it must be recognized that death cannot be postponed forever. As the diseases of the young are controlled it is natural that the diseases of the aged must increase in importance.

Infra-Red Irradiation. By William Beaumont, M.R.C.S., L.R.C.P., Director of Physical Medicine, Westminster Hospital, London. With a foreword by Lord Horder, G.C.V.O., M.D., F.R.C.P. Third edition. Cloth. Price, 8s.6d. Pp. 161, with 32 illustrations. H. K. Lewis & Co., Ltd., 6 Gower St., London, W.C. 1, 1948.

This is the third edition of a useful and concise small monograph on the medical applications of infra-red radiation. In the foreword Lord Horder states, "At a time when physical therapy seems at last to be coming into its own in this country, we welcome Doctor Beaumont's concise and yet complete treatise upon infra-red irradiation."

Six years of war have intervened since the issuance of the previous edition and the author points out that during this time there has been a tremendous increase in the use of infra-red irradiation. The new edition has been entirely revised and two new chapters have been added; many of the old illustrations have been replaced. There are chapters on terminology, physical basis, physiologic effects, apparatus, technic, treatment of common symptoms, application to disease and combined treatments and on the recording and analysis of cases.

While this book is not an exhaustive one for the specialist in physical medicine, it is a satisfactory elementary guide in the fundamentals of infra-red radiation for the average medical practitioner and can be highly recommended for this purpose.

Oral and Dental Diseases: Aetiology, Histopathology, Clinical Features and Treatment: A Textbook for Dental Students and a Reference Book for Dental and Medical Practitioners. By Hubert H. Stones, M.D., M.D.S., F.D.S.R.C.S., Professor of Dental Surgery and Director of Dental Education, University of Liverpool, Liverpool. Cloth. Price, \$18. Pp. 396, with 926 illustrations. Williams & Wilkins Co., Mount Royal and Guilford Aves, Baltimore 2, 1948.

In the preface to this first edition the author states: "As oral lesions may be of a serious nature, sometimes being local in origin and at other times the manifestations of systemic disease, it is important that medical as well as dental practitioners should recognize such lesions and appreciate their significance." With this as a theme, the forty-two chapters which follow are in a logical and comprehensive order.

Another statement made in the preface is "When reviewing the dental tissues, though certain characteristic features are involved, they must not be dissociated from the system as a whole. Thus, when considering various aspects of dental diseases, as well as other oral diseases, it is necessary to utilize the resources and knowledge of a wide scientific field." The extensive bibliographies found at the end of each chapter indicate the author's familiarity with pertinent scientific literature and also furnish the reader with a vast amount of material for further reading.

Each chapter contains numerous illustrations. The photographs, charts, photomicrographs, colored photographs, drawings and roentgenograms are, in most instances, very good and nicely reproduced for publication. It is well to comment on the roentgen reproductions, which are not reversed or positive prints, but are duplications of the original film and can be read as such.

This new volume is meant to cover a vast amount of material—some of the dental material is rather inadequately covered, and some of the medical material is also treated in a superficial manner. The logical and comprehensive method and order of presentation, the complete extensive bibliographies at the end of each chapter and the many excellent colored illustrations make this volume a valuable adjunct to any dental or medical library.

Therapeutisches Taschenbuch für Ärzte und Studierende. Herausgegeben von Dr. Med. G. Ruepp. Bearbeitet von Prof. W. Burckhardt, et al. Cloth. Price, 12 Swiss francs. Pp. 394. Hans Huber, Marktgasse 9, Bern 16, 1948.

This book, which is written in German, provides brief résumés of the information considered essential by the author for a proper understanding of the causes and treatment of diseases. The diseases are arranged alphabetically in the book. However, the information presented is so brief that the booklet becomes little more than a handbook, or one that students would use for cramming. Furthermore, it obviously does not come up to the standards of the better American books, nor is it up to date so far as treatment on this continent is concerned.

Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. THEY DO NOT, HOWEVER, REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS, BUT THESE WILL BE OMITTED ON REQUEST.

BLOOD ALCOHOL CONTENT IN INTOXICATION

To the Editor:—In a recent case which came before a court, a man was arrested for drunken driving, but refused to have a blood alcohol test taken at the time of the arrest. About five hours later he permitted the taking of the test, which showed an alcohol content of 50 mg. per cent (0.05 per cent by weight). The question now arises as to what the blood content of alcohol was at the time of the arrest. In the literature at hand I have not been able to find any definite statement as to the rate of loss of alcohol from the blood after one stops imbibing. Please give references in which this information may be obtained.

Roy S. Wyckoff, M.D., Lexington, Neb.

ANSWER.—Mellanby's experiments have indicated (Alcohol: Its Absorption into and Disappearance from the Blood Under Different Conditions, Medical Research Council, Special Report Series, No. 31, His Majesty's Stationery Office, London, 1919) that alcohol is lost from the body at the rate of 7 to 10 cc. per hour. These findings have had adequate confirmation. More recent research by Haggard and his associates (*Quart. J. Stud. Alcohol* 1:4, [March] 1941) explain some of the variations in the rate of loss of alcohol from the body by pointing out that the rate of absorption of the alcohol from the alimentary tract is a primary factor in determining the shape of the alcohol curve. Further variations in the rate of loss of alcohol from the body depend on the body weight of the subject. According to Haggard, an average-sized person, 65 to 79 Kg., eliminates alcohol at a rate of 5.2 to 6.3 Gm. per hour.

Assuming that the arrested man had done all of his drinking one or more hours before the arrest, and that he weighed 150 pounds (68 Kg.), he would have had in his body at the time the specimen was taken approximately $0.0005 \times \frac{2}{3} \times \frac{4}{5} \times 150 = 0.066$ (pounds alcohol) = 30 Gm. This approximation is based on the knowledge that the alcohol in the body distributes itself uniformly in the water of the body; that the body is about two thirds water, and that the blood alcohol is to the body water alcohol as 3 is to 4. Five hours previously the body would have contained an additional 30 Gm. assuming the conservative rate of loss of alcohol of 6 Gm. per hour. The alcohol in the blood at that time would have been about 0.10 per cent by weight. This amount is usually associated with symptoms of intoxication, although there is no indisputable proof of "under the influence" until the alcohol in the blood reaches 0.15 per cent. (Report of the Committee to Study Problems of Motor Vehicle Accidents [approved by House of Delegates] J. A. M. A. 124:1290 [April 29] 1944.)

PENICILLIN REACTION

To the Editor:—An 80 year old man, a retired physician, fell ill suddenly and underwent removal of the gallbladder and gallstones. This occurred last July. He now looks as robust as before the operation. He was given large doses of penicillin while hospitalized and has suffered torture from pruritus ever since leaving the hospital.

What remedy will modify this itching? Eruption consists of papules and small pustules. Intensity of the itching has decreased, and rubbing with a rough bath towel allays it. What is the usual course in such allergy?

Fayette C. Ewing, M.D., Pineville, La.

ANSWER.—Allergic reactions to penicillin do not last four months. It is possible that the initial reaction was from penicillin and that this was followed by sensitivity to other substances or perhaps by traumatization of the skin. Is the patient using other drugs, such as acetophenetidin, acetylsalicylic acid, barbiturates, phenolphthalein or sulfonamide compounds? It may be, of course, that allergy is not involved now. Systemic causes for itching, such as diabetes, icterus, blood dyscrasias and Hodgkin's disease, should be ruled out. Physical factors such as heat or cold may be a cause, and psychogenic influences have to be considered.

The remedy would depend on the cause. For symptomatic relief the antihistaminic compounds (tripelennamine hydrochloride, diphenhydramine, hydrochloride, neoantergan® [N-p-methoxybenzyl - N - dimethylaminoethyl - alpha - aminopyridine] thenylpyramine hydrochloride) would likely constitute the most effective remedy. Tripelennamine cream or ointment may be of aid. Acetylsalicylic acid is frequently helpful. Sedatives may be needed.

JEWELWEED

To the Editor:—From time to time we have had reports from certain of our men that they were using the juice from a weed to counteract harmful effects after exposure to poison ivy. This juice was used even after the rash had begun to form and inflammation appeared. Last week I had occasion to investigate this matter further and also to secure samples of the weed, which I brought down to a botanist at Lawrence College. He identified the weed as the jewelweed, with the botanical name *Impatiens*. The weed is found in many parts of the state, but we are definitely aware of its presence in areas north of Appleton, around Waupaca, and in the vicinity of the Menominee River in our northern territory. The thing that concerns us at this time is whether or not the juice of the jewelweed is an effective antidote for poison ivy. If it is, our men should be informed, but if it is not, there is grave danger of doing more harm than good.

M.D., Wisconsin.

ANSWER.—Extracts of jewelweed (*Impatiens*) have been used empirically for many years both in the prevention and the treatment of poison ivy dermatitis. Since no published data on the effectiveness of this plant in the prevention and treatment of ivy dermatitis could be found, I conducted experiments with the fresh sap and ether extracts of jewelweed (*Impatiens*) obtained from the state of Iowa and with an extract of the plant manufactured for the treatment of poison ivy in the vicinity of Baltimore, and furnished by the late Dr. Pels. Neither the fresh juice nor the extract of the plant was of any value in preventing the development of poison ivy dermatitis and liberal applications of both the fresh juice and the extract did not hasten the healing of poison ivy eruptions.

Jewelweed, the coneflower (*Echinacea*), the gum weed (*Gnaphalium*), the red bud (*Cercis*), wormwood (*Artemisia*), bloodroot (*Sanguinaria*), boneset (*Eupatorium*), and a host of other plants have been used empirically in the prevention and treatment of poison ivy eruptions. Proof that any of these are of value is lacking.

TERMINAL HEMATURIA

To the Editor:—Recently three boys, ages 2, 5 and 11, complained of passage of gross blood during the terminal phase of urination. Physical examination was negative. All denied trauma. The tuberculin skin reactions were negative. The three glass test showed gross blood in the third glass, with only an occasional cell in the other two. Within forty-eight hours the urine samples became negative and the patients felt well. No cultures were made of the urine. Weekly urinalysis for several weeks has remained negative for each child. What is the most likely type of disturbance?

M.D., Oklahoma.

ANSWER.—Terminal hematuria, as described in the 3 boys, would indicate localization of its source to the posterior urethra. The three glass test is not always exact in its localization of a lesion, however, so that the bladder and upper part of the urinary tract cannot be entirely excluded. Some type of infection would seem to be the most likely lesion. Examination of the urinary sediment by means of Gram's stains and cultures is essential. An inflammatory lesion may exist occasionally when the urine is negative on microscopic examination and on culture. Trauma secondary to masturbation also is a factor to be considered. If the hematuria persists, roentgenographic and cystoscopic examination should be employed for exact identification of the source. A complete roentgenographic examination of the urinary tract is essential in every case of hematuria. Although calculi in the kidney, ureter, bladder or urethra are unusual in children, nevertheless they do occur. Neoplasm in the urinary tract does not occur in children often; however, it also should be excluded, preferably by cystoscopic examination and urography.

PITYRIASIS

To the Editor:—Is Pityriasis lichenoides at varioliformis acuta usually accompanied by pruritus?

Walter Weinberger, M.D., Altoona, Pa.

ANSWER.—Some patients do complain of itching, although severe itching is not a characteristic symptom of this disease.

ENCEPHALITIS IMMUNIZATION

To the Editor:—In *Queries and Minor Notes* of Dec. 11, 1948, the statement is made, "Immunization against the Japanese type of encephalitis is still in the stage of animal experimentation and has not been applied to human beings."

The Army Medical Department prepared Japanese encephalitis vaccine, chick embryo type, for use in all troops stationed in Japan and Okinawa during the years 1946, 1947 and 1948. A mouse brain type was used in 1945. We will continue the use of the vaccine in 1949, having already completed plans for production. The method of administration is essentially that of any other type of vaccine in that basic immunizing doses are given, followed by a booster dose each succeeding year.

The evaluation of the vaccine has not been completed and the information available at this time does not justify definite conclusions. We strongly believe from the experience we have had that the use of the vaccine should be continued.

Rufus L. Holt, Colonel, Medical Corps, Washington, D. C.

The Journal of the American Medical Association

Published Under the Auspices of the Board of Trustees

VOL. 140, No. 2

CHICAGO, ILLINOIS
COPYRIGHT, 1949, BY AMERICAN MEDICAL ASSOCIATION

MAY 14, 1949

WHAT FURTHER CONTRIBUTION CAN RADIOLOGY MAKE TO MEDICINE?

Chairman's Address

W. WALTER WASSON, M.D.
Denver

As Chairman of the Section on Radiology, I wish to take this opportunity to pay my respects to the older generation of radiologists who have contributed so much to the science of radiology and who have left such a wonderful heritage to medicine. To the younger generation of radiologists I wish to say that much progress can yet be made. It has been said that radiology has reached its "peak." I am not in accord with this opinion, and I do not believe that radiology has reached its peak, in either the field of diagnosis or that of therapy. The roentgen ray has become so basic to the practice of medicine that it will be used in some form as long as there are diseases to diagnose and patients to treat. Furthermore, being basic in its portrayal of anatomy and of physiologic and pathologic conditions, or the treatment of these conditions, its development will be in direct ratio to the progress made in our knowledge of these diseases.

Research studies will continue to be necessary for advancement in the field of radiology. While accidental discoveries may be made, as in all branches of science, the greater progress will be made by well planned research. At present, the radiologists competent to do research are too busy with the daily routine to attempt any amount of well organized research. This situation will be corrected as more radiologists are available for the general routine practice of radiology. However, research investigations are not necessarily limited to large institutions where there is a large mass of material for study. As a matter of fact, radiologists can derive a great deal of benefit and pleasure from the continual research studies in their own private offices and from small groups of cases well investigated and analyzed. Such studies should be encouraged.

In the field of therapy, radiologic equipment has improved faster than the ability of the radiologist to understand and utilize it. The mechanical factors involved in the use of the therapy equipment almost requires the knowledge and experience of a trained physicist to utilize fully the possibilities of this apparatus. At the same time, the application to the patient necessitates a detailed knowledge of medicine. Again, the expense of this equipment is frequently beyond the range of the average radiologist. Already skill in manufacturing is not only simplifying apparatus but also reducing costs. It is therefore possible to visualize

a much wider distribution of efficient equipment. However, progress in the field of radiation therapy will depend on the radiologist's ability to understand the possibilities of his equipment and its application to the disease which he wishes to treat. Such ability, at the present time, is limited to a very few radiologists, and these same radiologists are handicapped by a lack of time for progress in research. In the treatment of malignant disease, 100 per cent accuracy in diagnosis and treatment is almost absolutely necessary, together with the daily observation of the patient. Furthermore, our knowledge of the therapeutic dosages of any form of irradiation is still inadequate. As recently pointed out by Martin, in spite of its importance, the time factor is still very poorly understood. Complete ionization of the rays within the tumor cells is the desired goal in radiation therapy, and yet various radiologists are observed to use voltages from 140 to 1,000 kilovolts for the treatment of similar tumors in similar cases. It does not seem that such a wide range of kilovoltage can be correct. In other words, there is at hand a wide range of voltage for the treatment of disease with roentgen rays, and much progress will be made when there is better knowledge for the selection and application of voltage.

The reactions within the body cells, either tumor or other tissue cells, as a result of the application of some form of irradiation are still poorly understood. In spite of all the research that is being carried on, there have been inadequately detailed studies of such tissue cell reaction. Until such information is available, a truly scientific application of irradiation cannot be had. As just suggested, it makes a great deal of difference as to whether the rays applied to the surface of the body are completely ionized within the tumor cell and as to whether this ionization is a lethal dose for that tumor cell or whether it is a fraction of a lethal dose and repeated at some indefinite time. For the ultimate in the treatment of disease, it is evident that the radiologist must have an intimate knowledge of the pathologic changes in the disease which he is undertaking to treat. Time will simplify many of these problems and will bring to the radiologist the knowledge of his apparatus and of the disease, so that there will be definite increased efficiency in his treatment of diseased conditions.

CHEMOTHERAPY AND RADIATION THERAPY

It is known that some diseases are due to a virus infection, in which the virus is intracellular and cannot be reached by chemical therapy. There is the possibility that the use of radiation therapy for the destruction of such cells may make chemical therapy more effective. This theory has a similar application already recognized in the treatment of infection in which the leukocytes are broken down by the roentgen ray and

Read before the Section on Radiology at the Ninety-Seventh Annual Session of the American Medical Association, Chicago, June 23, 1948.

enable the blood plasma to have access to the bacteria. The field of chemical therapy is still very young, and it may be found that the roentgen or radium ray needs the aid of such chemical therapy for the destruction of tumor cells which are now highly resistant to such irradiation. There is already some evidence that, while testosterone or diethylstilbestrol may have little value in the treatment of certain malignant conditions and while the roentgen or radium rays by themselves may have little value in such treatment, the combination of this testosterone or diethylstilbestrol and radiation therapy may have a most desired result. Such investigations of chemical therapy offer considerable promise for the future. Likewise, the use of radiation therapy in the treatment of ordinary infections of a wide variety has had insufficient usage. The radiologist has been too busy with the treatment of more serious conditions.

RADIOACTIVE ISOTOPES

A more recent addition to the field of radiation therapy has been the radioactive isotopes. While the use of the radioactive isotopes has been of definite help in the treatment of a few diseases, their greatest value has been in the study of physiologic processes. It is as yet too early to say what ultimate contribution the radioactive isotopes will make to radiation therapy. The very knowledge of nuclear physics which they bring may be the deciding factor necessary for the study of the effect of irradiation on the tissue cells. Certainly, medicine can expect not only advance in the knowledge of the effects of irradiation on tissue cells, but also a wider and more efficient application of this knowledge to the sick patient. Television clinics will definitely aid in the transmission of this scientific information to a larger and larger group of radiologists.

DIAGNOSTIC ROENTGENOLOGY

In the field of diagnostic roentgenology, it would seem that after all the ingenious methods for utilizing the roentgen ray in diagnosis one could not expect much further progress. Extensive contributions have been made to the diagnosis of almost every disease—as to its development, character and methods for treatment—but newer diagnostic methods are continually being revealed, as evidenced by the recent developments in angiocardiology and photoroentgenography and of the use of the electronic fluoroscope as proposed by Chamberlain. This fluoroscope with its great increased intensity of the light image can revolutionize diagnostic procedures. Color photography as applied to the roentgen ray has not yet been successful. New methods of living continually develop new types of diseases, as in the field of industry, and the radiologists have met this challenge by developing methods for the study and diagnosis of such new diseases.

ROENTGEN FOLLOW-UP

Roentgen examination following the administration of various pharmaceutical products has been used to some extent, but its possibilities for the study of the action of drugs on both animals and human beings have not been fully explored. After the administration of a drug, the roentgen examination can be and has been employed to study the effect of this drug either on the physiologic processes of the body or its beneficial effect for the treatment of disease. The control of drug administration can be much more accurately directed by such studies. Likewise, the results of surgical treatment can often be more definitely deter-

mined by roentgen examination than by the ordinary observation of the patient.

It can be said that most of the efforts in the development of methods for the diagnosis of diseases with the roentgen ray have been directed toward the acute illnesses. As previously stated, the roentgen examination is basic in the practice of medicine in that it portrays not only normal anatomy but the physiologic and pathologic variations of this anatomy. In fact, such an examination, as one of the abdomen, may often be superior to surgical exploration, and it may rank next to an autopsy as to the extent of organs visualized and in the accuracy of their portrayal.

ROENTGEN LIFE SPAN STUDIES

If our very ingenious methods of roentgen diagnosis were applied to the examination of the human being from infancy to adult life, there would be roentgen records of a life span of a patient's anatomy, and by demonstrating the physiologic and pathologic changes they would reveal the beginnings of the organic diseases. With the present understanding of the effects of the roentgen examination and modern methods, it is possible to make such repeated examinations without risk to the patient. The short exposure technics have made the roentgen examination of the young infant a daily and almost routine procedure and have given the pediatrician the valuable bit of information so necessary to his diagnosis. The young infant is not able to describe his pain. After the achievements of radiology in the diagnosis and study of the acute illnesses, it would seem that radiology's responsibility to medicine would be now to attack the problems of the chronic diseases which so often have their beginnings in infancy and early childhood and which kill at 50. This is not a new theme, as I have spoken of this before, but I do not believe that the radiologists are yet thinking in terms of the conquest of the chronic diseases. This is chiefly due to the fact that no radiologist follows the same patient long enough to observe the beginning of a chronic illness and its fatal termination, and the radiologists have been too busy with the diagnosis of acute illnesses which are often more demanding of attention. On the other hand, it is my opinion that when radiology does earnestly attack the problem of the recording of the beginning and progression of the chronic illnesses it will make one of its greatest contributions to medicine. I know that this will be done. Already certain research investigations have proved its importance and feasibility. The study of only an occasional patient from infancy through life, in either a large clinic or a private office, is most stimulating in its revelations. The pediatrician has his own pediatric hospital or ward in the general hospital, and the internist has his separate hospital. The internist, in general, is not interested in the child, and the pediatrician is not interested in the adult. In other words, there has been no important correlation for the study of disease between the physicians interested in the infant or young child and those interested in the adult. It is most important for the physician to realize, when seeing a patient with an acute exacerbation of a chronic disease, that the underlying pathologic process has been present for years. There are a few radiologists interested in such studies, and there has been an occasional organized effort to study the life span of the chronic diseases, but usually such efforts are ultimately confined to studies of growth and development, and the

possibilities of roentgen study are neglected. The roentgen examination where combined with well planned physical and laboratory examination can record the changes in human anatomy over a period of many years and can reveal those processes within the body which cannot be determined by any other method. When the life span of the chronic disease is recorded it will be a most fascinating story of the physiologic activities of the body and of the attack on them by pathologic processes which bring destruction. Therefore, it can be expected that radiology will not only continue to keep pace with the rest of medicine in the study of acute illnesses as the newer diseases appear but will also respond to its responsibility and make another great contribution to medicine in its study of chronic diseases.

304 Republic Building (2).

ACUTE OBSTRUCTION OF THE SMALL BOWEL

F. A. COLLER, M.D.

and

R. W. BUXTON, M.D.
Ann Arbor, Mich.

The physiologic and pathologic abnormalities caused by acute obstruction of the small bowel have been studied in many clinics and laboratories. The result has been a better understanding of the problem, but the mortality rate for these lesions is still high. A survey of 198 patients with this lesion, observed in the University Hospital in the years 1934 to 1947, has been made and subjected to critical analysis, with the hope of improving the diagnosis and treatment in similar cases in the future. In all patients included in the study the diagnosis of mechanical intestinal obstruction and its causation was confirmed by operation or necropsy. Patients with primary paralytic ileus and those with nonoperative relief of obstruction have been excluded. It is now recognized¹ that the fluids lost by vomiting and other mechanisms, together with the absent intake of food and drink, result in profound dehydration from water and electrolyte deficiency. The accurate replacement of these losses and correction of the chemical abnormalities is imperative when possible. Wangenstein² has shown that with decompression the distended bowel maintains its viability and function and the dangers of operation are reduced. Infection with or without an associated factor of toxemia is the commonest cause of death. With the advent of the antibiotics, it has been shown that³ the lethal effects of bacterial growth can be importantly diminished by treatment with streptomycin or massive doses of penicillin. Strangulation is the most serious complication of obstruction, resulting as it may in shock from blood loss into the involved part and in perforation with resulting peritonitis. Several of these important

therapeutic measures have been developed during the years included in this study and were not available to patients treated in the earlier period.

RESULTS

In table 1 are listed the causes of obstruction. It is not usual in statistical analyses of small bowel obstruction to include patients with primary cancers of the colon. We have included certain of them in this group since their presenting sign was acute small bowel distention. The mortality rate is high, 38.3 per cent, and has shown but slight improvement over the years (fig. 1), in spite of the advances in our knowledge just cited. A further evaluation of the causes of death is informative. These are listed in table 2 under thirteen categories. Peritonitis accounted for the greatest number of deaths. Fourteen patients in this group were not operated on. Four were admitted to other services where they were under treatment for other disease, the diagnosis of obstruction being made only at autopsy. Another 4 patients entered the hospital moribund and died before treatment could be instituted. The general condition of 3 patients never permitted operative relief for their obstruction, and in 3 other patients, because of known carcinomatosis, operative intervention was not advised. The latter entered the hospital for terminal nursing care. In the peritonitis group at least one third might have survived their disease had a diagnosis of obstruction been made earlier. We will refer again to the importance of early diagnosis. Thirty-three patients, or 43.4 per cent, of those dying had a strangulation type of obstruction at operation or necropsy. Eleven of these died as a result of overwhelming peritonitis resulting from strangulation. In 2 patients with massive intestinal infarction, extreme blood loss contributed greatly to rapid death.

Intestinal Anastomosis.—Intestinal anastomoses were carried out in 70 patients as part of the operative treatment, and death resulted from peritonitis in 8 of these patients because of leakage at the suture lines. In 1 patient generalized peritonitis was present at the time of operation. In 6 of those in whom leakage occurred a side to side type of approximation was used. One recognizes the dangers of failure in the union of loops of bowel sutured together at a time when one or both loops are the site of edema and inflammation. Frequently one must join these loops in spite of their structural defects, but we have questioned ourselves further concerning these failures. We can only speculate concerning the type of anastomosis employed in these fatal cases. It is a common and natural procedure to place the loops side by side and to make the opening between them at a position between the mesenteric and antimesenteric borders. Since the circulation of the bowel springs in a sharply segmental form from the mesenteric border to meet at the antimesenteric border, we suspect that in those cases of leak, in which the anastomosis was made near the mesenteric border, there may have been interruption of the terminal branches which led to necrosis of the bowel wall in the segment of the arc distal to the point of interruption.

This concept is affirmed by the observations of Cokkinis,⁴ who found by injection studies on human beings that collateral circulation in the small intestine stops with the terminal row of vascular arcades (fig. 2).

From the Department of Surgery, University of Michigan Medical School, Ann Arbor, Mich.

Read before the Section on Surgery, General and Abdominal, at the Ninety-Seventh Annual Session of the American Medical Association, Chicago, June 23, 1948.

1. Abbott, W. E.; Mellors, R. C., and Muntwyler, E.: *Ann. Surg.* **117**: 39-51, 1943. Elman, R., and Hartman, F.: *Surg., Gynec. & Obst.* **53**: 307-315, 1931. Gendel, S., and Fine, J.: *Ann. Surg.* **110**: 25-36, 1939.

2. Wangenstein, O. H.: *Intestinal Obstructions*, Springfield, Ill., Charles C. Thomas, Publisher, 1942.

3. Harper, W. H., and Blain, A.: *Bull. Johns Hopkins Hosp.* **76**: 221-244, 1945. Blain, A.; Kennedy, J. D., and Calihan, R. J.: *Alexander Blain Hospital Bull.* **5**: 144-170, 1946. Farris, J. M., and Romack, H. H.: *Univ. Hosp. Bull., Ann Arbor* **12**: 90-92, 1946.

4. Cokkinis, A. J.: *J. Anat.* **64**: 200-205, 1930.

and that there are absolutely no anastomoses between the vasa recta of the mesentery or between the ramifying vessels on the small gut wall. In addition, anastomoses across the middle portion of the antimesenteric border of the gut are very few, since, after injection of laboratory specimens with india ink, this central longitudinal area was completely free of visible vessels.

Perforation and peritonitis resulted in death in 5 patients with simple obstructing lesions in the small intestine. In 4 of these operation was postponed in favor of a trial of further conservative management. We wish to emphasize the view that, since operation alone will eventually cure, it should be used at the earliest possible time compatible with the state of the complications.

Most of the remaining causes of death need little comment. One must emphasize the role that the wise employment of the antibiotics and of anticoagulants and an accurate administration of water, electrolytes and blood may play in hastening a favorable outcome. Massive hemorrhage from the colon might have been prevented or controlled in 1 patient, who died of this complication, had our knowledge and source of vitamin K been available at the time this patient was treated. Our present concept of the prevention of pulmonary embolism was not known when this happened. Pneumonia will be common in patients with severe distention. Wound infection secondary to contamination of the abdominal wall was commoner before the use of delayed closure and of antibiotics. High spinal anesthesia in a patient with unilateral pneumothorax for tuberculosis would seem today an obvious error. In short, one can state that in these very sick patients with obstruction and its complications every care is necessary in the use of any supportive or operative technic.

In 60 patients with primary cancer of the colon the outstanding clinical feature was distention of the small bowel, with vomiting and colic. Usually a scout roentgenogram of the abdomen should give more or less

obstructed small bowel by the Miller-Abbott⁵ tube, as advocated by Abbott and Johnston,⁶ has become common practice. Our experience coincides with that of others in that its successful passage results in relief of distention, vomiting and colic and a general improvement in the patient.

TABLE 2.—Causes of Death

Causes	No. of Patients
Peritonitis	42
(a) No operation	14
(b) Strangulation	11
(c) Breakdown of anastomosis	8
(d) "Closed loop" obstruction	4
(e) Simple obstruction with perforation	5
Carcinomatosis	10
Pulmonary embolus	5
Cerebrovascular accident	3
Pneumonia	3
Massive wound infection	2
Inanition (Infants)	3
Overhydration (Infants)	2
Spinal anesthesia	2
Hemorrhage	1
Tubercular meningitis	1
Perforation, peptic ulcer	1
Technical error	1

Small Intestinal Intubation.—Small intestinal intubation was attempted in 50 patients one or more times. Whenever intubation has been successful on one occasion, the tube has always been passed with ease in other trials. In 6 patients in whom attempts were made to pass the long tube, it functioned only as a means of gastric suction. Our failure cannot be charged against the use of this measure. Unsuccessful attempts to pass the long tube into the small intestine were made on 10 patients. In 7 of these the tube would not pass the pylorus; 2 patients did not tolerate the tube, and in 1 instance the tube would not pass the nares. Our rate of successful intubation was 68 per cent. In the hands of a skilled and devoted person with complete and enthusiastic assistance from the fluoroscopist, successful passage would be obtained in a much larger percentage of cases. In the occasional case with enormous distention in which quick passage of a long tube may be considered essential to recovery, one should consider the manual passage of the balloon through the pylorus into the jejunum by operative manipulation carried out with local anesthesia.⁷

Use of the Long Tube.—The complications associated with the use of the long tube are well known, but we wish to mention two serious complications that we have observed relative to its use. We have seen several patients in whom an efficient decompression of dilated small bowel gave the patient and his surgeon a sense of success. This was followed by perforation at the site of the primary lesion in the small bowel with the usual local reaction. In patients with mechanical obstruction successful decompression by the long tube should be considered a preliminary to operative treatment of the lesion. In 3 patients with obstructing lesions in the colon resulting in small bowel distention, decompression of the small bowel was successfully carried out with the Miller-Abbott tube but perforation happened in the colon despite the happy state of the small intestine. One was in the left colon at the site of neoplasm, one in the transverse colon and another through the appendix proximal to a cancer of the

TABLE 1.—Causes of Small Bowel Obstruction

	Number of Patients		
	Total	Survived	Died
Adhesions	39	25	11
Volvulus	23	11	12
Intussusception	31	20	11
Carcinoma left colon	37	25	12
Carcinoma transverse colon	10	5	5
Carcinoma right colon	13	11	2
Carcinomatosis	15	9	6
Carcinoma small bowel	5	4	1
Congenital atresia	8	2	6
Stenosis small bowel	3	1	2
Hernia	6	2	4
Mesenteric thrombosis	4	0	4
Helitls	2	2	0
Gallstone ileus	1	1	0
Leukemia	1	1	0
Total	198	122	76 (38.3%)

definite information regarding the site of obstruction, whether it be colon, small bowel or both. Depending on the function of the ileocecal valve, obstruction in the colon may or may not result in distention of the small bowel with vomiting. If the valve resists pressure, the distention will be limited to the colon with threat of cecal perforation. If it is incompetent and small bowel distention and regurgitation results, it may be difficult to judge accurately the site of obstruction from the roentgenogram. Decompression of the

5. Miller, T. G., and Abbott, W. O.: *Ann. Int. Med.* 8: 85-92, 1934.6. Abbott, W. O., and Johnston, C. G.: *Surg., Gynec. & Obst.* 66: 691-697, 1938.

7. McIntyre, C. H.: Personal communication to the authors.

ascending colon. A closed loop was formed by the primary lesion and the ileocecal valve. One should emphasize that decompression from above by any type of tube does not usually decompress the colon and in any case of doubt as to the location of the lesion, if the colon is distended, an opening, cecostomy or colostomy, must be done in addition to the use of tube decompression of the small intestine. Cecostomy was used in the treatment of 35 of these patients in addition to tube decompression from above.

Enterostomy.—Enterostomy is now usually regarded as a procedure to be condemned and seldom utilized. Certainly if other methods of decompression are satisfactory, it should not be used. However, if a closed loop obstruction exists in the small bowel or if other measures fail, enterostomy may be the only decompressive measure available. In a small number of patients with long-standing obstruction from multiple obstructing points, it may be the treatment of choice. In justice to this procedure we mention its use on 15 patients. In 12 of them it functioned well and accomplished satisfactory decompression. None required operative closure. The incision in the abdominal wall through which the enterostomy is carried out is always infected. Ordinarily this is of small consequence, but in 2 patients the infection of the abdominal wall was serious and in 1 patient resulted in death. These complications occurred before the advent of antibiotics, and today the result might have been different.

IMPORTANCE OF EARLY DIAGNOSIS

It was clear to us on studying the cases briefly mentioned here that the earlier diagnosis of obstruction would result in better treatment and a lower mortality rate. The advances in the treatment of obstruction all relate to the management of features of the disease that develop late in its course. Early diagnosis depends entirely on proper evaluation of the history and physical examination. One must emphasize the supreme importance of a history of abdominal pain, its character and location. If the lesion is external, as in hernia, the

strangulation is exceedingly high. Shock from blood loss in the strangulated loop, tenderness, muscle spasm, a visible tender irreducible mass and leukocytosis all are suggestive of strangulation. Paracentesis in intra-abdominal strangulation will usually show bloody fluid after the process is four to six hours old. Generalized

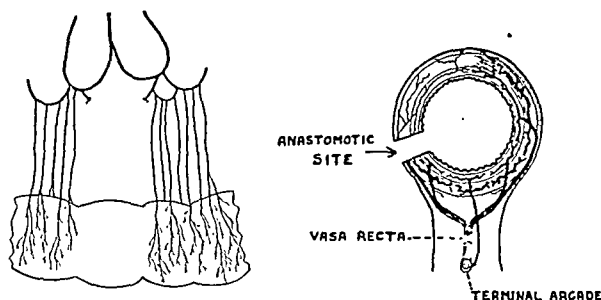


Fig. 2.—Drawing showing that collateral circulation in the small intestine stops with the terminal row of vascular arcades.

colicky pain without localization of an inflammatory process indicates obstruction. Vomiting will eventually occur with small bowel obstruction; it may never be present with large bowel obstruction. One should not wait for the cardinal signs of ileus before advising operation. If the patient is seen early, operation should be carried out immediately. At this time distention, dehydration, shock and infection are not yet evident. We have overemphasized the correction of these late effects of obstruction which would never happen if early diagnosis and operative treatment were carried out. In the late phases of the disease one must correct them before operation can be done. If there is a suspicion of strangulation, operation should be carried out immediately. In addition to the history and a physical examination, one must mention a third important aid in early diagnosis of obstruction, the scout roentgenogram of the abdomen.⁸ The roentgenogram may make clear an early diagnosis of small bowel obstruction through depiction of the gas-filled loops; it frequently gives the location of the lesion and its probable nature and will indicate by the presence of free gas whether perforation has taken place from necrotic bowel due to strangulation. If it is not clear whether the obstruction is primary in the small or large bowel, it is permissible to give, with caution, a barium sulfate enema to determine the state of patency of the colon. When the disease is late in its course and a Miller-Abbott tube is in place near the obstructing point, the administration of a small amount of barium sulfate may aid one in determining more accurately the level and character of the obstructions.

COMMENT

It is not possible to refer to all of the errors and pitfalls noted in our diagnosis and management of patients with intestinal obstruction. It is apparent, however, from this study that the following deductions can be made:

1. Obstruction in the colon producing, in addition, small bowel obstruction carries the additional hazard of a "closed loop" colon obstruction. Its relief is not always possible with tube decompression. Cecostomy offers these patients decompression of the colon and supplements importantly decompression by tube from above.

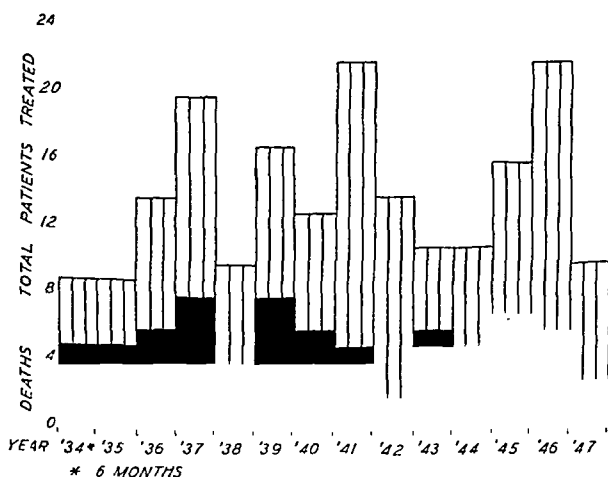


Fig. 1.—Graph showing deaths for the years 1934-1947.

diagnosis is clear. If the lesion is not visible, the history of pain should lead one to suspect the diagnosis with enough certainty to warrant operation. The differential diagnosis between simple obstruction and obstruction with strangulation may be difficult, but it is important since the mortality rate from untreated

8. Wangenstein, O. H.: *Radiology* 17: 44-62, 1931. Solis-Cohen, L., and Levin, S.: *Radiology* 31: 8-14, 1938. Ochsner, A.: *Surg., Gynec. & Obst.* 56: 719-727, 1933.

2. The principal cause of death in these patients was peritonitis. The seriousness of this complication can be ameliorated to some degree by intensive antibiotic therapy. This is probably most important in patients with early peritonitis, particularly when intestinal resection and anastomosis are necessary. The prevention of serious or even fatal wound infections may be a function of the now routine use of chemical and antibiotic agents through the course of treatment.

3. Next to the difficulty of making a diagnosis of intestinal obstruction is the determination of whether or not there exists a state of strangulation. Operation should be carried out immediately when the suspicion of strangulation exists, but the dangers of error are lessened if the indications for conservative management of obstruction are strictly limited and defined. Conservative measures should be abandoned at once when:

(a) Progressive decompression of the small intestine is not satisfactory within thirty-six hours after commencement of effective suction. Operative manipulation of the tube may be considered.

(b) In the absence of a specific knowledge of the cause of the obstruction, temporary relief is attended by recurrence of the signs and symptoms of obstruction.

(c) The signs and symptoms suggest impairment of the bowel circulation or strangulation.

SUMMARY

The mortality rate for patients with mechanical obstruction of the small bowel is high. This is due largely to delay in diagnosis. The early diagnosis of the lesion can be made only by one's giving more attention to the history, physical examination and roentgen examination of patients with abdominal pain, nausea and vomiting. If a diagnosis is made at this time, operation should be performed. If the patient is seen later, when distention, dehydration and infection have supervened as a late stage of the disease, these complications must be combated in preparation for operation. Cure can be effected only by operative correction of the mechanical obstructing factor. Advances in our management of the complications of obstruction have tended to obscure this fact, and a reemphasis on the fundamentals of the clinical aspects of early recognition and prompt operative therapy will importantly and favorably affect the treatment of obstruction of the small bowel.

ABSTRACT OF DISCUSSION

DR. R. J. NOER, Detroit: The reported mortality rate is higher than in most series, but this paper included only patients subjected to operation or who came to autopsy. There must have been many cases in which there was decompression by suction drainage or other means, and thus the patients recovered without operative procedure. Had these been included the mortality rate would have been lower. A few diagnostic points should be emphasized. At the Detroit Receiving Hospital, where we see much intestinal obstruction, we are impressed with the length of time the patient will suffer before seeking medical aid and with the number of physicians who fail to recognize the early signs and symptoms of intestinal obstruction. It should be emphasized that the so-called fecal vomiting is not essential to a diagnosis of intestinal obstruction. The reflex vomiting which occurs early before intestinal content reaches the stomach is just as important a sign of an obstructed intestine and will be more helpful in an early diagnosis. Constipation and obstipation are not at all essential to a diagnosis of intestinal obstruction. Many patients have bowel movements and even diarrhea in the presence of obstruction. To understand this one need only remember that the intestinal tract distal to an obstruction can still discharge its contents

through the anus. A final diagnostic shortcoming is the failure of many persons to obtain scout roentgenograms of the abdomen. The importance of this has been emphasized by Wangenstein and others. Dr. Johnston has repeatedly said that the scout roentgenogram of the abdomen is the single laboratory technic of value in the diagnosis of intestinal obstruction. I do not agree with the authors' suggestion that operative enterostomy is a procedure to be used with any frequency. The most effective enterostomy is that carried out through the nose by means of a balloon-tipped intestinal tube. It should be emphasized, however, that the mere dropping of a tube into the patient's stomach is not adequate decompression. The tube must either be passed into the intestine or at least function as a duodenal suction tube if the patient is to be relieved of his distention.

DR. CLARENCE DENNIS, Minneapolis: I wish to express Dr. Wangenstein's regrets that he has been unable to be here. Dr. Buxton and Dr. Collier have courageously included in their statistics deaths from abdominal carcinomatosis in which small bowel obstruction has been only a factor. The figures my colleague and I have published specifically omit such cases. Several years ago it was my privilege to experiment in the laboratory on the safety of various types of anastomosis in the presence of previously established intestinal obstruction. Relief by side to side anastomosis was attended by a high mortality rate, an experience parallel to that of Owings and Smith at Johns Hopkins Hospital in the early 1930's. End to end oblique anastomosis was attended by no deaths, even in the absence of antibiotics, except in 1 case in which an obvious technical error had been made. Approximately 50 end to end anastomoses have been done in the relief of clinical obstruction. One suture line has leaked, and in that case gross peritoneal soiling occurred prior to laparotomy. With slight modification of the Wangenstein aseptic decompression method, it has been my personal experience that the bowel may be emptied without contamination at operation. As Wangenstein pointed out, the emptying of the bowel makes safe a direct attack on the obstructing mechanism, with resection and anastomosis if needed. Most of the patients have been sent home in less than two weeks, relieved and without need for further operation. There has been no spillage or catastrophe arising from the use of this method in the cases (about 20) with which I have had personal experience. This seems far safer and more practical than catheter enterostomy. My co-workers and I feel that the surgeon who treats a patient with ileac obstruction conservatively is shouldering a greater responsibility than he would if immediate operation were to be employed, although it is true that the proper selection of cases for this method does yield a lower over-all mortality rate. This seeming paradox arises from the necessity that the abdomen be examined at least every four hours and that roentgenograms must be made frequently if the conservative course is to be followed. Moreover, the surgeon must hold himself in constant readiness for exploration if signs of strangulation should appear.

DR. FREDERICK A. COLLIER: We will all admit the importance of antibiotic chemotherapy, the maintenance of nutrition, water and electrolytic balance and decompression, but I am glad that all the essayists this morning have emphasized the importance of early diagnosis. There is no substitute for this. As an example of this, let me recite some analyses we have made recently in over 400 patients treated in our hospital for carcinoma of the colon. The study was made originally to find out whether certain technics we had been using were justified. We found that, of all of these patients, 40 per cent were beyond hope of surgical cure when we saw them. The mortality rate in the surgical treatment of those patients in whom the surgeon had a chance—that is, in whom the lesion was localized to the gut or to the adjacent lymph nodes—was very low, a little over 1 per cent. The mortality rate, however, for the disease itself in that other 40 per cent was high, and it seemed to us that we had been studying the wrong thing. That is, why fuss about whether one should do an open anastomosis or a closed anastomosis when the net result in favorable cases will give a mortality result of between 1 and 2 per cent. In the group of cases of small bowel mechanical obstruction which we presented this morning, we felt that it was only right in

studying the whole problem to present all of the patients we had seen, not the patients we had operated on but all we had seen. A considerable number of them were dying when we saw them. I am pleased that the importance of early diagnosis of acute abdominal lesions has been emphasized, since certainly that is most important. Many of us do not diagnose lesions of mechanical obstruction as well as we did twenty-five years ago. The knowledge that we have of methods for decompression and for the correction of dehydration, and of penicillin and streptomycin therapy with which to combat infection, retards diagnosis. I am very glad that Dr. Dennis and Dr. Noer emphasized the danger of conservative management. If there is mechanical obstruction in the small bowel, the ideal time to operate on the patient is before dehydration, before distention and before infection occur. The advice given by the surgeons of decades ago was that one should operate on diagnosis if complications do not exist. That is the optimal time to cure mechanical obstruction. Again, even though decompression is accomplished, it is much better, if the mechanical obstruction exists, to carry out operative correction of the mechanical defect as soon as the patient is in condition to withstand operation. I feel that, when one is in doubt concerning the patient seen early with generalized colicky pain, nausea and vomiting, even though one cannot make out the exact location of the obstruction, one should advise operation.

AN EVALUATION OF THERAPY IN INFANTILE ECZEMA

LEWIS WEBB HILL, M.D.
Boston

In 1922 I wrote that with painstaking and intelligent care most cases of infantile eczema can be cured entirely. In 1934 I said that the treatment of eczema may be summarized in six words: "Find the cause and remove it." These statements were due to the optimism of youth. The condition in many cases cannot be cured entirely, and finding the cause does not happen as often as the books tell us.

In 1948 I say, "Infantile eczema is a perplexing and exasperating disease to treat, and I wish I understood it better."

When one is treating an infant with eczema one is dealing with a patient who is diligently and ingeniously working against him twenty-four hours a day; no skin can heal when it is continually rubbed and scratched. Another difficulty is that atopic dermatitis, which comprises about 75 per cent of "eczema" in the young, has as its basis an abnormality of constitution which cannot be changed.

Under the heading "infantile eczema" are included a number of different dermatoses. It is of the utmost importance to be able to determine into which group the eruption falls. It may be atopic, contact or seborrheic dermatitis, nummular eczema, an eczematized fungous infection or a low grade pyogenic infection. It may have nothing to do with allergy.

I suspect that many allergists do not pay enough attention to dermatology. It is as important for an allergist to be a reasonably competent dermatologist as it is for him to be an internist: he is continually dealing with the skin. A careful study of the morphologic aspects of the eruption, its distribution, the primary elements which compose it, the history, its gradual or sudden appearance, and particularly the part of the

body on which it first appeared, is essential to a correct diagnosis. I shall discuss only the two eczematous dermatoses which rest on an allergic basis: atopic and contact dermatitis.

USE OF CUTANEOUS TESTS

It is clear that many cases of infantile eczema develop on an atopic soil—that is, the infants give positive cutaneous reactions of the urticarial type and they and their parents frequently have asthma or hay fever. The tendency that their skins have in early life to eczema is a phase in the natural history of their allergic development and usually lasts about two years, but may, of course, last indefinitely. It was thought, when cutaneous tests were introduced, that they would solve the problem of infantile eczema. Unfortunately, there is more to it than this—the significance of cutaneous tests is not entirely understood, and, indeed, it has been said by some very competent and thoughtful allergists that the urticarial type of reaction to a cutaneous test has nothing to do with infantile eczema. This is surely often so; but I cannot agree that it is always so, because in my experience eczema can sometimes be relieved or even cured by removal from the diet or environment of allergens which give urticarial type reactions and made to recur with reexposure. This is the only valid proof of causation; the cutaneous reaction, particularly to tests with foods, means nothing by itself, except that at some time antigenic food protein has entered the circulation and an immunologic reaction has resulted. It is as natural a phenomenon for an atopic person to have positive reactions to cutaneous tests with foods as it is for a fish to have scales—it is part of his makeup. That is the way he reacts to absorbed food protein; it is a mark of his constitution, but comparatively few of these reactions have anything to do with his allergic symptoms.

"Tolerance" is mentioned a good deal, but not much is said about why there is clinical tolerance to a food in the presence of a positive reaction to a cutaneous test. The most reasonable explanation seems to me to be that the allergen when ingested does not reach the sensitized tissue, whether it be skin or bronchial mucous membrane, in sufficient amount to produce a reaction. I strongly suspect that in human allergy, as well as in animal anaphylaxis, the sensitizing dose of an antigen is much less than that required to produce a shock reaction in the sensitized tissue and that this may be why so many positive cutaneous reactions to foods are of no clinical importance. It has taken only an infinitesimal amount of absorbed food protein to produce cutaneous sensitization—it often takes more to produce a reaction in the sensitized tissue, and not enough is absorbed to do it. If the tissue sensitization is of very high degree, however, a reaction results from the absorption of only a very small amount of antigen, such as is commonly absorbed; if the tissue sensitization is not of high degree more antigen is required than is ever absorbed, and hence no reaction results. There is experimental evidence to support this conception, but it would take too long to discuss in a paper of this sort.

Some strange things are done in allergy. I have seen a 5 year old child who had been tested with 236 foods and had been found allergic to 109 of them. Her mother proudly presented a list of the 109 foods which did her harm, typed in red, and a list of the 127 which she could eat, typed in black.

Included among those which she must not eat were squab, calves' brain, venison, caviar, poppy seed, bay leaves, thyme, red currant and *sanka*[®] coffee. She was fortunately found not to be allergic to pheasant, turtle, artichoke, garlic, horse radish, tripe or caraway seed.

Another child of about the same age appeared one day with a little box of extracts in graduated dilutions obtained by her doctor from one of the large pharmaceutical houses in accordance with the skin tests he had made. The mother was giving an injection of this extract every day. On the bottom of the box was typed a list of the antigens the extract contained. This read as follows: beef, yeast, lactalbumin, lettuce, onion, broccoli, cat hair, dust, hazelnut, pecan, peach, fig, garlic, cattle hair, cotton seed and mixed feathers. Too much of this sort of thing goes on.

Infants with atopic dermatitis almost always give positive reactions to scratch tests with one or more foods. The commonest are egg, milk and wheat. Inasmuch as they eat no egg, egg has nothing to do directly in the causation of the eczema. In infants, pronounced positive reactions to scratch tests with milk and with wheat are usually indicative of causation; positive reactions to some of the other foods may or may not be. The only way to determine what foods are of importance is to remove them from the diet and see what happens, provided that there are not too many of them. If so many foods are involved that an adequate diet is not left, only those should be removed which elicit the greatest reactions, and no eczematous baby should ever have an inadequate diet no matter what his cutaneous reactions are.

REACTIONS TO MILK

Milk is of considerable importance. In most cases substitution of goat's milk for cow's milk is not of value, because there are so many crossed reactions between cow and goat lactalbumin. Of 44 eczematous infants who reacted to cow lactalbumin, 25 gave identical reactions to goat lactalbumin. It is a curious fact, however, that while goat's milk is rarely of value in infantile eczema, it is practically always tolerated by infants, usually without eczema, who have violent symptoms from even a few drops of cow's milk. Many of these patients, in spite of extreme clinical sensitivity, give negative reactions to cutaneous tests with milk, and I suspect that their immunology may be somewhat different from that in infantile eczema. It is better in eczema, if sensitivity to milk exists, to use a milk-free food, of which *sobee*[®], mull soy[®] and *nutramigen*[®] are the most popular. These foods have a real but limited place in the treatment of infantile eczema, but are being grossly misused. The doctor sees a rash on the baby, which may be of almost any origin, and immediately prescribes a milk-free food. These should be used only when there is a positive cutaneous reaction to a test with milk.

DIFFICULTIES IN DIAGNOSIS

I think that it is fair to say that manipulation of the diet in accordance with the results of skin tests often does good. This is not very consistent, however, and there are plenty of cases in which it seems to make little difference what the diet is, in spite of positive reactions to various foods. The plain truth is that there is at present no really satisfactory treatment for

the disease atopic dermatitis in the infant, child or adult—and it is a disease, as much as pernicious anemia is a disease. Many cases of infantile eczema have nothing to do with the diet. I repeat this and say again that many cases of infantile eczema have nothing to do with the diet, for the idea is firmly implanted in the minds of most of those who deal with infants that almost any cutaneous eruption arises from food. Infants have contact dermatitis, just as adults do, and it is not uncommon. If the dermatitis begins rather suddenly after the age of 6 months, particularly if it begins on the trunk or extremities, there is a rather good chance that it may be contact dermatitis. I have seen this in infants from the sizing in a new unlaundered undershirt, from the dye in a pink sweater, from medicated baby oil, from *aristol*[®] powder (thymol iodide), from hypochlorite bleaching powder, from the rubber waist band of a patent diaper and from furniture polish. The location of the initial dermatitis may furnish the clue to the cause, but it must be remembered that contact dermatitis may spread far from the original contact. In many cases, although one can be sure that the eruption is of the contact variety, it is not possible to determine the exact cause. Patch tests may occasionally be of value: more often not. In contact dermatitis, even though the exact cause is not found, one may likely obtain good therapeutic results by allowing nothing to come in contact with the skin except clean white cotton and whatever local medication is used.

Atopic dermatitis is a disease; contact dermatitis is an episode.

The dermatologist, in all cutaneous conditions, is immensely concerned with local treatment: the allergist as a rule does not pay enough attention to it. It must be realized that the immunologic approach to infantile eczema is far from perfect and that skilled local treatment often does more good than an immunologic approach. The two fundamental necessities are to use the right kind of salve or lotion for the right kind of dermatitis and to protect the involved areas from any and all trauma in so far as is possible. About half of what one sees on the skin in infantile eczema is what the infant does to himself. Results of local treatment on the arms and legs are almost always satisfactory, because they can be bandaged. A piece of soft cotton cloth is applied over whatever ointment is being used, then a 2 inch (5 cm.) *ace*[®] bandage. This efficiently protects the skin: it is too thick to scratch through. This is a simple measure, but may do more good to your patient than anything else.

I know of no really good way to stop itching; there are disadvantages to all the usual antipruritics, and *tripelennamine hydrochloride* (*pyribenzamine*[®]) and *diphenhydramine hydrochloride* (*benadryl*[®]) given internally have in my hands been useless. I have not as yet had enough experience with the use of *pyribenzamine*[®] ointment locally, as suggested by Dr. Feinberg, to say anything about it that would be valid.

There have been numerous other special treatments recommended for infantile eczema, which have proved of little or no value. A possible exception to this is the ingestion of unsaturated fatty acids in the form of linseed oil, corn oil or lard, as originally recommended by Hansen.¹ Although this treatment has been in use for fourteen years, there is still no unanimity of opinion

1. Hansen, E.: Possible Mechanism of Crude Coal Tar Therapy in Infantile Eczema, *Proc. Soc. Exper. Biol. & Med.* **31**: 161 (Nov.) 1933.

concerning it. Hansen² and his co-workers in 1947, however, reported a large and very carefully studied series of cases and stated that they were convinced that unsaturated fatty acid therapy is a very useful adjunct to treatment. This treatment can do no possible harm to the child, which is more than can be said of some treatments that have been recommended, and, moreover, its proponents (Hansen, McQuarrie and Stoesser) are sound and conservative pediatricians of the highest reputation. I cannot honestly say that I have myself seen it do much, but perhaps I became too easily discouraged with it and did not give it a fair trial. It should be used by everyone in the treatment of infantile eczema, and in the course of time opinion concerning it will be crystallized, for a new treatment of any disease, in order to become finally standard, must be efficacious in the hands of every one as well as in the hands of its originators.

SUMMARY

I wish especially to emphasize four things: (1) the need for a common sense point of view concerning cutaneous tests with foods, (2) the need for more attention by allergists to local treatment, (3) the necessity of protecting the skin from external trauma and (4) the fact that not all eczema in infants has to do with the diet and that contact dermatitis is not uncommon.

319 Longwood Avenue.

ABSTRACT OF DISCUSSION

DR. A. V. STOESSER, Minneapolis: Dr. Hill may have forgotten that he also published a good paper in 1933 in the *Journal of Pediatrics*. We, at Minnesota, read this article and set up a program to take care of the patients with infantile eczema coming to the University Hospital. At first, we were very happy with our results, but, as the number of cases increased, some things being done did not work out so well. We followed Dr. Hill's recommendation closely, although we were discouraged at times. Now I find that he has adopted a broader point of view. In other words, as a teacher he is beginning to see that there are a number of things one can do for eczema and that emphasis should not be placed on any one thing. The practitioner should not get into the habit of thinking of a certain food in the diet as the only cause of infantile eczema or of believing that contact with something is the cause of the disease. Over and over again, the emphasis has been placed on only one phase of therapy. The diet may or may not play a part. Secondly, contact is significant. When the child begins to walk, he may have dermatitis on his arms and legs. This may be from the living room rug or the overstuffed furniture. The avoidance of these contacts will sometimes terminate the eczema in a short period. Thirdly, there is the matter of medication. There is always the desire to grease the children, put oil on them and use ointments. Why not water? Why not hypoallergic soaps and creams? They give comfort to infants. Fourth, sedation is important. Dr. Hill does not think much of the antihistaminic drugs. I do, but not for their specific action. They are good sedatives and the best is still diphenhydramine hydrochloride (benadryl®). Finally, there is the question of adjuncts. Physicians come to us and say that they have taken good care of children by using thyroid extract. The same applies to the unsaturated fatty acids. Dr. Hill mentioned that he did not know whether this type of therapy would work out in many cases. The missing link in this treatment is the determination of the blood lipids, a difficult procedure. If the physician had that information he could do better with those infants who required the unsaturated fatty acids.

2. Hansen, E.; Knott, E. M.; Wiese, H. F.; Shapeman, E., and McQuarrie, I.: Eczema and Essential Fatty Acids, *Am. J. Dis. Child.* 73:1 (Jan.) 1947.

THE TREATMENT OF THYROTOXICOSIS

I. S. RAVDIN, M.D.

EDWARD ROSE, M.D.

and

JAMES D. MAXWELL, M.D.

Philadelphia

Within the past few years a number of important advances have been made in our knowledge of the normal and abnormal functioning of the thyroid gland. These advances have resulted in part from the introduction of new methods for the treatment of thyrotoxicosis. It would seem desirable at this time to reexamine the present methods of treating thyrotoxicosis with special consideration of the status of thyroidectomy.

The most important recent advances in the knowledge of thyroid physiology have resulted from the use of three major tools: (1) a large group of goitrogenic compounds, varying considerably in chemical structure and mode of action (sulfonamide compounds, thiourea derivatives, sulfocyanates); (2) radioactive iodine and (3) relatively purified preparations of the thyrotropic hormone of the anterior pituitary. From the integrated use of these tools much has been learned concerning the mode of transport of inorganic iodine to the thyroid; the mechanism of its entrapment, fixation and subsequent incorporation into the thyroid hormone; the mechanism of the release of the thyroid hormone into the circulation; the effect on this release of a variety of extrathyroidal factors, and the control exercised by the anterior pituitary on these various functions. There remains much, however, of which we are still ignorant. We do not know, for example, the structure of the thyroid hormone, nor do we know the site or mode of action responsible for its specific metabolic effect on the target tissue cell. Knowledge of the etiologic aspects of simple nontoxic diffuse goiter is probably still incomplete. Finally, we are still ignorant concerning the primary cause of thyrotoxicosis.

With the possible exception of the true toxic adenoma, it seems probable that the primary cause of thyrotoxicosis lies outside the thyroid gland itself. Certain clinical evidence suggests the possible etiologic importance of functional disturbances in the higher psychic centers, the hypothalamus, the anterior pituitary, the autonomic nervous system, the gonads and the adrenals. Proof of such relationship, however, is still lacking. The thyrotoxic state might be considered theoretically to be therapeutically vulnerable at three possible levels: (1) by an attack on the initiating factors, (2) at the thyroid itself or (3) at the level of the peripheral target tissue cell where the impact of the excessive output of thyroid hormone is exerted. We have no methods of attack at the causative level, with two or three possible exceptions: psychotherapy, irradiation of the anterior pituitary and excision of true toxic adenomas. Likewise, we are unable to counteract the peripheral tissue cell effect of the thyroid hormone. The principal approach at present, therefore, remains at the thyroid level. Present methods of treatment of thyrotoxicosis have a common objective: a reduction in the output of thyroid hormone of such magnitude and duration as to produce a permanent

From the Surgical Clinic and the Endocrine Section of the Medical Clinic of the Hospital of the University of Pennsylvania, Philadelphia.

Read before the Section on Surgery at the Ninety-Seventh Annual Session of the American Medical Association, Chicago, June 24, 1948.

remission in the objective and subjective manifestations of the disease.

Those methods of treatment which require consideration may be listed as follows: (1) iodine therapy, (2) treatment with goitrogenic compounds, (3) external irradiation of the thyroid or pituitary, (4) radioactive iodine therapy and (5) radical resection of the thyroid gland.

IODINE

Iodine in any absorbable form will produce a variable degree of remission in at least 95 per cent of thyrotoxic patients. Its exact mode of action in accomplishing the remission is as yet largely obscure. Since such remissions are usually incomplete, the usefulness of iodine is limited largely to situations in which only a short remission is desired, i. e., in preparation for thyroidectomy. In the Endocrine Clinic of the Hospital of the University of Pennsylvania we have observed a small group of patients in whom the response to iodine was unusually prompt and complete, the basal metabolic rate often falling to subnormal levels within a few days. In this group the severity of the disease is usually mild to very moderate, and some of the patients exhibit evidence of the hyperophthalmopathic type of Graves' disease.¹ Even then the response is difficult to predict. The remissions so induced may be prolonged or permanent, but the group of patients responding thus to iodine is small, not more than 5 per cent of all patients with thyrotoxicosis. These patients frequently have a major psychogenic initiating or contributory factor. The motive force having been removed or brought under control, the symptoms of hyperthyroidism may be decidedly reduced or disappear altogether. The use of iodine should, in general, be limited to (1) preoperative preparation, (2) treatment of the "thyroid storm," (3) temporary postoperative administration, (4) occasionally as a therapeutic test when the diagnosis of thyrotoxicosis is in doubt and (5) certain cases of hyperophthalmopathic Graves' disease.

GOITROGENIC COMPOUNDS

The goitrogenic compounds now being used produce a remission in the thyrotoxic state by inhibiting the synthesis of thyroid hormone. They do not affect the thyroid hormone already active in the body. Although their administration alleviates the symptoms of toxicity, the glands of patients receiving these drugs remain hyperplastic and show the typical histologic features found in untreated thyrotoxic patients. More than a score of goitrogenic substances have received clinical trial. While several (6-methyl thiouracil, thiourea²) are currently employed in certain clinics, 6-propyl-2-thiouracil³ is the most widely used. The consistency and rapidity with which this drug produces remissions vary widely and may be influenced by the type of goiter and by previous treatment. Thus, patients with large or nodular goiters or those recently treated with iodine may be slow to respond. Some patients are partially or completely refractory without apparent reason. We have seen this in approximately 5 per cent of our patients.⁴ The earlier hopes that these

compounds might prove to be highly satisfactory agents for the permanent relief of thyrotoxicosis have not been fully realized. The present consensus indicates that sustained remissions following prolonged therapy (six to twelve months) cannot be expected in more than about 50 per cent of cases.⁵ Our experience suggests that the majority of patients showing a sustained remission and a return to normal activities have exhibited the milder forms of thyrotoxicosis, with minimal goiter, slight to moderate elevation of basal metabolic rate and no cardiac or other visceral complications. Prolonged treatment with propylthiouracil, with the hope of producing a permanent remission, may be considered justifiable in such mild forms of thyrotoxicosis, as well as in children with toxic diffuse goiter of mild to moderate severity. Compounds of this type have also been administered prior to the use of radioactive iodine.⁶

These goitrogenic substances have proved useful in the prolonged control of certain thyrotoxic patients in whom thyroidectomy cannot, for various reasons, be undertaken even though theoretically the treatment of choice. This group includes certain older patients, those who refuse operation and those who cannot be brought by medical therapy to a point where operation can be considered justifiably safe. Admittedly they are few in number. We have in the past five years treated 15 patients of this type with maintenance doses of thiouracil, or propylthiouracil, for periods ranging from six to forty-eight months with satisfactory results, even though we cannot anticipate a sustained remission should treatment be withdrawn.

Although most patients can be satisfactorily prepared for thyroidectomy by the use of iodine, it has proved inadequate in two important groups of cases: (1) certain severely toxic patients in whom iodine alone fails to produce a satisfactory preoperative remission and (2) patients rendered "iodine-fast" by the prolonged use of this substance. In such patients a complete remission can usually be produced by the prolonged use of goitrogenic agents. Operative morbidity and mortality are thereby reduced. Thiouracil compounds have also been employed in the treatment of thyroid crisis⁷ and in conjunction with tracer doses of radioactive iodine for diagnosis in doubtful cases.⁸

The most recent report on the use of goitrogenic compounds and iodine in the treatment of thyrotoxicosis is that of Danowski and his co-workers.² They treated 118 patients with thiourea and strong solution of iodine over a long period. Of these, 3 died during the course of treatment. They stated, "The additive effects of thiourea and iodine solution have been amply demonstrated in control studies and may be attributed to the capacity of the iodine to act directly on the thyroid gland, inducing a resting phase, and at the same time blocking thyrotropic hormone which increases thyroid activity." The mortality rate in the series must be considered as

1. Hertz, S., and Means, J. H.: Prognostic Criteria in the Selection of Cases of Exophthalmic Goiter for Nonsurgical Treatment, *Tr. Am. A. Study Goiter*, 1937, p. 140.

2. Danowski, T. S.; Man, E. B.; Elkinton, J. R.; Peters, J. P., and Winkler, A. W.: Results of Prolonged Medical Treatment of Hyperthyroidism with Thiourea, *Am. J. M. Sc.* **215**:123-129, 1948.

3. McCullagh, E. P.; Hibbs, R. E., and Schneider, R. W.: Propylthiouracil in the Treatment of Hyperthyroidism, *Am. J. M. Sc.* **214**:545-552, 1947.

4. Rose, E., and McConnell, J. S.: Treatment of Thyrotoxicosis with Goitrogenic Compounds, *Tr. Am. Clin. & Climatol. A.* **50**:91-109, 1947.

5. Beierwaltes, W. H., and Sturgis, C. G.: Remissions in Thyrotoxicosis After Discontinuing Thiouracil, *J. A. M. A.* **131**:735-738 (June 29) 1946; Williams, R. H.; Asper, S. P.; Rogers, W. F.; Myers, J. D., and Lloyd, C. W.: Persistence of Remissions of Thyrotoxicosis After Cessation of Thiouracil Therapy, *New England J. Med.* **236**:737-741, 1947; Rose, E., and McConnell, J. S.: Thiouracil in Thyrotoxicosis: Results of Prolonged Treatment in Thirty-Five Cases, *Am. J. M. Sc.* **213**:74-80, 1947.

6. Williams, R. H.: Antithyroid Drugs. III. Comparison of Results of Newer Forms of Treatment of Thyrotoxicosis, *Arch. Int. Med.* **50**:11-36 (July) 1947.

7. McArthur, J. W.; Rawson, R. W.; Means, J. H., and Cope, O.: Thyrotoxic Crisis: An Analysis of the Thirty-Six Cases Seen at the Massachusetts General Hospital During the Past Twenty-Five Years, *J. A. M. A.* **134**:868-874 (July 5) 1947.

8. Stanley, M. M., and Astwood, E. B.: The Accumulation of Radioactive Iodine by the Thyroid Gland in Normal and Thyrotoxic Subjects and the Effect of Thiocyanate on Its Discharge, *Endocrinology* **42**:107-123, 1948.

2.5 per cent if it is to be compared with the mortality rate in the 655 cases we are reporting following thyroidectomy.

EXTERNAL IRRADIATION OF THE THYROID OR PITUITARY

External irradiation of the thyroid, long the subject of controversy, has been largely abandoned since the introduction of goitrogenic compounds and radioactive iodine. Irradiation of the pituitary has received a limited trial.⁹ Its usefulness at present would appear to be restricted to certain patients with the hyperophthalmopathic syndrome of toxic diffuse goiter (Graves' disease).¹⁰ In these patients thyrotoxic phenomena are frequently mild and may be at times entirely absent or replaced by evidence of hypothyroidism. Ocular signs and symptoms dominate the clinical picture and may include varying degrees of proptosis, periorbital and palpebral edema and pigmentation, edema and congestion of the conjunctiva, keratitis, lacrimation and swelling of the lacrimal glands, fixation of the eyeball, pseudohypertrophy of the extraocular muscles, papilledema or optic neuritis, and edema or infiltration of the orbital tissues. This ophthalmopathic syndrome occasionally develops rapidly and unexpectedly after thyroidectomy in patients with minimal preoperative ocular signs, but its presence can usually be suspected by one or more of the aforementioned manifestations. Too great a suppression of thyroid function in such cases, whether by thyroidectomy or any other means, may be followed by disastrous progression of the ocular changes. The pathogenic mechanism of these changes is still obscure, but some kind of abnormal effect is believed to be exerted by the anterior pituitary on the extraocular muscles and the orbital tissues. Suppression of thyroid function appears to aggravate the ocular disturbance by removing an inhibitory effect on the anterior pituitary. In the presence of pronounced ocular symptoms and a mild thyrotoxic state, thyroidectomy is, in our opinion, contraindicated. Therapy should be aimed at inhibition of anterior pituitary activity and has included such measures as desiccated thyroid, estrogenic substances and the intermittent use of iodine. Irradiation of the pituitary, while far from being precisely controllable in its placement, or in the exact amount delivered to the pituitary, nevertheless appears justifiable in severely progressive cases. We have employed it, along with other measures, in 10 patients of this type without obviously harmful effect. In none of these patients was there continued progression of the ocular syndrome, which remained unchanged in 6 and showed varying degrees of regression in 4 instances. Improvement in the latter cannot, of course, be attributed with certainty to the irradiation in view of the other measures employed and the possibility of spontaneous remission.

RADIOACTIVE IODINE

Although radioactive iodine was used in the treatment of thyrotoxicosis as early as 1941, the first detailed reports concerning it did not appear until five years later.¹¹ The larger experience with it has been acquired during the past three or four years. The number of patients treated is still comparatively small, and the

time available for follow-up has been limited. These restrictions prevent adequate evaluation of this substance at present. While it must be regarded as a promising new tool in the treatment of thyrotoxicosis, much greater experience will be required before its usefulness can be finally determined.

Its use has been limited chiefly to selected cases, most of them of either toxic diffuse goiter (Graves' disease) or recurrent postoperative thyrotoxicosis. Few patients with toxic nodular goiter appear to have been treated. The radioactive isotope I^{131} with a half-life of eight days, administered orally, with or without a small carrier dose of stable iodine, is now most generally employed. Total dosage and frequency of administration have varied widely in different clinics. The preparation, transportation, handling and administration of the material require specially trained personnel, rather elaborate safety precautions and moderately expensive physical equipment. Its effective use is therefore limited at present to a relatively few clinics.

The toxic thyroid will usually take up at least 40 per cent of an oral dose of radioactive iodine if its avidity for iodine has not been impaired by recent therapy. Internal irradiation by the gamma rays then results in a gradual reduction of the activity of the toxic thyroid, although this may be preceded by a temporary exacerbation of the disease. Remission may be complete in from one week to six months or longer. The incidence of satisfactory end results appears at present to be somewhere between 70 and 80 per cent, but it should be remembered that most of the reported series have consisted of selected cases. Myxedema with fibrosis of the thyroid may occur, and the ocular complications are occasionally aggravated. Radiation tracheitis and esophagitis may occur. Late carcinogenic effect on the thyroid and damage to the urinary tract during excretion are possible dangers which cannot at present be evaluated. These possibilities should not be underestimated.

THYROIDECTOMY

Principles of Preoperative Care.—The basic principles of preoperative care of patients with hyperthyroidism are the same, regardless of the type of the disease. The patient should be placed on a program which will tend to: (1) bring the basal metabolic rate to normal, (2) improve the general nutrition as demonstrated by a gain in weight and an improvement in the general physical condition, (3) lead to a stabilization of the pulse rate and (4) finally, but not the least important, restore the patient's confidence in ultimate recovery.

Reduction of the Metabolic Rate: Because the administration of propylthiouracil alone results in a very soft, friable and highly vascular gland, which makes operation more difficult and postoperative oozing more frequent, we have during the past three years used it in conjunction with iodine in preparing the thyrotoxic patient for operation. In the severely toxic patient propylthiouracil is administered in amounts varying from 150 to 300 mg. per day, until the metabolic rate begins to approach normal. Ten days to two weeks before operation is planned, treatment with iodine is begun in the form of potassium iodide (10 drops of a saturated solution, three times a day). The metabolic rate is thus brought to normal or to within safe limits, the major symptoms of the disease are brought under control and the gland at operation is relatively avascular, firm and easy to excise and to suture.

9. Borak, J.: Treatment of Hyperthyroidism by Roentgen Irradiation of Pituitary Gland, *Radiology* 24: 535-549, 1935.

10. Means, J. H.: Hyperophthalmopathic Graves' Disease, *Ann. Int. Med.* 23: 779-789, 1945.

11. Hertz, S., and Roberts, A.: Radioactive Iodine in Study of Thyroid Physiology: Use of Radioactive Iodine Therapy in Hyperthyroidism, *J. A. M. A.* 131: 81-86 (May 11) 1946. Chapman, E. M., and Evans, R. D.: Treatment of Hyperthyroidism with Radioactive Iodine, *J. A. M. A.* 131: 86-91 (May 11) 1946.

Nutrition: Thyrotoxicosis of any type results in an increase in metabolism. As long as food intake exceeds energy requirements, weight loss does not take place. Sooner or later, as the result of a number of factors, the patients lose weight. As the complex nutritional deficiency, from which many of these patients suffer, becomes severe, the symptoms of hyperthyroidism may become exaggerated.

During the preoperative period the patient's nutritional program therefore receives the most careful supervision. Thiamine hydrochloride in amounts of 50 to 200 mg. daily is given in addition to riboflavin, 45.0 mg., and nicotinamide, 75.0 mg., daily. We also find it useful to give additional vitamin B in the form of a potent yeast concentrate. As the vitamin B deficiency is overcome and as the metabolic rate declines, appetite usually returns and the weight increases.

A highly nutritious diet is provided, consisting of 3,000 to 5,000 calories a day. Provided that the protein is a complete protein and adequate in amount, 25 to 35 per cent of the total calories consumed, there is every reason to expect¹² that any existing fatty infiltration at the time of initiation of the dietary program will resolve itself and thus provide a liver less susceptible to the assault of anesthesia and operation. Interval feedings or even tube feedings may be necessary.

The important thing is that the patient eat an amount sufficient to meet energy requirements and have left a modicum for restoration of the depleted body tissues. The criteria of achievement of this objective are a gain in body weight in the absence of edema and an improvement in general muscular tone. The myasthenia frequently seen in thyrotoxicosis may result from two factors—the muscular wasting of hypermetabolism and that associated with the nutritional deficiency per se.

We are convinced that an over-all improvement in the nutritional state is one of the most important objectives of the period of preparation for operation.

Stabilization of the Pulse Rate: Numerous authors have called attention to the desirability of achieving cardiovascular stability prior to operation. Even though the rate may remain above normal, a diurnal uniformity of rate is desirable and should be regarded as one of the major objectives of the preoperative preparation. It usually occurs along with a reduction of the metabolic rate and with improvement in the nutritional state of the patient.

It is facilitated by mild sedation during the preoperative period and by optimal hospital environment. A nervous frightened patient presents an increased operative risk.

Psychiatric Therapy: The collaboration of a psychiatrist is usually unnecessary in the preoperative preparation of these patients. The surgical staff should assist in this phase of therapy. The staff must be thoroughly conscious of the psychogenic factors that played a part in the initiation or extension of the disease and of the fears that beset these patients. They must attempt to emulate the approach of the psychiatrist. Here again the medical, surgical and nursing staff play an important part in restoring the patient to an emotional state which makes operation safer and the postoperative persistence or recurrence of symptoms less likely.

Anesthesia and Operation.—When the objectives of the preoperative period have been achieved, the operation should be done. In the patients who were severely toxic when first seen and in those who are still easily frightened we employ the method of "stealing the thyroid," the efficacy of which was early advocated by the late George W. Crile. On the morning of operation the house officer who has most actively participated in the care of the patient administers thiopental sodium (pentothal[®] sodium) intravenously. The patient, thinking that only another test is being made, goes to sleep unaware that within a few moments the operation will proceed. The attendant fear and psychic shock of anesthesia and operation is overcome.

Inhalation anesthesia is then administered. The specific anesthetic employed is less important than the prevention of anoxia. Some anesthetic agents, such as cyclopropane, may affect cardiac activity; others, such as ether or ethylene, may affect the liver, but these risks may be accepted as long as anoxia is avoided. Under conditions of anoxia, cardiac integrity may suffer, liver injury become further accentuated and a preexisting renal injury become worse.

To facilitate the anesthetist's control of the situation, tracheal intubation may be done prior to operation. It is a valuable safeguard often overlooked. Perfect anesthesia and a competent airway often are as important as the technical aspects of the operation.

Every possible care must be exercised not to injure the recurrent laryngeal nerves. The suggestion of Lahey¹³ that the recurrent laryngeal nerves be exposed at every thyroidectomy will, if carefully followed, reduce the number of injuries. While we do not do this routinely, we do it often enough to feel sure that this procedure is a valuable addition to the technique of thyroid surgery. Even exposure does not prevent injury unless constant care is exercised throughout the operation. The injudicious application of a hemostat into a pool of blood or the passage of a suture into the tracheothyroid space may result in temporary or permanent injury in spite of previous visualization.

No thyroid resection should be attempted without prior identification of parathyroid tissue. These glands vary in number and in position even in normal persons. Their location may be further distorted by enlargement of the thyroid.

The thyroid isthmus should be divided and the trachea exposed. Although a tracheotomy is seldom necessary, it may occasionally be required as the result of tracheal collapse. Furthermore, sparing the isthmus and pyramidal lobe results in a higher incidence of persistence of hyperthyroidism. A radical resection of both lobes of the thyroid should be accomplished in every instance if a high incidence of permanent cures is to be expected. It is far better to remove too much than too little, for the hypothyroid state, which may follow a very radical thyroidectomy is far better and more easy of control than is persistent hyperthyroidism.

Even in the adenomatous goiter with hyperthyroidism and in instances of apathetic hyperthyroidism, maximal subtotal thyroidectomy is preferable. It is rarely necessary now that the operation be done in stages.

There are several technical factors which must be considered during the operation. They can be summarized as follows. The gland should be adequately exposed, if necessary, by division of the prethyroid

12. Goldschmidt, S.; Vars, H. M., and Ravdin, I. S.: The Influence of the Foodstuffs upon the Susceptibility of the Liver to Injury by Chloroform and the Probable Mechanism of Their Action, *J. Clin. Investigation* 18: 277-289, 1939.

13. Lahey, F. H.: Presentation of Henry Jacob Bigelow Gold Medal, with Introductory Remarks, *New England J. Med.* 236: 45, 1947.

muscles. Mass ligation of the superior poles is undesirable. It leaves thyroid tissue in amounts that cannot always be assessed, and it results in injury to the superior laryngeal nerve, thus predisposing to excessive mucous secretion in the trachea.

Postoperative Sequelae and Treatment.—Crisis is the most dreaded of the postoperative sequelae. It is now so infrequent that younger surgeons rarely see this complication and may therefore underestimate its importance. Perfect anesthesia reduces the risk of a severe reaction. The intravenous use of dextrose during and after operation, as suggested by the late Charles H. Frazier,¹⁴ assists in reducing its incidence and severity, and the use of adequate amounts of blood, when necessary, is of further help.

When crisis occurs, as it did in 3 of our cases, therapy should be begun at once. The blood volume must be maintained, dextrose and iodine given intravenously and attention directed to any specific electrolyte imbalance. Large amounts of sodium salts should not be administered if the imbalance is one chiefly associated with potassium disturbance, and neither should be administered without careful study if renal function is impaired.

Adequate sedation, oxygen therapy, cardiac support when indicated and the use of some method of refrigeration in the presence of pronounced hyperpyrexia are all of value. Adequate doses of all components of the vitamin B complex should be given, parenterally, when necessary. Propylthiouracil may also be of assistance.

Tetany: Acute traumatic parathyroid insufficiency, while rarely fatal, may be an important cause of postoperative morbidity. Its treatment is too well standardized to require comment here. In many cases the insufficiency is self limited, and spontaneous readjustment may occur up to six months after injury. Recognition of the early symptoms is important. Such symptoms may include vague nervousness and apprehension, insomnia, paresthesias of the face or extremities and minor twitching of skeletal muscles. Immediate reimplantation into the ribbon muscles of the neck of any tissue excised at operation which resembles the parathyroid may prevent postoperative hypoparathyroidism.

ANALYSIS OF CASES

Number of Cases.—We wish now to report on 655 thyrotoxic patients operated on in the ten year period prior to June 1947.

The mean age of the entire group was 40.6 years. Of the total, 145 (22.2 per cent) were male and 510 (77.8 per cent) were female. Four hundred and fifty-two (69 per cent) of the patients had diffuse toxic goiter and 203 (31 per cent) toxic nodular goiter. There was associated pathologic evidence of chronic thyroiditis in 19 of the patients and a single instance of carcinoma (0.15 per cent). This is a much lower incidence of malignancy than that reported by most other writers.

There were 82 patients (12.5 per cent) with serious heart disease. Twelve of the patients were admitted to the hospital in cardiac decompensation. Forty had fibrillation and 4 auricular flutter. Forty were decidedly hypertensive. Twenty-four had true diabetes mellitus and 6 active pulmonary tuberculosis. Seven

had syphilis which required therapy, and 3 were pregnant. The average period of preoperative iodine administration while in the hospital was 12.3 days. Many had received it for a variable period prior to admission. The mean period of days of thiouracil therapy was 37.2 days, of aminothiazole 17.5 days and of propylthiouracil 67.8 days.

The exact type of preoperative therapy prior to admission often could not be determined with certainty, but nearly one half of the patients had received iodine before hospitalization, and 20 had had long periods of radiation therapy.

The patients with diffuse toxic goiter showed a mean basal metabolism rate of plus 42 per cent, and those with toxic nodular goiter of plus 58 per cent.

One hundred of the patients were operated on with local anesthesia alone. In this group there was 1 death (1 per cent). Twenty-six received tribromoethanol solution (avertin®) and local anesthesia with 2 deaths (7.7 per cent), and 529 had received one or another type of inhalation anesthesia with or without local anesthesia. In the latter group there were 3 deaths (0.57 per cent). The over-all mortality rate was 0.9 per cent.

Twenty patients who had not shown fibrillation prior to operation did so subsequently, and in another pericarditis developed. There were 3 instances of true crisis (0.46 per cent). No patient died in crisis subsequent to the use of iodine plus thiouracil or propylthiouracil in the preoperative period.¹

Of the 6 deaths, the cause of death was recorded as follows:

1. Cardiac arrest at operation, cerebral anoxia, error in anesthesia management.
2. Cardiac decompensation, two days after operation.
3. Cardiac decompensation, twenty-six days following thyroidectomy.
4. Sudden cardiac failure. The autopsy report was postoperative "cardiogenic" shock. Microscopic examination of the tissues failed to reveal any further information as to the cause of death.
5. True post-thyroidectomy storm.
6. Staphylococcus septicemia with multiple visceral abscesses. Death occurred twenty days after operation.

Twenty-three patients (3.5 per cent) had postoperative impairment of the motion of one vocal cord. Of these 23 patients, 20 recovered completely. The incidence of permanent cord injury in the series of 655 patients was therefore 0.46 per cent. Two patients showed evidence of hypoparathyroidism.

All thyrotoxic patients are requested to return to the follow-up clinic at regular intervals after operation. If this is not possible, follow-up reports are obtained from the referring physician. The average duration of follow-up for the entire living group has been 2.7 years.

The average basal metabolic rate for the entire group at the last follow-up visit was plus 3.7 per cent. Fifteen patients (2.3 per cent) had recurrent thyrotoxicosis.

COMMENT

Our experience, therefore, indicates that the thyrotoxic patient may be treated surgically with an operative mortality risk of less than 1 per cent and with less than 4 per cent risk of recurrence of the disease. There are, to be sure, other immediate and late postoperative complications to be reckoned with, but they are, in

14. Frazier, C. H., and North, J. P.: Carbohydrate Metabolism in Hyperthyroidism: Continuation Study, Tr. Am. A. Study Goiter, 1933, p. 203.

general, not formidable. It should be emphasized, however, that all phenomena of thyrotoxicosis do not by any means disappear when a euthyroid level of metabolism is attained. Many patients classified in follow-up reports as showing good results retain certain stigmas of their disease (exophthalmos, tremor, fatigue, nervousness, vasomotor instability) even though they are economically rehabilitated.

Thyroidectomy is too often incorrectly regarded as an end point in the clinical history of the thyrotoxic patient. The fallacy of this point of view is amply attested by the frequency with which residual symptoms persist indefinitely and by the occurrence of relapses as long as twenty years after operation. Thyroidectomy should be regarded as a therapeutic incident, albeit a major and usually successful one, in the natural history of thyrotoxicosis. Patients should be inspected periodically for at least five years after operation and requested to report their condition by letter at intervals of one to two years thereafter.

In spite of its empiric nature, its hazards and its limitations, we believe that subtotal thyroidectomy when expertly performed after optimal preoperative preparation remains the most effective method presently available for the production of permanent remission of thyrotoxicosis in unselected cases.

SUMMARY AND CONCLUSIONS

The various forms of treatment now available for the control of thyrotoxicosis are reviewed. The present status of thyroidectomy has been examined with particular reference to our experience in the operative treatment of 655 cases over a ten year period. The most important nonsurgical methods for the treatment of thyrotoxicosis at present are: (1) goitrogenic compounds (6-propyl-2-thiouracil) and (2) radioactive iodine. The former is far less effective than thyroidectomy in producing permanent remission. The latter has received too limited a trial to permit final conclusions regarding its efficacy and safety. Subtotal thyroidectomy, when performed under optimal conditions, remains the most effective form of therapy in thyrotoxicosis.

ABSTRACT OF DISCUSSION

DR. HAROLD L. FOSS, Danville, Pa.: This has been an able review of the physiology of the thyroid gland and of the accepted therapeutic procedures in the treatment of diseases peculiar to it. I agree with all that Dr. Ravdin and associates have presented in their excellent paper. One might emphasize the incalculable value of Astwood's clinical researches. Interest in the subject was reawakened six years ago by the work of the MacKenzies at Johns Hopkins Hospital on goitrogenic drugs and that of Richter and Clisby on goiter depressant substances—thiourea and related compounds. Search for a substance which would inhibit thyroid function but which did not possess the unpredictable potencies of thiouracil resulted in the preparation of some four hundred drugs. Those having the greatest effect were derivatives of thiourea, all having in common the thioureylene radical, NH-CS-NH . Continued investigation resulted in the synthesis of propylthiouracil. The biologic effects of irradiation by radioactive iodine is referred to by the authors. Hertz and Williams of Boston, Soley of the University of California, Haines and his associates of the Mayo Clinic and many others have reported encouragingly on results of this treatment of hyperthyroidism. In using these substances one must bear in mind the carcinogenic hazards. Time so far elapsed is too short for definite conclusions to be drawn. The same is true regarding the treatment of carcinoma of the thyroid with isotopes. Treatment, particularly of the

papillary and allied forms, by this therapy, has not been very promising. Methylthiouracil seems to offer some promise in hyperthyroidism, yet there is some question as to its value being any greater than propyl itself. It is appropriate to call attention to the large number of patients who suffer from hyperthyroidism and yet have no goiter; toxic diffuse goiter (Graves' disease), in its incipency, unquestionably can be controlled, especially with propylthiouracil. One might sound a warning against too optimistic an approach to propylthiouracil therapy in all cases of toxic diffuse, or exophthalmic, goiter. At the same time one might caution against the indiscriminate thyroidectomizing of patients with goiters who are suspected of having hyperthyroidism, the diagnosis being made on spurious elevated rates. The high percentage of carcinomas which develop in fetal adenomas should always be borne in mind. The importance of the prophylactic removal of discrete nodules suspected of being true adenomas must never be lost sight of.

DR. WARREN H. COLE, Chicago: The philosophy suggested by Dr. Ravdin and his co-workers regarding the treatment of thyrotoxicosis is similar to that maintained by my colleagues and me. They use propylthiouracil in a manner similar to that which we have adopted. We likewise are not optimistic about the effects of irradiated iodine. They very correctly have advised a heavy dosage of vitamins. In general, we give propylthiouracil only to prepare patients for operation, but in some cases we give it with the assumption that we may obtain a permanent remission, for example, in patients with mild toxicity and small glands and those having recurrent hyperthyroidism. In a group of 14 patients with an average basal metabolic rate of only plus 28 per cent, we obtained permanent remission in 70 per cent. In a group of 20 patients with an average basal metabolic rate of about 52 per cent above normal, we had 50 per cent remissions lasting at least one year. However, these figures cannot be used as an index of incidence of permanent remissions following propylthiouracil therapy since these patients are in reality closely screened. In general they had small glands and had had symptoms only for a short time. If the patients have large glands we rarely try to obtain permanent remission, since we found out early in our experience that recurrence was almost universal when treatment with the drug was stopped, particularly when toxicity was severe. I agree with the authors that it is highly desirable to have the basal metabolic rate approach normal before thyroidectomy is performed. I am convinced that the operative mortality rate will be definitely lower if operation is postponed until the basal metabolic rate is reduced to a normal or near normal figure. We have had no deaths in about 100 patients having thyroidectomy following propylthiouracil therapy. When one summarizes the experience of many men reporting results of thyroidectomy following propylthiouracil one obtains information supporting the statement that the mortality rate is lowered by this therapy. I do not routinely isolate the recurrent laryngeal nerve, but I do insist on good exposure. Accordingly, I would not hesitate to cut the strap muscles or to move to the other side of the table to remove the second lobe if exposure is doubtful.

DR. I. S. RAVDIN: I wish to thank Dr. Foss and Dr. Cole for their discussions. I am in complete accord with what they have said. It was not possible in the presentation of this paper to give adequate historical credit, but this is given in the footnotes in the paper. It is in the type of patient with mild symptoms of hyperthyroidism and a slightly enlarged goiter that propylthiouracil frequently gives its best results. We have had a highly selected group of patients who have been treated in our Endocrine Clinic with propylthiouracil for a period of six to twenty-four months. Not more than 50 per cent of this very highly selected group of patients have maintained a permanent remission after stopping treatment with the drug. One therefore cannot look for a high incidence of cures from the use of propylthiouracil or any related compounds in an unselected group of patients with hyperthyroidism. It has seemed to all of us in our Endocrine Clinic—the internists, the radiologists and the surgeons—that at present a radical resection of the thyroid gland is the most adequate and favorable means of permanently controlling the thyrotoxic state.

DEVELOPMENT OF DOUBLE-LUMENED TUBE
FOR INTESTINAL INTUBATIONT. GRIER MILLER, M.D.
Philadelphia

In 1934 the late William Osler Abbott and I¹ introduced small intestinal intubation as a practical clinical procedure. It was not the first time that the human small bowel had been intubated or that the significance of such a procedure had been appreciated. It was merely the first time that a technic had been described that permitted the ready accomplishment of the desired objectives. This was rendered possible by the development of a double-lumened rubber tube and the attachment at its distal end of a collapsible balloon.

PREVIOUS HISTORY

Although we were not familiar with his work until shortly before our original publication, Scheltema,² a Netherlands pediatrician, in 1908, twenty-six years earlier, had accomplished in children what he termed "permeation or automatic sounding of the alimentary tract." The idea that such intubation could be accomplished passively (without activity on the part of the operator) occurred to him as a result of his observations of a horse hair protruding from each end of the digestive tract of a chicken and of strings dangling from the anus of dogs and cats. Then he conducted experiments on various animals and secured the passage of mercury-filled tubes through the digestive tract of frogs. Being assured of the safety of the procedure he finally tried it out in a few children in the following manner. After cocainizing the nasal mucosa he introduced his tube through the nose, brought the distal end out through the mouth, inserted a bicycle bearing ball to act as a "pilot bob" and then reintroduced the expanded end through the mouth into the stomach. Thence it was propelled onward by peristaltic waves. He found that eighteen to sixty hours were required for its passage into the duodenum, but that the subsequent transit was rapid. His tubes varied from 12 to 24 mm. in circumference (12 to 24 F), and they had sufficiently thick walls to permit the aspiration of intestinal contents. He referred to the possible use of the technic in the physiologic and bacteriologic study of the small intestine, in the diagnosis of disease, including obstruction, and especially in the administration of fluids and the local application of medicaments to disease processes.

During the following year, in 1909, Einhorn³ first demonstrated his "duodenal pump" at the German Hospital and Dispensary in New York, and ten years later, still without knowledge of Scheltema's accomplishments, he⁴ introduced a 15 to 20 foot long (4.57 to 6.1 meters, 8 F) tube for the instillation of fluids into the intestine, the lumen of the tube being too small for the aspiration of contents. During the following

year Buckstein⁵ referred to the use of such a tube for the injection of a barium mixture and the radiologic study of small intestinal loops; he also suggested its use for the chemical and bacteriologic studies of the intestinal contents. McClendon,⁶ in the same year, passed a tube 7 feet (213 cm.) beyond the mouth, using a 6 Gm. iron weight attached by means of surgical gut, thus allowing the weight to be released and passed after digestion of the surgical gut. His objective was the study of the reaction of the intestinal contents. This was followed by Einhorn's⁷ development of an ingenious jointed intestinal tube, consisting of four or more separate meter length tubes, each one as it was swallowed having another segment attached by a small screw. Through that tube he claimed to have made collections from the upper levels of the intestine, but reported no studies. Four years later van der Reis and Schembra,⁸ in Germany, published a report showing radiograms of small caliber, mercury-filled tubes passed throughout the entire length of the human bowel. They first called attention to the relatively short tube that was required to traverse the entire digestive tract. In 1931 Jones and Pierce,⁹ for the study of pain reference, developed the method of attaching a collapsible balloon to the distal end of an intestinal tube. They apparently did not employ the balloon for the advancement of the tube, but inflated it from time to time to produce pain.

Meanwhile, about 1915, stimulated by Hertz's experiments and book, "Sensibility of the Alimentary Canal," by Carlson's then current work on the motor functions of the stomach and by Einhorn's studies of the duodenal contents, I decided to study the small intestinal secretions and attempted intestinal intubation. I was discouraged, however, by the time required to reach the lower bowel with the available small Einhorn tube and soon abandoned the attempt. Again, in 1921, when the jointed tube was described, I resumed the project and on a number of occasions succeeded in securing the entrance of the tube into the ileum, but again several days were required, the patients became exhausted and no satisfactory specimens could be obtained. The work again was abandoned.

DEVELOPMENT OF THE MILLER-ABBOTT TUBE

Then, in 1930, Abbott, previously trained in physiology and pharmacology, became a member of my staff. He wished to carry over to human beings certain experiments on the motor effects of various drugs on the duodenum and for that purpose was employing a balloon tied over the distal end of a duodenal tube. He was repeatedly frustrated in the midst of securing kymographic records by having the distended balloon slip beyond the duodenum. It then occurred to me that such spontaneous and rapid transit of a distended balloon might solve the problem of intestinal intubation, and the suggestion was made that he give more slack to the tube and follow its progress under the

5. Buckstein, J.: The Intestinal Tube: Its Significance and Applications, J. A. M. A. 74: 664 (March 6) 1920.

6. McClendon, J. F.; Bissell, F. S.; Lowe, E. R., and Meyer, P. F.: Hydrogen-Ion Concentration of the Contents of the Small Intestine, J. A. M. A. 75: 1638 (Dec. 11) 1920.

7. Einhorn, M.: A New Intestinal Tube with Remarks on its Use in a Case of Ulcerative Colitis, Am. J. M. Sc. 161: 546, 1921.

8. van der Reis, and Schembra, F. W.: Länge und Lage des Verdauungstrahrs beim Lebenden, Ztschr. f. d. ges. exper. Med. 43: 94, 1924.

9. Jones, C. M., and Pierce, F. D.: The Mechanism and Reference of Pain from the Lower Intestinal Tract, Tr. A. Am. Physicians 46: 311, 1931.

From the Gastro-Intestinal Section (Kinsey-Thomas Foundation) of the Medical Clinic, Hospital of the University of Pennsylvania.

Read before the Session on the History of Medicine in the Section on Miscellaneous Topics at the Ninety-Seventh Annual Session of the American Medical Association, Chicago, June 25, 1948.

1. Miller, T. G., and Abbott, W. O.: Intestinal Intubation: A Practical Technique, Am. J. M. Sc. 187: 595, 1934.

2. Scheltema, G.: Permeation in the Examination and Treatment of the Stomach and Intestines, Arch. Roentg. Ray, London 13: 144, 1908-1909.

3. Einhorn, M.: The Duodenal Tube, Philadelphia, F. A. Davis Company, 1926, p. 24.

4. Einhorn, M.: An Intestinal Tube, New York M. J. 110: 456, 1919.

fluoroscope. To our surprise the tube passed rapidly and within a few hours was in the lower part of the ileum. It then remained only to repeat the experiment with a second tube attached to the first one just behind the balloon. In this way we at once had available an apparatus that readily could be introduced and an open tube through which injections could be made into the bowel and the intestinal contents aspirated. Further observations soon led to a realization that, instead of a 15 to 20 foot tube, such as Einhorn's, one of half that length was sufficient to reach the cecum. This is explained by the fact that during life the bowel is contracted lengthwise and also that the tube tends to hug the mesenteric border of the bowel or to follow the shortest course from one loop to another, at times bringing about some plecting of the intestinal wall.

The next step was to simplify the procedure by using a double-lumened tube, one lumen for the control of the balloon, inflating it when the duodenum was reached and deflating it when it was desired to stop the progress of the tube; the other, for the aspiration of contents or for the injection of fluids directly into specified segments. Also, the balloon manifestly supplied a means for recording pressure changes at various areas of the bowel.

We knew that double-lumened tubes had been manufactured for urologic work; also that Einhorn had secured them for esophageal and gastric work, but we did not appreciate at the time that such tubes had been made by hand, being rolled over a mandrel and wrapped with fabric to hold the rubber in place during the vulcanizing period, or that tubes of greater length had not been, and probably could not be, so made. Rubber manufacturers throughout this country, France and England were appealed to, but with one exception they declined to attempt its development. The United States Rubber Company alone agreed to make the effort, employing the extrusion process and admitting that the product could not be of high grade. That organization succeeded within a few months, and after a year's experimenting we¹ published our first paper on the subject.

TECHNIC AND USES

With such a tube, modified from time to time, we soon found it possible, without unduly disturbing the subject, to intubate the small bowel at will and often also the large intestine, to make pressure readings within the limits of the method, to secure satisfactory specimens for chemical and bacteriologic studies and to introduce barium and other mixtures for the study of anatomic defects along the course of the alimentary tract.

In our original paper¹ we suggested that the method might eventually aid in the diagnosis and treatment of intestinal lesions. Meantime our staff¹⁰ undertook various studies on the secretory, motor and absorptive functions of the tract. Also, with the help of Rawson, Abbott¹¹ adapted the tube for the simultaneous aspiration of stomach contents and the instillation of fluids and nutriment into the small bowel after gastroenterostomy. A three lumen tube¹² was developed for

the collection of uncontaminated small intestinal secretion and for the study of absorption from an isolated segment of the intestine, later modified by Nicholson and Chornock.¹³ Other variations permitted a study of pure gastric and duodenal secretions and absorption¹⁰; also, a study of effects of drugs on the colon (Elsom and Drossner¹⁴) and continuous records of pressure changes as the balloon descended along the bowel (Ingelfinger and Abbott¹⁵). Additional modifications of the technic have been developed in other clinics.

It was not until 1938, however, that the technic for intubating the obstructed bowel was introduced.¹⁶ That followed a suggestion by Charles G. Johnston, then on the surgical staff of our hospital, that gastroduodenal drainage, as introduced by Wangenstein and Paine,¹⁷ might be even more effective if the intestine itself could be intubated. He requested that the new technic be tried out in such a case. He sought Abbott's help, and in their first patient, an elderly man with tremendous distention due to an ileocecal intussusception, the tube readily entered the intestine and, as the drainage was maintained, it rapidly passed along the bowel, soon bringing about complete deflation. In their first report they referred to 16 cases, in 13 of which there had been successful intubation. These included cases of both paralytic ileus and mechanical obstruction.

Subsequently the technic was adopted by various surgeons elsewhere, especially by members of the staff of Whipple¹⁸ at the Presbyterian Hospital in New York, where it soon became a routine procedure and where by 1940 it was regarded as one of the three factors responsible over an eight year period for a reduction in the mortality rate of intestinal obstruction from 29.6 to 6.5 per cent. To Whipple is due much credit for its recognition as a helpful practical procedure.

RECRUITING SUBJECTS FOR EXPERIMENT

It is not my intention at this time, however, to refer to the value of the procedure, but rather to limit myself to points of historical interest. In this connection I wish finally to call attention to Abbott's¹⁹ inimitable description of some of the difficulties attendant on his use of hired subjects for the earlier experiments. As typical of the humorous nature of his presentation before the Charaka Club, I shall paraphrase briefly one feature of it.

Having exhausted the hospital personnel, including patients and members of the staff, and having failed to secure recruits on a fee basis through various welfare agencies and churches, even beggars and the jobless of that day of depression, Harry, the Negro janitor, was

10. Miller, T. G.: Intubation Studies of the Human Small Intestine: A Review of a Ten Year Experience, *Gastroenterology* 3: 141, 1944.

11. Abbott, W. O., and Rawson, A. J.: A Tube for Use in the Post-Operative Care of Gastroenterostomy Cases, *J. A. M. A.* 108: 1873 (May 29) 1937; A Tube for Use in the Postoperative Care of Gastroenterostomy Cases—A Correction, *Ibid.*, 112: 2414 (June 10) 1939.

12. Abbott, W. O., and Miller, T. G.: Intubation Studies of the Human Small Intestine: III. A Technic for the Collection of Pure Intestinal Secretion and for the Study of Intestinal Absorption, *J. A. M. A.* 106: 16 (Jan. 4) 1936.

13. Nicholson, T. L., and Chornock, F. W.: Intubation Studies of the Human Small Intestine, XXII. An Improved Technic for the Study of Absorption; Its Application to Ascorbic Acid, *J. Clin. Investigation* 21: 505, 1942.

14. Elsom, K. A., and Drossner, J. L.: Intubation Studies of the Human Small Intestine: The Effect of Atropine and Belladonna on the Motor Activity of the Small Intestine and Colon, *Am. J. Digest. Dis.* 9: 589, 1939.

15. Ingelfinger, F. J., and Abbott, W. O.: Intubation Studies of the Human Small Intestine: XX. The Diagnostic Significance of Motor Disturbances, *Am. J. Digest. Dis.* 7: 468, 1940.

16. Abbott, W. O., and Johnston, C. G.: Intubation Studies of the Human Small Intestine: X. A Non-Surgical Method of Treating, Localizing and Diagnosing the Nature of Obstructive Lesions, *Surg., Gynec. & Obst.* 66: 691, 1938.

17. Wangenstein, O. H., and Paine, J. R.: Treatment of Acute Intestinal Obstruction by Suction with a Duodenal Tube, *J. A. M. A.* 101: 1532 (Nov 11) 1933.

18. Whipple, A. O.: (a) The use of the Miller-Abbott Tube in the Surgery of the Large Bowel, *Surgery* 8: 289 (Aug.) 1940; (b) Factors Responsible for Present Day Low Mortality in Acute Ileus, *Northwest. Med.* 40: 112, 1941.

19. Abbott, W. O.: The Problem of the Professional Guinea Pig, *Proc. Charaka Club* 10: 249, 1941.

called in and offered 50 cents for every able-bodied subject, sober and on hand at 8:30 a. m. The subject himself was to receive \$2, the usual cost of a dog. The first comer was Flip Lavall, tall, broad shouldered, black as the ace of spades, a lightweight prize fighter; after him, Jim and Dan and Slim and others. One was an epileptic, who in a convulsion bit through his tube and then passed it per rectum. One had a 38 caliber revolver bullet in his erector spinae muscles, which was mistaken for the metal tip on the tube until it was found impossible to manipulate the object into the duodenum.

On the day preceding a scheduled exhibit at the 1935 American Medical Association meeting in Atlantic City, all of these professionals went on strike for double wages. The blackamoors were promptly fired, lock, stock and barrel. Incidentally an impassioned appeal to third year medical students in the midst of their final examination for the year saved the day. The volunteers stood up like veterans of the line and enabled the exhibit to receive a Special Certificate of Honor from the Association.

Finally it was revealed that for one and a half years Flip had had his crew so organized that each of them regularly made a financial cut to him; otherwise having the "daylight beat out of him." It was Flip who organized the strike to increase his wealth. Eventually all but two of the group landed in gaol, Flip for rape and the others for burglary.

COMMENT

This story of the development of the double-lumen tube for intubation cannot be told, however, without again giving maximal credit to Abbott for his energy, perseverance and ingenuity in perfecting the procedure on a practical basis. To Karr and to Glenn, both also now deceased, much credit is due; also to the other members of our staff during the 1930's: Elsom, Warren, Drossner, Boon, Ingelfinger, Zetzel, Machella, Nicholson and Moseley. I also wish to pay tribute to Sarah G. Miller, who, as a volunteer worker, patiently supervised all of the early subjects, both patients and hired tube swallows, and who herself was wholly responsible for the accomplishment of many of the original intubations.

Q Fever in Los Angeles Raw Milk.—In California, where intensive studies of Q fever are being carried out by the California State Department of Public Health and the United States Public Health Service, the disease has been found in 16 counties in a period of less than one year. In Los Angeles County, where Q fever appears to be endemic, more than 300 cases and three deaths have been studied. Results of surveys including more than 3,000 persons indicated 1 per cent of the persons residing in the endemic area possess serum antibodies for Q fever. A recent report announced that C. burneti was present in the raw milk supply of four of five widely separated dairies in the Los Angeles area. An extension of these studies has indicated that the raw milk of more than 60 per cent of the 63 dairies tested in the area contain sufficient quantities of C. burneti to readily infect guinea pigs and that more than 10 per cent of approximately 4,000 cows are infected. Fortunately, commercial pasteurization methods in rigidly controlled field tests appeared to be nearly 100 per cent effective in eliminating the infection from milk.—Robert J. Huebner, William L. Jellison and M. Dorothy Beck, *Annals of Internal Medicine*, March 1949, page 495.

CONTINUOUS SUCTION DRAINAGE

A Historical Evaluation of Intestinal Obstruction

JOHN R. PAINE, M.D.
Buffalo

In August 1931 Wangenstein first employed the principle of continuous suction transmitted through a duodenal tube as an effective means of treatment in certain cases of intestinal obstruction involving the small bowel. In a historical sense this procedure was the natural evolution of the use of duodenal tubes in the diagnosis and treatment of various diseases affecting the gastrointestinal tract. It should be remembered that the duodenal tube, in contrast to the stomach tube, was entirely an American development and was the direct result of the desire of clinicians to obtain samples of duodenal contents for diagnostic purposes.

In the wake of the work and experiments of such men as Turck,¹ Hemmeter² and Kuhn³ during the last decade of the nineteenth century, Gross⁴ and Einhorn⁵ of New York, independently and almost simultaneously, presented to the medical profession simple practical duodenal tubes which could be passed consistently into the duodenum. Both of these tubes had perforated metal capsules attached to long rubber tubes with relatively small lumens. In a few hours, gastric peristalsis aided by gravity caused these tubes to pass from the stomach into the duodenum.

Internists were the first fully to grasp the significance of the opportunities afforded by this simple new instrument. Its use quickly spread to Europe, and literally dozens of men began to use it extensively. The literature on this subject after 1910 is voluminous, and suggested improvements were numerous. For the most part, however, the principle of a weighted tip and a narrow soft rubber tube of small diameter was retained until Levin of New Orleans in 1921 described his smooth catheter-tipped duodenal tube.⁶ This tube had a great advantage over other duodenal tubes in that it could be passed directly through the nares and was better tolerated by the patient when kept in place for a relatively long time.

The examination, plus analysis, of samples of duodenal secretions was the prime purpose for which the duodenal tube was invented and continued to be its most important use up to about 1920. After that, however, the use of such tubes in the treatment of diseases became more prevalent, so that by 1931 the greater part of the publications concerning this instrument dealt with its use in the treatment of gastric and intestinal distention. Westermann,⁷ as early as 1910, reported 15 patients with severe peritonitis with ileus

From the Department of Surgery, University of Buffalo and The Buffalo General Hospital.

Read in the Session on the History of Medicine of the Section on Miscellaneous Topics at the Ninety-Seventh Annual Session of the American Medical Association, Chicago, June 25, 1948.

1. Turck, F. B.: The Improved Gyromele, New York M. J. **63**:191, 1896.

2. Hemmeter, J. C.: Intubation of the Duodenum, Bull. Johns Hopkins Hosp. **7**:79, 1896.

3. Kuhn, F.: Sondierungen am Magen, Pylorus und Duodenum des Menschen, Arch. f. Verdauungskr. **3**:19, 1896.

4. Gross, M.: A Duodenal Tube: Preliminary Communication, New York M. J. **91**:77, 1910.

5. Einhorn, M.: A Practical Method of Obtaining the Duodenal Contents in Man, M. Rec. **77**:98, 1910.

6. Levin, A. L.: New Gastroduodenal Catheter, J. A. M. A. **76**:1007 (April 9) 1921.

7. Westermann, C. W. J.: Ueber die Anwendung des Dauermagenhebers bei der Nachbehandlung schwerer Peritonitisfälle, Zentralbl. f. Chir. **37**:356, 1910.

treated by continuous siphonage of the stomach by means of a small tube passed through the nose. This surgeon remarked that the efficiency of this method of treatment was not all that might be desired, because of periodic interruption of the siphonage action by gas which entered the tube. A year later Kappis⁸ reported 10 similar patients treated in the same way and warmly recommended the procedure. Further endorsement was forthcoming from Kanavel⁹ in 1916. Following the advocacy of this method of treatment by Matas¹⁰ in 1924, practically every treatise written on post-operative treatment included the use of the duodenal tube for siphon drainage postoperatively in cases of persistent vomiting or distention.

WANGENSTEEN'S CONTRIBUTION

The aforementioned facts were known in a general way to Wangensteen in 1931. He did not know, however, that Ward of San Francisco had described an apparatus for continuous gastric or duodenal lavage through a Jutte tube and recommended its use in the treatment of general peritonitis, postoperative ileus, intestinal obstruction and acute gastric dilatation. This apparatus exerted a constant mild suction on the indwelling tube.¹¹

On a hot day early in August of 1931 a somewhat corpulent man in the middle sixties with decided abdominal distention was admitted to the University of Minnesota Hospitals. His chief complaint was severe prostrating pain in the upper part of the abdomen which had appeared suddenly forty-two hours previously, while he was changing a tire on his automobile. At operation he was found to have a peptic ulcer which had perforated the anterior wall of his stomach and produced generalized peritonitis. After closure of the perforation, Wangensteen inserted a catheter through the wall of the stomach and brought it out through the abdominal incision as a gastrostomy. Retalling the reports of Westermann⁷ and Kappis⁸ and knowing also that McIver¹² in 1926 had shown that the major component of intestinal gas came from swallowed air, Wangensteen assigned to the resident and intern on the service the duty of keeping the stomach empty and suggested that, if possible, some means be found of maintaining constant suction on the gastrostomy catheter.

After an evening and a night of improvisation and trials with such utensils as enema cans, bottles and five gallon buckets, the following morning saw the simple but extremely effective apparatus made of two large bottles together with odd pieces of glass and rubber tubing now widely used and known as "a suction set." This first patient survived forty-two days after operation and then died of his peritonitis. During this six week period, suction was maintained on the catheter most of the time and the distention of the abdomen was well controlled.

Encouraged by the result obtained in this patient as far as control of the distention was concerned, Wangen-

steen speculated as to whether or not this method might not have some virtue in the treatment of mechanical obstruction of the small intestine due to adhesions. He had observed in such cases that after enterostomy, without any direct surgical attack on the adhesions, drainage of fluid through the enterostomy catheter was often minimal after the initial decompression had been effected and that frequently the obstruction was relieved without further operative intervention. This logically suggested the possibility that if the distended proximal gut of a patient with mechanical obstruction of the small bowel could be effectively drained by means of a duodenal tube connected to a source of constant suction, operation might be avoided.

During the early evening of a day in the latter part of August 1931 there was admitted to the University of Minnesota Hospitals a poorly nourished woman of 72 in a state of hypochloremia with pronounced distention of the abdomen due to a mechanical obstruction. The cause of the obstruction was thought to be a carcinoma of the cecum. Vomiting had been profuse for several days. This patient was in an extremely poor general condition—such a poor condition, in fact, that an immediate operation seemed out of the question. After a careful appraisal of the situation and the risks involved, Wangensteen decided to apply constant suction to an indwelling Levin type duodenal tube while adequate quantities of isotonic sodium chloride solution and dextrose were given by vein. Decision as to when the patient would be operated on was postponed until the following morning. By good fortune the duodenal tube soon passed through the pylorus, and by the following morning the patient was much improved. Roentgen examination of the abdomen confirmed the clinical impression that the intestinal distention had decreased a great deal. Suction was continued for the next thirty-six hours. During this period the degree of abdominal distention continued to decrease until decompression was complete. At this point the patient was operated on, since the obstruction was thought to be of a persistent nature. A stricture of the terminal portion of the ileum was found, and the patient made an uneventful recovery.

The results in this case made a profound impression on every one concerned. Successful decompression had been achieved in a practically moribund patient by the use of a duodenal tube, and her general condition sufficiently improved by the intravenous injection of isotonic sodium chloride solution and dextrose, so that definitive operation could be performed with a great deal less risk than in the average patient with intestinal obstruction. During the succeeding weeks, 2 patients with obstruction of the small bowel due to adhesions were treated by continuous suction drainage alone. Decompression required about two days, and the obstruction was spontaneously relieved. In a fourth case of adhesive obstruction, the method failed. In this case recovery followed the making of an enterostomy.

On the basis of his experience in these first 4 cases, Wangensteen, firmly convinced of the value of this new method, described and recommended it to the profession in December 1931 at the meeting of the Western Surgical Association in Denver.¹³

8. Kappis, M.: Einige praktische Winke zur Behandlung des peritonischen Ileus, München. med. Wchnschr. 58:15, 1911.

9. Kanavel, A. B.: Continual Stomach Lavage and Continuous Hypodermoclysis in Peritonitis, Persistent Vomiting with Dehydration, and Dilated Stomach, with a Description of a Modified Stomach Tube, Surg., Gynec. & Obst. 33:483, 1916.

10. Matas, R.: The Continued Intravenous "Drip," Ann. Surg. 70:643, 1924.

11. Ward, R.: Apparatus for Continuous Gastric or Duodenal Lavage, J. A. M. A. 84:1114 (April 11) 1925.

12. McIver, M. A.; Benedict, E. B., and Cline, J. W.: Postoperative Gaseous Distention of the Intestine, Arch. Surg. 13:588 (Oct.) 1926.

13. Wangensteen, O. H.: Early Diagnosis of Acute Intestinal Obstruction with Comments on Pathology and Treatment, with Report of Successful Decompression of Three Cases of Mechanical Bowel Obstruction by Nasal Catheter Suction Siphonage, West. J. Surg. 40:1, 1932.

During the following winter and spring, Wangenstein and his colleagues studied this new procedure critically and extensively. Certain of its limitations were seen immediately. In his first article on the subject Wangenstein said, "In adhesive types of obstruction in which the cause often ceases to operate following decompression of the bowel, the method should have its greatest field of usefulness, and in postoperative obstructions particularly, the method should prove to be an agent of therapeutic value."¹³ Experience has well borne out these claims. It was realized that only harm could come from treating strangulation obstructions definitively by this method. Experience soon showed that, in the presence of an acute obstruction of the large bowel, suction usually prevented the distention of the colon from increasing but could not be expected to decrease it because of the ileocecal valve.

Other phases of the method were studied also. Since successful decompression was found often to rest with the ability of the clinician to cause the tip of the duodenal tube to pass beyond the pyloric sphincter, considerable effort was made to improve the passage of such tubes. No easy method was found. Meticulous attention to detail and careful frequent clinical and roentgen examination of the patient was essential. Two changes were made in the Levin type duodenal tube. One was the construction of the distal tip of the tube with special rubber of high specific gravity. The other was the extension of the perforations of the tube proximally over 9 inches (23 cm.), so that suction might be simultaneously carried out in both the stomach and duodenum. The possibility of utilization of a long tube with a double lumen was discussed on one occasion, but no actual efforts along this line were made until after the development of the Miller-Abbott tube.

No essential improvement was made on the simple suction apparatus improvised for the first patient at an estimated cost of about 50 cents. The addition of a third bottle allowed for the collection of the aspirated fluid, but both the two and the three bottle system permit the accurate measurement of both the fluid and gas return by the suction tube. This apparatus provides an average negative pressure of about 90 cm. of water, a pressure which laboratory studies have shown to be in the optimal range. The relative superiority of constant suction over siphonage through a duodenal tube was tested in patients postoperatively by means of a Mariotte bottle.¹⁴ The results of this study were so definite that it was immediately realized that the continuous suction method was by far the best means yet devised of treating paralytic ileus. As a result the suction principle has seen its widest use not in the treatment of mechanical obstruction but in the care of patients after major abdominal operations.

By the summer of 1932 Wangenstein and Paine¹⁵ had treated 32 patients with acute mechanical obstruction of the small bowel in which suction applied to an indwelling duodenal tube was employed. The mortality rate in this group of patients was 22 per cent. Twenty

of these patients were treated by suction alone with spontaneous release of the obstructing mechanism after decompression had been achieved. Only 3 of this group died, a mortality rate of 15 per cent.

COMMENT

The chief historical significance of Wangenstein's contribution lies in the fact that it marks the beginning of a downward trend in the mortality rate of patients with intestinal obstruction—the first such trend since the advent of abdominal surgery. Prior to 1931 the reported mortality rate of patients with intestinal obstruction varied, with only rare exceptions, between 30 per cent and 50 per cent. Recently reported series of cases show mortality rates of about 15 per cent. At Wangenstein's own clinic, where an intense interest in the whole problem of obstruction has existed for many years, Dennis and Brown¹⁶ in 1942 reported a mortality rate of 13 per cent. It cannot be claimed that the suction treatment alone is responsible for this decline. Factors such as a better understanding of the fluid and electrolyte requirements of the obstructed patient, better anesthesia, blood transfusions and better trained surgeons have all played a part. Suction applied to an indwelling duodenal tube has not replaced operation in the treatment of intestinal obstruction and never will. It has made surgical treatment safer, however, and has become an essential part in the treatment of all such patients. It has changed our thinking in regard to the urgency of operation in all patients with nonstrangulating types of obstruction of the small bowel. These patients, by the use of suction, can now be properly prepared for operation by the adequate administration of fluid and electrolytes and treated as patients for elective surgical treatment with much greater convenience to the surgeon and hospital staff. The fact that certain patients with obstruction, when treated by suction, do not require operation can gratefully be accepted as an additional boon.

Of major importance also is the effect of the application of the suction principle to the management of patients with paralytic ileus. Doctors who remember the days of protracted postoperative vomiting and the necessity of repeated gastric lavage by means of the large stomach tube will always be grateful for the suction principle. A surgeon in a small midwestern city once, with considerable truth, remarked that the "suction tube" had made a civilized business out of abdominal surgery.

Wangenstein was not the first to use suction, but he developed it independently, saw its value and popularized it. His contribution in 1931 marked the beginning of a new chapter in the understanding of the pathologic physiology of intestinal obstruction and in the treatment of patients with all varieties of this condition. As a result of his work, distention of the bowel and its secondary effects rather than some hypothetic toxin has come to be recognized as the most important factor in the pathologic changes of intestinal obstruction. As has been repeatedly shown in the history of medicine, a new concept has had a much greater influence than its discoverer anticipated.

14. Paine, J. R., and Wangenstein, O. H.: Necessity for Constant Suction to Inlying Nasal Tubes for Effectual Decompression or Drainage of Upper Gastro-Intestinal Tract, *Surg., Gynec. & Obst.* 57: 601, 1933.

15. Wangenstein, O. H., and Paine, J. R.: Treatment of Acute Intestinal Obstruction by Suction with Duodenal Tube, *J. A. M. A.* 101: 1532 (Nov. 11) 1933.

16. Dennis, C., and Brown, S.: Small Bowel Obstruction, *Staff Meet. Bull., Univ. Minnesota Hosp.*, Jan. 23, 1942.

STUDY OF HOME CARE IN A MUNICIPAL HOSPITAL

DAVID UNTERMAN, M.D.
ARTHUR C. DeGRAFF, M.D.
and
HENRY E. MELENEY, M.D.
New York

Home care represents an extension of medical and nursing service from the hospital to the home. It is one approach to the complex problem of providing continuous medical care to those segments of the population which do not enjoy this advantage at the present time. Home care is also an approach to the problem of hospital beds since it permits earlier discharge of the patient from the hospital and minimizes unnecessary readmissions through continuous medical follow-up. Experience has shown that it costs less to treat a patient at home than in the hospital, and, although such economy is by no means the prime objective of this program, it is nevertheless an important consideration in hospital administration.

TABLE 1.—*Diagnostic Classification of Patients Accepted to Home Care*

Primary Diagnosis	Number of Patients
Cardiac diseases.....	23
Arteriosclerotic.....	6
Arteriosclerotic and hypertensive.....	11
Rheumatic.....	7
Syphilitic.....	1
Cerebral thrombosis.....	1
Perleiosis anemia and rheumatoid arthritis.....	1
Hypertrophic osteoarthritis.....	1
Duodenal ulcer.....	1
Bronchogenic carcinoma.....	1
Multiple myeloma.....	1
Paraplegia secondary to extramedullary neoplasm.....	1
Chronic thrombophlebitis.....	1
Chronic glomerulonephritis.....	1
Cirrhosis of liver.....	1
Acute infectious hepatitis.....	2
Homologous serum hepatitis.....	1
Pneumonia.....	1
Total.....	42

A pilot study of home care was conducted on the Third and Fourth (New York University) Medical Divisions of Bellevue Hospital during the year beginning Jan. 1, 1948. This program was suggested by the study conducted at Syracuse University by Jensen, Weiskotten and Thomas,¹ who reported home care to be a highly successful method of extending continuous medical service to the discharged hospital patient. The present study was given further impetus by the encouraging reports of Bluestone² and Cherkasky³ of Montefiore Hospital in New York, where a home care program has been in progress since January 1947. The pilot study conducted at Bellevue Hospital represents the first application of the principles of home

care to a large municipal institution. Certain conclusions of general interest may be drawn, and these provide the basis for the present report.

SELECTION OF PATIENTS

The extension of medical care to the home requires close coordination of the activities of physician, social worker and nurse. Since the present program was organized on a small scale, the staff consisted of one physician, one social worker and one secretary. Nursing care was provided through a contract arrangement with the Visiting Nurse Service of New York.

Patients were selected from the hospital wards on the basis of their medical condition and adequacy of home environment. Each patient's condition was such that the specialized facilities of the hospital were no longer essential, although further medical care was still definitely needed. Home care was not extended to patients capable of attending the outpatient department, since the service was designed to bridge the gap which exists between hospital and clinic. Although a few of our patients were convalescing from acute illness, most of them were afflicted with chronic diseases and represented long term problems in medical care. The mean age was 57.7, with a range of 14 to 84 years. A diagnostic classification of patients selected for home care appears in table 1. It is noted that the largest single group is represented by the degenerative forms of cardiovascular disease.

A careful evaluation of the patient's home situation by the social worker was of major importance in determining eligibility for home care. This included not only a survey of the physical characteristics of the home but, equally or more important, the response of the family to the patient's illness. Both patient and family frequently required assistance in making certain adjustments occasioned by the advent of prolonged illness. Careful evaluation often necessitated a visit to the home before the patient was discharged from the hospital. Economic factors presented serious difficulties in some cases, inasmuch as many of our patients and their families existed on marginal incomes. In some instances, the return of the patient to the home represented an added burden which could not be borne without some assistance from the Department of Welfare. Such assistance made home care possible in several instances in which it otherwise could not have been instituted. The cooperation of other community agencies in planning for the care of the patient was also enlisted when necessary.

The decision to accept a patient to home care was made jointly by the physician and the medical social worker. The resident and visiting staffs were encouraged to make referrals on all patients presenting possibilities for home care. As the objectives of the program became more generally known, there was a gradual increase in the number of such referrals. There were frequent discussions with the hospital staff both before and after acceptance of patients to home care. Periodic reports were given on all patients followed at home for any appreciable length of time. These reports were of particular interest to the hospital staff in cases presenting diagnostic or therapeutic problems.

DESCRIPTION OF PROGRAM

Since continuity of medical care was stressed, the patient was interviewed and examined by the home care physician prior to discharge from the hospital. A personal physician-patient relationship, which was

This study was supported by a grant from the Milbank Memorial Fund. From the Departments of Medicine, Therapeutics and Preventive Medicine, New York University College of Medicine and the Third and Fourth (New York University) Medical Divisions of Bellevue Hospital, New York.

Dr. William S. Tillett and Dr. Charles H. Nammack, Directors of the Third and Fourth Medical Divisions, respectively, of Bellevue Hospital, cooperated in this study. Dr. Henrik M. C. Luyckx, Associate Professor, of Preventive Medicine, contributed helpful suggestions and analysis of data.

1. Jensen, F.; Weiskotten, H. G., and Thomas, M. A.: Medical Care of the Discharged Hospital Patient, New York, Commonwealth Fund, 1944.

2. Bluestone, E. M.: Home Care as an Extramural Hospital Function, Survey 84: 99 (April) 1948.

3. Cherkasky, M.: Hospital Service Goes Home, Mod. Hosp. 68: 47 (May) 1947.

later perpetuated in the home, was thus established. Moreover, an opportunity was afforded the physician to become thoroughly familiar with the patient's clinical course and observations. Patients were usually sent home by ambulance, although transportation by taxi was equally satisfactory when patients could walk with

patients required the services of a urologist, a dermatologist and a general surgeon, respectively. Home care records were maintained in the same fashion as hospital charts. In addition to a complete summary of the patient's course in the hospital, they contained progress records by the physician, social worker and visiting nurse, as well as laboratory and all other data pertinent to the case.

RESULTS

During the twelve month period beginning Jan. 1, 1948, there were 53 admissions to home care. Eleven of these represent readmissions as a result of rehospitalization with subsequent return to the home. After an initial period of organization, the patient load was gradually increased to a maximum of 25. During the latter half of this study the average daily census rose from 13.9 to 23.9. There was a total of 3,960 patient days during the period of study. The duration of home care in each case is shown in figure 1. A total of 701 home visits was made by the home care physician. In addition to the regularly scheduled visits, there were 34 emergency calls. These additional calls were considered warranted in most instances, and several were occasioned by episodes leading to readmission of the patient to the hospital. The social worker made 262 visits and held 115 interviews with relatives of the patients. Nursing care was provided in 11 cases, representing a total of 145 visits by the visiting nurses. Housekeeping assistance was considered necessary in 7 instances. It was furnished by the program in 3 cases and voluntarily offered by friends and relatives in 2 others. In the remaining 2 instances, recommendations for housekeeping assistance were made to the Department of Welfare.

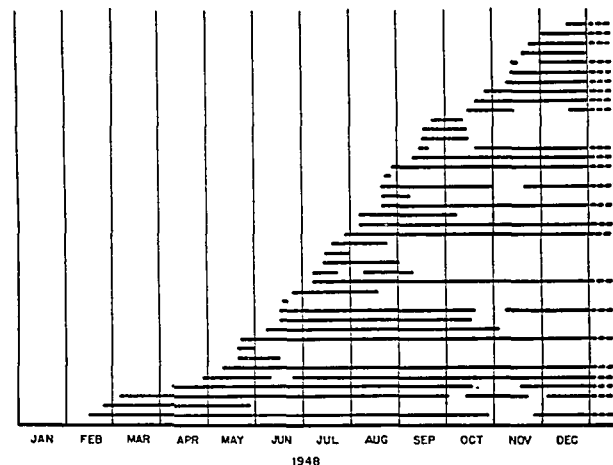


Fig. 1.—The duration of home care of 42 patients is indicated by the solid lines. Gaps in these lines represent periods of rehospitalization with subsequent return to home care. Dotted lines indicate patients transferred to the Department of Hospitals on completion of study.

assistance. After transfer to the home, the physician visited the patient regularly, usually once or twice weekly or more often, depending on the indications. He was also available at all times for any emergencies which arose. Although some patients manifested anxiety on their return to the home, this was usually dissipated with the realization that continuous medical care was still available.

The social worker also maintained frequent contact with the patient and family throughout the period of home care. The continued interest of the worker in the case and the close attention given to problems which frequently arose played a most important role in the satisfactory management of patients at home.

Nursing care was provided by the Visiting Nurse Service of New York on a fee for service basis, at the request of the home care physician. The visiting nurse carried out routine nursing care and also assisted the physician in such procedures as the parenteral administration of medication, performance of paracenteses and other therapeutic measures. Another important function of the nurse was the instruction of the family in simple nursing procedures, thereby enlisting additional aid which otherwise would have been lacking. Patients were provided with any hospital equipment required for their adequate care at home. Included were such items as hospital beds, scales, syringes, needles and catheters.

Since the additional burden of illness in a family sometimes necessitated housekeeping assistance, this was also provided in selected cases up to eight or ten hours a week. Laboratory procedures, such as blood cell counts, urinalyses and examinations of the chemical content of the blood, were performed in the laboratory of the New York University College of Medicine clinic, specimens being delivered there from the home. Medication was provided by arrangement with the clinic pharmacy. The services of consultants in the various medical and surgical specialties were available. Three

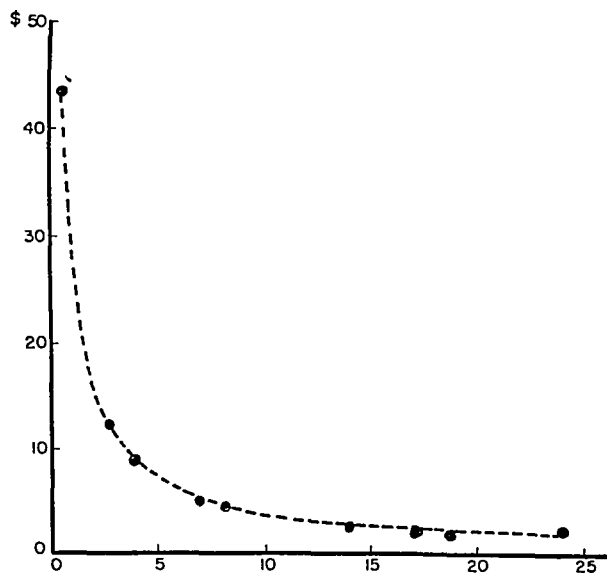


Fig. 2.—Relationship between patient load and cost per patient day. The minimum cost was reached with an average daily census of 17 to 23.9. The vertical column of figures at the left shows the average cost per patient day (for the month), and the horizontal row of figures at the bottom shows the average daily census (for the month).

The cost of treating patients at home was calculated on the basis of total expenditure and included the following items: medical and nursing care, social service, secretarial assistance, housekeeping, transportation of patients and staff, medication, hospital equipment and laboratory work. Figure 2 shows the

decrease in average cost per patient day as the census was gradually increased toward a maximum level. During the last five months of the study, when an optimum patient load was reached, the average cost per patient day was \$2.38. This is approximately one fourth the cost of maintaining a patient in a municipal hospital, which is currently estimated in New York at \$9 per day. The cost figures cited for home care include the contribution by the Department of Welfare toward medical and nursing costs in 14 of the cases.

The response of the patients and their families to home care was favorable with few exceptions. Most patients preferred the privacy of their homes and the proximity of their families to the hospital wards. They were particularly appreciative of the individual attention received while at home and cooperated fully with the home care staff during the program.

During the period of study, only 10 patients could be discharged from home care to the outpatient department. This is not unexpected, since most of the patients were initially selected on the basis of chronic illness and decided disability. Seventeen patients required readmission to the hospital following variable periods at home. This was usually the result of pro-

gression of the disease or the appearance of complications not amenable to management at home. Eleven patients were subsequently returned to home care as soon as hospitalization was no longer required. Four patients died after readmission to the hospital. Two of these were patients with far advanced heart disease and severe decompensation. Another death was the result of widespread bronchogenic carcinoma, and in the fourth patient death was caused by massive hemorrhage from esophageal varices. There were, in addition, 2 deaths at home, both occurring suddenly in patients with advanced coronary artery disease. On completion of the study, home care was being continued for 24 patients.⁴

There was considerable question as to suitability, and in 354, or 61 per cent, the home situation was so poor as to preclude any possibility of home care. The remaining patients (14 per cent) were considered unsuitable because of the distant location of their homes. Assuming that this sample holds true for the entire hospital population, a sizable home care program is nevertheless feasible since there are over 60,000 admissions to Bellevue Hospital each year. On completion of the present study, the Department of Hospitals of the City of New York instituted a home care program in five of its general hospitals, including Bellevue, and it is contemplated that this service will be expanded in the future. It is likely that a larger proportion of patients can be selected in some of the other city hospital areas where general housing conditions are more favorable.

The number of days of hospitalization saved as a result of this program is difficult to estimate with accuracy. In some instances it is certain that the patients would otherwise have remained in the hospital indefinitely, so that each day of home care represents a substitute for a hospital day. In other instances, patients were sent home several weeks in advance of the expected date of discharge. Many of these required care at home for much longer periods than the probable remainder of their hospital stay, since they were unable to attend the outpatient department. In such cases, only the initial period of home care may be considered to have served as a substitute for hospitalization. However, the saving in hospital days is undoubtedly much greater, since readmissions to the hospital were reduced in number through continuous medical care. The same holds true for a number of patients who were selected for home care at the time of their actual discharge from the hospital. In the latter group, there was no immediate saving of hospital days, although it is certain that subsequent readmissions were held to a minimum.

The most gratifying aspect of this study has been the continuity of medical care which it has made available to patients for whom no such provision otherwise exists. Through proper selection, home care is applicable not only to patients who would ordinarily remain in the hospital for additional periods but to certain others at the time of actual discharge. On an active ward service, it is inevitable that a certain proportion of patients who require further medical care following discharge from the hospital will fail to receive it. The overcrowding of wards and the continuous need for keeping beds available for the more acutely ill often lead to the discharge of patients who are not capable of attending the outpatient department. The cardiac patient with decidedly diminished reserve who lives in a fourth floor walk-up apartment is but one example. This study has demonstrated that home care fills an important gap by extending medical care to indigent patients who no longer require the specialized facilities of the hospital but who are as yet unable to attend the clinic. Close integration of the services of the home care and outpatient departments is definitely indicated and should prove advantageous to both patient and hospital. In several instances, referrals were received from the cardiac clinic on patients who had lapsed in their attendance because of progressive diminution of cardiac reserve. These patients were satisfactorily managed at home, thereby averting an interruption of medical care and minimizing subsequent readmissions to the hospital.

COMMENT

The potentialities of a home care program in a municipal institution such as Bellevue Hospital are determined largely by the home environment of the patient population. Shortly after the initiation of this study it became apparent that, although suitable clinical material was abundant, the selection of patients was greatly limited by poor home conditions. During a three month period, most of the patients admitted to the Third Medical Division were carefully interviewed with respect to their home environment. Of 577 patients interviewed, only 92, or 16 per cent, were judged to have suitable homes. In 53, or 9 per cent,

4. These patients were transferred to the home care program now being conducted by the Department of Hospitals of the City of New York.

TABLE 2.—Total Cost of Home Care Program in Relation to Patient Load (Fig. 2)

	Average Daily Census (for the Month)	Cost per Patient Day
January.....	0	.....
February.....	0.8	\$13.48
March.....	2.9	12.04
April.....	3.9	9.26
May.....	6.8	5.19
June.....	8.2	4.58
July.....	13.9	2.67
August.....	17.2	2.41
September.....	18.7	2.07
October.....	17.0	2.11
November.....	17.0	2.25
December.....	23.9	2.41

The selection of patients was limited almost exclusively to the chronically ill, since these were considered most adaptable to the purposes of a pilot study. Home care is equally applicable to the convalescent phases of acute illness, and a few such cases were included in the present program. With such patients the average duration of home care is, of course, somewhat shorter and the turnover of patients should be correspondingly more rapid. A large service carrying many patients with short term illness should demonstrate a more immediate and tangible sparing of hospital beds than was evident in the present study. On the other hand, the problem of continuity of medical care over long periods of time, which figured so prominently in the present program, would be a relatively minor one. Actually, any home care program in a general hospital must inevitably deal with both short and long term illness. Further studies are indicated to determine which group should receive greater emphasis from the point of view of maximum economy of hospital beds and the efficient administration of home care.

SUMMARY AND CONCLUSIONS

A pilot study of home care as applied to a large municipal hospital is described. It has been demonstrated that home care is a practical means of extending continuous medical service to certain indigent patients for whom no such provision otherwise exists. The cost of maintaining a patient at home is approximately one fourth the cost of hospital care.

An economy of hospital beds is effected since certain patients may be discharged at an earlier date and unnecessary readmissions are avoided through continuous medical follow-up. Further studies on a larger scale and over a longer period of time are indicated to determine more accurately the number of hospital beds thereby released.

Clinical Notes, Suggestions and New Instruments

LIPOMA OF THE TONGUE

Report of a Case

LEO E. BRAUNSTEIN, M.D.
Chicago

This case is reported because of the unusual occurrence of a simple lipoma of the tongue. A survey of the modern textbooks of oncology and pathology fails to reveal any allusion to this condition, though the presence of lipoma in many other tissues and organs is well known.

The patient, M. C., a white woman aged 58, was admitted to the Illinois Masonic Hospital in March 1948 for treatment of a comminuted fracture of the patella. This was accomplished by open reduction, with a good result. Her peculiar speech drew my attention to a rounded mass bobbling around in her mouth. As she spoke she seemed to try to keep the mass from slipping out of her mouth.

This mass was about 2 cm. in diameter and attached by an elongated sessile base to the right anterolateral free border of the tongue, near the tip. It was of a soft rubbery consistency, on a soft base of apparently normal lingual tissue, covered by a layer of thinned mucosal epithelium, through which the tumor appeared pinkish gray. Its contour was smooth and lobate, and it could easily be delineated by palpation as it was very superficial. Grossly, it seemed to be innocuous. There was no tenderness locally or discomfort in swallowing. The patient stated that it had been present for years, but,

being symptomless, it had never concerned her. It was not until several months after the operation on the knee, when she was seeking employment, that she noted that her speech impediment was a handicap in securing a job; hence she had returned to have it removed.

The operative procedure was performed with local infiltration with 1 per cent procaine hydrochloride solution. The tongue was maintained in traction with a suture through its tip. Four mattress sutures through the full thickness of the tongue were placed for hemostasis along the projected line of incision, with plain surgical gut 00. The tumor was then excised, including a 5 mm. edge of normal lingual tissue. The upper and lower borders of the tongue were approximated with interrupted sutures of plain surgical gut 00. Recovery was uneventful. Dr. Lester King, of the Department of Pathology, examined the specimen grossly and microscopically and reported it to be a simple lipoma, with no unusual features.

SUMMARY

A case of lipoma of the tongue is reported. Although the lesion is exceedingly common, its location on the tongue seems to be rare.

Council on Physical Medicine and Rehabilitation

REPORTS OF THE COUNCIL

The Council on Physical Medicine and Rehabilitation has authorized publication of the following reports.

HOWARD A. CARTER, *Secretary.*

PARAVOX HEARING AID MODEL Y (YM, YC AND YC-7) ACCEPTABLE

Manufacturer: Paravox, Inc., 2056 East 4th Street, Cleveland 15.

The three new Paravox instruments, Models YM, YC and YC-7, are nearly identical in size, weight and appearance, and can be described together. They differ in that YM is provided with a magnetic receiver, while YC and YC-7 are provided with Brush crystal receivers. YC-7 is designed for low battery drain.

The instruments of this series are small "all in one" hearing aids. An aluminum alloy case contains microphone, amplifier and batteries. A wheel type combined on-off switch and gain control is located at right upper corner front. A white dot and a retaining snap make the "off" position distinctive and secure.

Near the middle of the back of the instrument is a metal lever-type switch called the "Duo-Range Control." It introduces or removes attenuation of about 12 decibels, apparently the same at all frequencies. The instrument has no tone control. The receiver cord is plastic covered and reversible.

Dimensions and Weight.—The instruments measured 60 by 87 by 19 mm. (2 $\frac{3}{8}$ by 3 $\frac{3}{8}$ by $\frac{3}{4}$ inch), disregarding clothing clip and duo-range switch. The weight, with batteries and receiver M, was just under 140 Gm. (5 ounces). With the crystal receiver, the weight was about 105 Gm. (4 $\frac{3}{4}$ ounces). The instruments require a 1.5 volt A-battery and 22.5 volt B-battery, both of the zinc-carbon type. The accompanying table summarizes the manufacturer's claims for battery-drain:

Model	Battery	Drain (Milliamperes)
YM	A	42
	B	0.42
YC	A	42
	B	0.44
YC-7	A	37
	B	0.18

The manufacturer submitted curves showing the frequency characteristics of each instrument. The acoustical responses of



Paravox Model Y,
Hearing Aid

the instruments met the requirements of the Council. The instruments were tried out in practice under the direction of a qualified investigator. They were reported satisfactory.

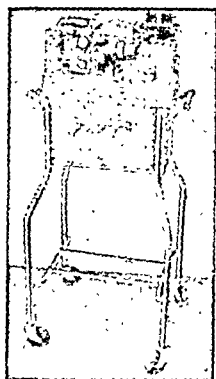
The Council on Physical Medicine and Rehabilitation voted to include the Paravox Hearing Aid, Model Y (YM, YC and YC-7) in its list of accepted devices.

BECK-LEE MODEL E ELECTROCARDIOGRAPH ACCEPTABLE

Manufacturer: Beck-Lee Corporation, 630 West Jackson Blvd., Chicago 6.

The Beck-Lee Model E Electrocardiograph is a portable string galvanometer. In the recording mechanism, a beam of light is cast onto a strip of sensitized paper 5.75 cm. (2½ inches) wide. The sensitized paper is later developed in a dark room.

It weighs 14.5 Kg. (32 pounds) and measures 23 by 22 by 36 cm. (9 by 8½ by 14¼ inches). The domestic shipping weight is 19.5 Kg. (43 pounds) and the foreign, 32.5 Kg. (74 pounds). This latter weight includes waterproof wrapping and sealing and wooden shipping case.



Beck-Lee Electrocardiograph, Model E

Accessories include one set of patient electrodes, one set of electrode straps (rubber), one tube of electrode jelly, one ground wire with ground wire clamp, one film mounting folder, an instruction book and a guarantee card. The set of patient electrodes consists of one round, flat electrode for use on the chest and three square electrodes with curved surfaces for use on the arms and left leg; these electrodes are made of nickel silver.

The instrument is built for operation on alternating current at 110 to 120 volts and draws 70 watts. Converters are available to permit operation on direct current.

Specimens of the Beck-Lee Model E Electrocardiograph submitted to the Council were subjected to tests. The instrument meets the "Minimum Requirements for Acceptable Electrocardiographs" published in THE JOURNAL, May 31, 1947, page 455.

The automatic developing camera which is being advertised at the present time as an accessory was not investigated.

The Council on Physical Medicine and Rehabilitation voted to include the Beck-Lee Model E Electrocardiograph in its list of accepted devices.

EDIN INK-WRITING ELECTRONIC CARDIOGRAPH MODEL 210 T, ACCEPTABLE

Manufacturer: Edin Electronics Company, 207 Main Street, Worcester 8, Mass.

The Edin Ink-Writing Electronic Cardiograph, Model 210 T, is a portable electrocardiograph, housed in a carrying case. Models are manufactured for operation on 110 or 220 volt circuits, direct current or alternating current at 60, 50, 40 or 25 cycles. When operating on 115 volts of 60 cycle alternating current, it draws 86 watts (0.75 ampere). The instrument comes equipped with an individual timing check device operated by a synchronous motor.

The equipment includes 4 limb electrodes, 1 chest electrode and handle, 4 limb straps, 4 electrode leads, 1 jar of electrode jelly, 1 roll (9,440 cm. or 3,600 inches) of chart paper, 1 bottle of ink and 1 double ground lead. The whole measures 25 by 21 by 43 cm. (9¾ by 5¼ by 17 inches) and weighs 13 Kg. (29¾ pounds). The shipping weight is 16 Kg. (35 pounds). According to the firm, the electrocardiograph is distributed and serviced by selected supply houses on a franchise basis.

The Council secured convincing evidence that this instrument met its published requirements for acceptability of electrocardiographs. The Council on Physical Medicine and Rehabilitation voted to include the Edin Ink-Writing Electronic Cardiograph, Model 210 T, in its list of accepted devices.

OTARION HEARING AID MODEL E-4 ACCEPTABLE

Manufacturer: Otarion Hearing Aids, 159 North Dearborn Street, Chicago 1.

The Otarion Model E-4 Hearing Aid contains microphone, amplifier and batteries in a single sturdy, metal case. The case measures 114 by 61 by 20 mm. (4½ by 2¾ by ¾ inch). Including batteries and receiver, it weighs 214 Gm. (7½ ounces).

One control combines "on-off" and tone control. The three positions of the latter are identified by 1, 2 and 3 dots. The various positions are adequately maintained by an appropriate snap action. Model E-4D has a built-in battery meter; otherwise it is identical with E-4.

The battery drain is stated to be 45 milliamperes for the "A" battery at 1.25 volts and 0.65 milliamperes at 22.5 volts for the "B" battery.

The tone control gives choice of slight, moderate or considerable low tone suppression. For an input of 60 decibels with volume controls set at ½, the manufacturer shows a response curve that is flat plus or minus about 3 decibels from 1,300 to 3,600 cycles per second. With the 2 dot tone control, the characteristic rises from 200 to 1,200 cycles per second almost linearly with a slope of about 6 decibels per octave.

The maximum acoustic output with high setting of the output control is 128 decibels at 1,500 cycles per second. The peak at 1,500 cycles per second is about 6 decibels above the general level for all tones below 1,000 cycles. According to the manufacturer's curves, the distortion is not more than 11 per cent at inputs of 80 decibels or less, tested at 400, 600, 800, 1,000, 1,500, 2,000, 2,500, 3,000 and 3,500.

Performance Tests.—Two subjects, both veteran users of hearing aids, participated in performance tests of this instrument. Subject A, aged 37, suffers from a mixed deafness with considerable high tone hearing loss. His loss for speech is 47 decibels. Subject B, aged 39, has a pure conductive deafness with a nearly flat audiogram. Her loss for speech is 49 decibels. For both subjects full volume and tone control "1 dot," i. e., minimum low tone suppression, was used. The acoustic gain for subject A was 48 decibels, for subject B, 50 decibels. The aided threshold of each subject is, therefore, 1 decibel better than normal. It is therefore possible that the maximum acoustic gain of the instrument is even greater than could be measured with these subjects. The low aided threshold is indirect evidence of absence of excessive internal electrical noise. The acoustical gain is obviously far more than the minimum requirement.

Discrimination tests with the same two subjects consisted of a phonetically balanced list of 100 monosyllables (recorded version) delivered at 60 decibel input level. The resulting levels of the subjects were 43 and 40 decibels respectively above their No. 9 thresholds. The scores are as follows:

	Amplification Without Hearing Aid	Own Aid	Reference Instrument	Model E-4	Difference
Subject A	92	71	85	89	+ 4
Subject B	94	77	76	88	+ 12
			Average		+ 8

It is noteworthy that the service booklet contains a wiring diagram of the instrument and a list of the parts with specifications and a functional diagram of the switches and controls. The service information begins: "In case of trouble, take your Otarion to the nearest first class radio repair shop, preferably one which is an Authorized Otarion Service Station. Any skillful radio repair man already has most of the equipment and knowledge necessary to give proper service on your hearing aid. Otarion can furnish the rest."

The Council on Physical Medicine and Rehabilitation voted to include the Otarion Hearing Aid, Model E-4, in its list of accepted devices.



Otarion Hearing Aid Model E-4

APPROVED INTERNSHIPS AND RESIDENCIES IN THE UNITED STATES

ANNUAL REPORT ON INTERNSHIPS AND RESIDENCIES BY THE COUNCIL ON
MEDICAL EDUCATION AND HOSPITALS OF THE
AMERICAN MEDICAL ASSOCIATION

Edward H. Leveroos, M.D., William R. Albus, M.D., and William W. Corbett, M.D.

The approved internship and residency lists are again being published in a special Internship and Residency Number of THE JOURNAL. They include changes in and additions to the lists as of May 1, 1949. Subsequent changes will appear in the Educational Number of THE JOURNAL, scheduled for publication in September.

The 1949 internship list includes data on all hospitals presently approved by the Council for intern training. Approved hospitals are listed geographically followed by information relating to the type of ownership or control, the bed capacity, number of annual admissions, percentage of service cases, type of internship offered, length of program, number of positions available, affiliated assignments, outpatient service, autopsy rate and monthly stipend. In view of the general acceptance of the Cooperative Plan for Appointment of Interns (see Organization Section), the column indicating date of assignment, which appeared in previous lists, has been deleted. The list again indicates hospital affiliation with one or more medical schools, as a major teaching unit or one involving limited assignments for junior or senior clerks. The report which follows summarizes the data presented in the approved lists.

Hospitals approved for residency training are presented according to the various specialty fields. In each category, hospitals are listed alphabetically by city and state, with the name of the chief of service, the volume of teaching material, the number of residencies, date of assignment and monthly stipend. In a number of specialties, training programs are listed as approved for a specified number of years. In these specialties, each board concerned has indicated that it will accept training for the number of years listed, toward satisfying its requirements for certification. Approval in all fields in which specialty boards have been established is extended by the Council in concurrence with the respective American board.

These lists are published annually, primarily for the guidance of physicians seeking internship and residency appointments. The information is made available through the generous cooperation of the approved hospitals, medical schools, specialty boards and the federal services; to them and to the individual administrators, directors, staff physicians and others whose assistance has made possible the publication of these data, grateful acknowledgment is made.

NUMBER OF INTERNSHIPS

Since the publication of last year's Internship and Residency Number, the Council has approved an additional 39 hospitals for intern training. With an equal

number removed from the list during the year, however, the total number approved remained at 807 hospitals. These include 37 under federal control, 118 governmental hospitals other than federal, 15 proprietary, 305 church sponsored and 332 organized on a nonprofit basis. Hospitals engaged in intern training are now listed in all but four states; in addition 1 hospital in the Canal Zone, 1 in Guam, 4 in Hawaii and 6 in Puerto Rico are Council approved. A further analysis of the hospitals approved discloses that 209 are affiliated with medical schools as a major or minor teaching unit, while 598 have organized their programs independently. For purposes of this list, a hospital has been designated as a teaching hospital if its inpatient services are used by junior or senior medical students for clinical clerkships.

These 807 approved hospitals offer a total of 9,124 internships. Of this number 500 internships are offered by the federal services, with the Navy listing 189, the Army 157, the Public Health Service 124, and the other Federal Security Agency hospitals 30. These figures are based on information as of Sept. 1, 1948. While teaching hospitals constituted 25.5 per cent of the total number of hospitals approved, they offered 47.4 per cent of the internships available, or 4,325 of the total number of 9,124 listed.

Three states, New York, Illinois and California, led the rest with 1,537, 676 and 620 internships offered, respectively. Outside the United States, 16 positions were available in the Canal Zone, 46 in Hawaii and 35 in Puerto Rico. Information about the number of positions offered in the one approved hospital in Guam was not available.

INTERNSHIP VACANCIES

The number of hospitals approved for intern training has increased by 10.0 per cent during the past ten years, while the number of internships offered has risen by 16.4 per cent during the same period. The number of medical school graduates meanwhile has not increased proportionately, with the result that approximately 20 per cent of internships offered have remained vacant. The changes in the relations of the number of internships offered to the number of physicians available are presented in table 1.

The teaching hospitals, with 4,325 positions available, reported that 365 of these were not filled as of Sept. 1, 1948, or 8.4 per cent of the total number offered. The nonteaching group, on the other hand, reported 1,446 position vacancies, representing 30.1 per cent of the internships offered. The vacancy percentage for both categories was 19.7 per cent; this compared with 20.5

per cent vacancies reported the previous year. The federal hospitals showed a low vacancy rate with only 21 internships of a total of 500 reported vacant.

While a detailed review of internship vacancies has not been attempted this year, it is evident that there has been little change in the distribution of intern appointments during the past reporting period. The number of vacancies reported in teaching hospitals increased from 348 to 365; those in nonteaching hospitals increased from 1,433 vacancies to 1,446. The apparent inconsistency in the increased number of vacancies and the decreased vacancy percentage reported for 1949 is due to the smaller number of hospitals which furnished data on which the 1948 report was based.

If the number of vacancies, 1,811, reported by approved hospitals during the past year, is deducted from the number of internships offered, 9,124, the difference, 7,313, should represent the number of interns actually assigned. In fact, the 807 approved hospitals reported 7,068 interns on duty as of Sept. 1,

TABLE 1.—Approved Hospitals, Internships and Medical School Graduates, 1939-1949

Year*	Number of Hospitals	Number of Internships	Number of Graduates
1939.....	734	7,833	5,089
1940.....	732	7,098	5,097
1941.....	735	8,182	5,275
1942.....	740	8,353	5,163
1943.....	760	8,180	5,243
1944†.....	766	5,692	10,303‡
1945.....	785	8,420	5,136 (to June 30)
1946.....	798	8,584	5,826 (to May 31)
1947.....	761	8,539	6,389 (to June 30)
1948.....	807	9,118	5,543 (to June 30)
1949.....	807	9,124	5,157 (Estimated)

* Year of publication.

† Quota year.

‡ Includes 2 classes.

(U. S. Army, U. S. Navy hospitals and those outside the United States not included in 1938-1947 figures.)

1948. The discrepancy between these two figures is due in part to incomplete data furnished by a number of hospitals. A further analysis of internship vacancies, listing the number of hospitals approved, number of internships offered, number of vacancies reported and the percentage of vacancies by states is presented in table 2.

LENGTH OF INTERNSHIP

A significant factor contributing to the increasing shortage of interns in approved hospitals is the decrease in the number of eighteen month and two year internships, with a consequent increase in the annual demand for interns by hospitals which formerly offered appointments only on alternate years. The uncertain situation relative to military service by physicians who have completed a year of intern training may have resulted in fewer hospitals' reorganizing their training programs on a two year basis. Of the total number of hospitals approved, 184 teaching and 547 nonteaching hospitals offered training of one year's duration. Less than 10 per cent of the 807 hospitals approved have in effect programs of more than twelve months' duration, with 33 teaching hospitals and 38 nonteaching offering an

internship in excess of one year. Five hospitals reported varying lengths of training, apparently dependent on the requirements of the interns appointed.

Since the number of interns reported serving in approved hospitals exceeded the number of 1948 graduates by 1,525, it is evident that a significant number of interns are accepting appointments for a second year of training. While graduates of foreign medical schools

TABLE 2.—Internships Offered and Number of Vacancies by States (1948-1949)

State	Number of Hospitals Approved	Number of Internships Offered	Number of Vacancies Reported	Percentage of Vacancies
Alabama.....	5	53	7	12.0
Arizona.....	5	23	5	21.7
Arkansas.....	2	36	10	27.7
California.....	60	719	50	6.9
Colorado.....	11	95	11	11.5
Connecticut.....	18	197	37	18.8
Delaware.....	2	23	5	21.7
Dist. of Columbia.....	11	191	26	13.6
Florida.....	8	69	22	37.3
Georgia.....	8	114	20	17.5
Idaho.....	0	0	0	....
Illinois.....	61	696	129	18.5
Indiana.....	17	175	61	36.0
Iowa.....	10	72	34	47.2
Kansas.....	7	55	31	66.4
Kentucky.....	9	67	45	61.7
Louisiana.....	12	238	61	26.7
Maine.....	1	24	2	8.3
Maryland.....	21	306	40	13.0
Massachusetts.....	39	419	53	12.6
Michigan.....	31	368	77	20.9
Minnesota.....	15	181	19	10.5
Mississippi.....	2	16	12	75.0
Missouri.....	24	299	50	16.7
Montana.....	1	6	0	....
Nebraska.....	9	51	20	39.2
Nevada.....	0	0	0	....
New Hampshire.....	1	9	0	....
New Jersey.....	40	324	61	18.8
New Mexico.....	0	0	0	....
New York.....	107	1,590	163	10.2
North Carolina.....	10	124	23	18.5
North Dakota.....	4	11	5	45.5
Ohio.....	44	478	128	26.7
Oklahoma.....	5	48	13	27.1
Oregon.....	6	69	12	17.4
Pennsylvania.....	75	803	168	20.9
Rhode Island.....	5	32	6	18.7
South Carolina.....	6	61	12	19.7
South Dakota.....	3	21	9	42.9
Tennessee.....	13	157	47	29.9
Texas.....	22	241	112	46.4
Utah.....	6	50	11	22.0
Vermont.....	2	13	1	7.7
Virginia.....	15	138	50	36.2
Washington.....	17	134	27	20.1
West Virginia.....	8	43	13	30.2
Wisconsin.....	23	180	69	38.3
Wyoming.....	0	0	0	....
	793*	9,027*	1,770*	19.7*

*Excludes 12 territorial approved hospitals.

are included in the total number serving, it is estimated that they do not number more than 300 annually. It can be estimated that if one third of the internships presently listed as one year programs could be reorganized on a two year basis, the number of physicians required to fill all approved positions would be approximately equal to the number of interns presently available.

TYPE OF INTERNSHIP

The Council approves three types of internships; rotating, which provide supervised experience in the major clinical divisions, internal medicine, surgery, obstetrics and pediatrics, together with training in anesthesia, pathology and roentgenology; mixed, which provide supervised experience in two or more, but not all of the clinical divisions; and straight, which provide supervised experience in but a single major division, including limited training in one or more of its related subspecialties. The present revision of the Essentials of an Approved Internship contains the statement that the Council considers that the rotating type of internship is most likely to provide the best basic training for either the future general practitioner or the specialist.

Of the 807 conducting approved intern programs, 676 or 83.7 per cent offer rotating internships; 37 hospitals, or 4.6 per cent, provide training in a single department, and 21 hospitals, or 2.6 per cent, offer

Numbers of THE JOURNAL. Beginning this year, a list of twenty federal and twenty nonfederal hospitals reporting the highest autopsy percentages will be given recognition in a separate table. The hospitals so recognized for 1949 are found in table 3. In the nonfederal group, all these hospitals maintained a necropsy rate of 75 per cent or better for the reporting period. In the federal group, two hospitals maintained a 100 per cent rate for the entire year; four hospitals listed in this group, however, fell below the 75 per cent minimum established by the nonfederal hospitals.

STIPENDS

Of those hospitals which offered stipends in addition to maintenance, the salaries ranged from \$9 to \$205 per month in teaching hospitals and from \$8.33 to \$250 per month in the nonteaching group for the past year.

Excluding federal hospitals from consideration, 104 approved hospitals (13 per cent) paid no salary to the intern staff, with 62 teaching hospitals and 42 non-

TABLE 3.—Internship Hospitals with Highest Autopsy Rates

FEDERAL		NONFEDERAL			
1.	U. S. Naval Hospital, Charleston, S. C.....	100.0	1.	University of Nebraska Hospital, Omaha.....	94.4
2.	U. S. Naval Hospital, Bremerton, Wash.....	100.0	2.	Research and Educational Hospital, Chicago.....	88.0
3.	Letterman General Hospital, San Francisco.....	92.7	3.	Northern Permanente Hospital, Vancouver, Wash.....	88.0
4.	Madigan General Hospital, Ft. Lewis, Wash.....	90.7	4.	Evanston Hospital, Evanston, Ill.....	87.7
5.	Walter Reed General Hospital, Washington, D. C.....	90.2	5.	Childrens Hospital, Los Angeles.....	87.5
6.	Fitzsimons General Hospital, Denver.....	87.5	6.	Beverly Hospital, Beverly, Mass.....	86.1
7.	Oliver General Hospital, Augusta, Ga.....	85.7	7.	City Hospital, Cleveland.....	86.1
8.	Brooke General Hospital, San Antonio, Texas.....	84.4	8.	Ohio State University Hospital, Columbus, Ohio.....	84.4
9.	U. S. Naval Hospital, Great Lakes, Ill.....	81.3	9.	Mary Hitchcock Memorial Hospital, Hanover, N. H.....	84.0
10.	Tripler General Hospital, Moanalua (Honolulu), T. H.....	80.0	10.	George F. Geisinger Hospital, Danville, Pa.....	82.6
11.	U. S. Naval Hospital, Bethesda, Md.....	76.3	11.	Hospital of University of Pa., Philadelphia.....	81.3
12.	U. S. Marine Hospital, Galveston, Texas.....	76.0	12.	Barnes Hospital, St. Louis.....	80.4
13.	U. S. Marine Hospital, San Francisco.....	75.7	13.	Massachusetts Memorial Hospital, Boston.....	79.8
14.	U. S. Naval Hospital, Mare Island, Calif.....	75.5	14.	Colorado General Hospital, Denver.....	79.6
15.	U. S. Naval Hospital, San Diego, Calif.....	75.4	15.	Childrens Hospital, Boston.....	79.2
16.	U. S. Marine Hospital, Seattle.....	75.1	16.	Ravenswood Hospital, Chicago.....	78.9
17.	U. S. Marine Hospital, Chicago.....	73.6	17.	Loretto Hospital, Chicago.....	78.5
18.	U. S. Naval Hospital, Portsmouth, Va.....	73.5	18.	University of Minnesota Hospitals, Minneapolis.....	75.5
19.	U. S. Marine Hospital, New Orleans.....	67.5	19.	St. Barnabas Hospital, Minneapolis.....	75.1
20.	U. S. Marine Hospital, Boston.....	65.4	20.	Mount Sinai Hospital, Philadelphia.....	75.0

the mixed type of training. The remaining 73 hospitals, comprising 9.1 per cent of the total number approved, offer a combination of the several types of internship. Straight internship services are limited almost without exception to hospitals affiliated with medical schools. In these instances, the participation by the intern in the general educational activities of the medical school compensates, in a measure, for the more limited experience provided during his training period.

AUTOPSY RATE

The autopsy requirement has been raised to 20 per cent in the new Essentials of an Approved Internship. Of the 807 hospitals presently approved, 761 reported rates in excess of this requirement. The remaining 46 hospitals, which reported rates of 15 to 19 per cent, meeting the previous minimum standard, will be expected to increase the number of necropsies performed to the present required rate. Reevaluation of the hospital's approved status is indicated when it fails to meet the minimum standard for two consecutive years.

In previous years, nonfederal hospitals which reported an autopsy rate of 70 per cent or more were included in a special list in Hospital or Educational

teaching hospitals reporting that they offered maintenance only; 93 teaching hospitals and 232 nonteaching (40 per cent) paid \$50 or less; 21 teaching and 249 nonteaching hospitals (33 per cent) offered amounts from \$51 to \$100 per month, while the remaining 71 (9 per cent) paid amounts in excess of \$100. The 37 government hospitals (5 per cent) stipulated salaries based on government pay scales.

In the teaching group, 87 per cent (155 hospitals) offered stipends of \$50 per month or less. Of the nonteaching hospitals, 316, or 54 per cent, paid salaries in excess of \$50 monthly. There was an appreciable increase in the number of hospitals paying salaries of more than \$100 during the past year, with 51 hospitals so listed in 1948 and 71 hospitals, including 3 teaching, in this category for 1949.

APPROVED RESIDENCY PROGRAMS

Since the publication of the 1948 Internship and Residency Number, two additional certifying boards have been approved by the Council on Medical Education and Hospitals and the Advisory Board for Medical Specialties, namely, the American Board of Proctology, and the American Board of Preventive Medicine and Public Health. The Council now lists approved res-

idencies in eighteen specialties and seven subspecialties, in concurrence with the certifying boards concerned. These specialties include anesthesiology, dermatology and syphilology, internal medicine, neurological surgery, neurology, obstetrics and gynecology, ophthalmology, otolaryngology, orthopedic surgery, pathology, pediatrics, physical medicine, plastic surgery, proctology, psychiatry, radiology, surgery and urology; subspecialties include allergy, cardiovascular diseases, contagious diseases, gastroenterology, malignant diseases, pulmonary diseases and thoracic surgery. Programs listed by the Council as approved are accepted by the respective certifying boards in evaluating a candidate's eligibility for Board examination. In ten of the specialties including dermatology and syphilology, neurological surgery, neurology, obstetrics and gynecology, orthopedic surgery, pathology, pediatrics, psychiatry,

ing, desiring continued approval under the new classification, will be expected to reorganize their programs in conformity with the essentials of an approved residency in general practice.

The approval of hospitals for residency training on a temporary basis, pending inspection, has been discontinued by joint action of the Council and the Advisory Board of Medical Specialties. Hospitals listed as approved on this basis are being inspected as rapidly as possible. Residents under contract in a hospital approved on a temporary basis will not be affected in the event approval is terminated following inspection but will be considered as having served an acceptable residency. Full approval following inspection will be extended to those hospitals which meet the requirements in the specialty contained in the Essentials of Approved Residencies and Fellowships.

NUMBER OF RESIDENCIES

Facilities for residency training in the specialties continue to expand. With few exceptions, the number of hospitals approved for residency training has increased during the past year. Hospitals approved in anesthesiology showed the most marked increase with a 40 per cent rise in the number of hospitals training residents in this specialty. Hospitals conducting residency programs in pathology rose from 328 in 1948 to 404 this year, an increase of 23 per cent. While the number of approved hospitals increased, the number of residencies offered decreased in some instances. Residencies offered in psychiatry were slightly below last year's figure, with 1,618 available in 1948 and 1,595 in 1949, although the number of hospitals approved in this specialty increased from 227 to 253 during the same period. The number of residencies offered in general surgery, 3,543, continued to exceed those in any other specialty. Residencies in internal medicine now number 3,313, an increase of 15 per cent over last year. The total number of residencies offered in all categories increased from 15,172 in 1948 to 17,293 in 1949.

The number of approved hospitals rose from 1,102 in 1948 to 1,187 in 1949, an increase of slightly over 7 per cent. The number of residencies offered, however, increased by 2,121 positions, or a rise of 14 per cent. The average number of positions offered per approved hospital rose from 13.7 to 14.6 residencies. This increase, though slight when considering the individual hospital, is significant when considered in the aggregate. A comparison of the number of hospitals approved for residency training in each specialty and the number of residencies offered in these hospitals for the years 1948 and 1949 is found in table 4.

RESIDENCY PROGRAMS IN FEDERAL HOSPITALS

In addition to their residency programs in civilian hospitals, the Army and Navy conduct training in the specialties in 6 Army hospitals and 9 Navy hospitals, respectively. Residency training is also provided at 12 U. S. P. H. S. hospitals. Including those available in the Veterans Administration, the federal services currently offer 3,322 residencies in all specialty fields, which represent approximately 19 per cent of the total number available. Two of the federal services have also organized residency programs in general practice which are specifically designed to meet the needs of those officers whose duty assignments will include broad responsibilities in the field of general medicine.

TABLE 4.—Approved Residencies and Fellowships—1949

Specialty	Number of Hospitals	Residencies Offered	Residencies in 1948
Allergy	12	30	17
Anesthesiology	214	650	187
Cardiovascular Disease.....	22	66	55
Contagious Diseases.....	19	77	76
Dermatology and Syphilology.....	79	249	219
Gastroenterology	3	3	3
General Residency.....	86	216	269
Internal Medicine.....	504	3,313	2,880
Malignant Diseases.....	22	110	107
Neurological Surgery.....	70	183	138
Neurology	68	170	200
Obstetrics and Gynecology.....	357	1,355	1,145
Occupational Medicine.....	...	...	...
Ophthalmology and Otolaryngology	180	820	734
Orthopedic Surgery.....	237	787	718
Pathology	404	1,017	791
Pediatrics	211	959	791
Physical Medicine.....	39	65	70
Plastic Surgery.....	18	38	47
Proctology	12	23	28
Psychiatry	253	1,595	1,618
Pulmonary Diseases.....	128	445	418
Radiology	359	897	833
Surgery	562	3,543	2,977
Thoracic Surgery.....	42	165	107
Urology	204	468	407
Totals.....	4,124*	17,293	15,172

* Number of residency programs in 1,187 hospitals approved for residency training.

radiology and urology, programs are listed as approved for a specific number of years of training. In the specialties not listed in this manner, the programs currently are being reappraised to determine whether approval will be continued and, if so, the number of years of training for which approval will be granted. It is anticipated that this information will be made available with the publication of the 1950 Internship and Residency Number.

For the last time this year, hospitals are being listed as approved for "general" or "mixed" residency training. This category is being discontinued with the publication of the 1949 list. In its place, the Council has outlined requirements for a residency in general practice. It should be noted, that hospitals requesting approval under this classification, are expected to meet the same general requirements as do those approved for residency training in the specialties. Hospitals currently listed as approved for general residency train-

APPROVED INTERNSHIPS

Council on Medical Education and Hospitals of the American Medical Association

535 North Dearborn Street, Chicago 10

Revised to May 1, 1949

HOSPITALS, 807 INTERNSHIPS, 9,124

The following general hospitals, investigated and approved by the Council on Medical Education and Hospitals, are considered in position to furnish acceptable intern training in accordance with standards adopted by the American Medical Association. Three types of internships are approved by the Council—rotating, mixed and straight:

- 1. A rotating internship is defined as one which provides supervised experience in internal medicine, surgery, pediatrics, obstetrics and their related subspecialties, together with experience in laboratory and radiologic diagnosis.
- 2. A mixed internship is defined as one which provides supervised experience in two or more, but not in all, of the clinical divisions named.
- 3. A straight internship is defined as one which provides supervised experience in a single department, although it may include limited opportunity for work in a related subspecialty. Straight internships are now approved in internal medicine, surgery, pediatrics, obstetrics (with or without gynecology) and pathology.

Hospitals approved for internships that are used by medical schools for undergraduate clinical clerkships on inpatient services have been identified in the following lists by the symbols X and x. Hospitals have been identified with symbol X when a medical school has indicated that the hospital is a major unit in the school's teaching program. Hospitals have been identified with the symbol x when a medical school has indicated that the hospital is used to a limited extent in the school's teaching program. Certain internships in hospitals designated as teaching hospitals may not provide for assignments to teaching services. Other internships may provide for only a portion of the internship period being spent on teaching services. Prospective interns desiring specific information concerning internship assignments to teaching services in a hospital are advised to communicate with the dean of the medical school with which the hospital is affiliated. Medical school affiliations are indicated by footnotes 10 to 80 placed immediately after the symbol X or x. The list of medical schools appears on page 171.

The plus (+) sign indicates additional approval for residencies in specialties, as shown in the Council's list of Approved Residencies and Fellowships for Veteran and Civilian Physicians. The hospitals approved for intern training are likewise accredited for general residencies which represent general house staff assignments following the internship. This category will be discontinued effective July 1, 1950. In the interim, hospitals approved for general residency training will be reappraised on the basis of the recently adopted requirements for residency training in general practice.

Name of Hospital	Location	Bed Capacity	Total Patients Admitted	Type of Internships	Length of Service in Months	Internship Offered	Affiliated Service	Outpatient Service	Autopsy Percentage
UNITED STATES ARMY									
Letterman General Hospital ⁺³	San Francisco, Calif.....	2,185	10,628	R	12	24	No	Req	93
Fitzsimons General Hospital ⁺³ x16.....	Denver, Colo.....	2,685	15,510	R	12	24	No	Req	88
Walter Reed General Hospital ⁺³ x18-19.....	Washington, D. C.....	2,100	10,478	R	12	36	No	Req	90
Oliver General Hospital ⁺³ x22.....	Augusta, Ga.....	1,500	8,250	R	12	24	No	Req	86
Brooke General Hospital ⁺³	San Antonio, Tex.....	1,900	29,218	R	12	25	No	None	84
Madigan General Hospital ⁺³	Ft. Lewis, Wash.....	1,300	10,873	R	12	..	No	Req	91
Gorgas Hospital ⁺³	Ancon, Canal Zone.....	See Gorgas Hospital, Ancon, Canal Zone, page 170							
Tripler General Hospital ⁺³	Moanalua (Honolulu), Hawaii	1,449	8,942	R	12	24	No	Req	80
UNITED STATES NAVY									
U. S. Naval Hospital ⁺³	Long Beach, Calif.....	1,350	21,186	R	12	21	No	Req	65
U. S. Naval Hospital.....	Mare Island, Calif.....	650	5,740	R	12	4	..	..	76
U. S. Naval Hospital ⁺³	Oakland, Calif.....	1,750	17,320	R	12	19	No	Req	61
U. S. Naval Hospital ⁺³	San Diego.....	1,670	21,354	R	12	19	No	Req	75
U. S. Naval Hospital ⁺³	Jacksonville, Fla.....	500	5,283	R	12	2	No	Req	49
U. S. Naval Hospital ⁺³	Pensacola, Fla.....	350	4,120	R	12	4	No	Req	63
U. S. Naval Hospital ⁺³	Great Lakes, Ill.....	1,100	9,039	R	12	12	No	Req	81
U. S. Naval Hospital ⁺³ x18.....	Bethesda, Md.....	1,350	15,573	R	12	25	No	None	70
U. S. Naval Hospital ⁺³	Chelsea, Mass.....	725	6,550	R	12	12	No	None	65
U. S. Naval Hospital ⁺³	St. Albans, N. Y.....	1,500	7,238	R	12	22	No	Req	75
U. S. Naval Hospital ⁺³	Philadelphia, Penn.....	1,200	16,335	R	12	26	No	Req	41
U. S. Naval Hospital ⁺³	Newport, R. I.....	720	27,570	R	12	4	No	Req	50
U. S. Naval Hospital.....	Charleston, S. C.....	633	4,920	R	12	5	No	....	100
U. S. Naval Hospital ⁺³	Portsmouth, Va.....	1,100	12,220	R	12	8	No	None	74
U. S. Naval Hospital.....	Bremerton, Wash.....	530	5,983	R	12	6	No	Req	100
U. S. Naval Hospital.....	Agana, Guam.....	450	4,970	R	12	..	No	None	..
UNITED STATES PUBLIC HEALTH SERVICE									
U. S. Marine Hospital ⁺³	San Francisco, Calif.....	548	5,661	R	12	12	(113)	Req	75
U. S. Marine Hospital ⁺³	Chicago, Ill.....	306	2,790	R	12	8	(196)	Req	74
U. S. Marine Hospital ⁺³	New Orleans, La.....	553	6,724	R	12	12	No	Req	03
U. S. Marine Hospital ⁺³	Baltimore, Md.....	500	8,474	R	12	12	(137)	Req	81
U. S. Marine Hospital ⁺³	Boston, Mass.....	372	3,708	M	12	9	No	Req	66
U. S. Marine Hospital ⁺³	Detroit, Mich.....	267	2,651	R	12	6	(149)	Req	52
U. S. Marine Hospital ⁺³	Stapleton, S. I., N. Y.....	1,033	12,692	R	12	31	(194)	Req	63
U. S. Marine Hospital ⁺³	Cleveland, Ohio.....	287	2,943	R	12	6	(195)	Req	48
U. S. Marine Hospital x72.....	Galveston, Texas.....	202	3,301	R	12	6	(179)	Req	76
U. S. Marine Hospital ³	Norfolk, Va.....	419	5,638	R	12	10	(184)	Req	51
U. S. Marine Hospital ⁺³	Seattle, Wash.....	400	5,536	R	12	12	No	Req	75
FEDERAL SECURITY AGENCY									
Freemden's Hospital ⁺³ x20.....	Washington, D. C.....	502	6,550	R	12	18	No	Req	34
St. Elizabeth's Hospital ⁺³ x18-19.....	Washington, D. C.....	6,400	1,406	R	12-24	12	(121)	None	60

Abbreviations and other references will be found on pages 171 and 172.

Name of Hospital	Location	Control	Bed Capacity	Total Patients Admitted	% Service Cases	Type of Internship	Length of Service in Months	Internships Offered	Apprenticed Service	Outpatient Service	Autopsy Percentage	Stipend per Month
ALABAMA												
Carraway Methodist Hospital +1	Birmingham	Church	225	7,751	95	R	12-24	8	No	Req	30	\$75
Jefferson-Hillman Hospital +1-3 X10	Birmingham	State	566	21,818	55	R	12	32	No	Req	36	25
South Highlands Infirmary	Birmingham	Corp	116	5,553	15	M	12	2	No	Req	30	132
Employees' Hospital of the Tennessee Coal, Iron and Railroad Company +	Fairfield	NPAsn	285	8,675	100	R	12	8	No	Req	47	75
City Hospital +	Mobile	CyCo	300	7,416	80	R	12	8	No	None	42	50
ARIZONA												
Good Samaritan Hospital +	Phoenix	Church	222	10,104	...	R	12	4	No	None	50	100
St. Joseph's Hospital +	Phoenix	Church	190	8,330	10	R	12	6	No	None	49	40
St. Monica's Hospital and Health Center +1	Phoenix	Church	219	6,921	...	R	12	5	(104)	Req	40	75
St. Mary's Hospital and Sanitarium +1	Tucson	Church	231	6,981	...	R	12	3	(105)	Req	39	50
Tucson Medical Center +1	Tucson	NPAsn	192	5,001	...	R	12	5	(105)	Req	49	100
ARKANSAS												
Arkansas Baptist Hospital +1 X11	Little Rock	Church	271	10,132	...	R	12	12	(106)	Req	21	75
University Hospital +1 X11	Little Rock	State	200	4,392	100	R	12	21	(107)	None	50	50
CALIFORNIA												
Herrele Memorial Hospital +1	Berkeley	NPAsn	155	7,211	5	R-M	12	6	No	Req	60	35
San Joaquin General Hospital +1	French Camp	County	570	12,310	109	R	12	12	No	Req	67	125
General Hospital of Fresno County +1	Fresno	County	517	8,898	100	R	12	14	No	Req	31	150
Glendale Sanitarium and Hospital +1 X13	Glendale	Church	225	7,566	...	R	12	8	No	Req	31	140
Loma Linda Sanitarium and Hospital +1 X13	Loma Linda	Church	153	5,003	...	R	12	5	No	Req	60	104
Seaside Memorial Hospital +1	Long Beach	NPAsn	370	13,916	10	R	12	12	(103)	Req	21	50
California Hospital +1	Los Angeles	Church	317	14,418	61	R	12	13	(109)	Req	45	50
Cedars of Lebanon Hospital +1	Los Angeles	NPAsn	310	11,224	13	R	12	12	No	Req	38	60
Childrens Hospital +1 X14	Los Angeles	NPAsn	263	6,050	...	R	12	5	(105)	Req	68	40
Hospital of the Good Samaritan +1	Los Angeles	Church	406	12,219	15	R	12	20	(110)	Req	44	90
Los Angeles County Hospital +1-3 X13-14	Los Angeles	County	3,391	62,163	109	R	12-24	135	No	None	40	60
Presbyterian Hospital-Olmsted Memorial +1	Los Angeles	Church	300	11,039	...	R	12	9	(108)	Req	40	60
Queen of Angels Hospital +	Los Angeles	Church	502	17,625	...	R	12	14	No	Req	45	50
St. Vincent's Hospital +	Los Angeles	Church	238	17,536	100	M	12	8	(111)	Req	61	90
Santa Fe Coast Lines Hospital	Los Angeles	NPAsn	198	4,825	100	R	12	7	No	None	53	50
White Memorial Hospital +1 X13	Los Angeles	Church	207	9,174	48	R	12	17	No	Req	58	91
Highland-Alameda County Hospital +1-3	Oakland	County	455	11,433	100	R	12	26	(112)	...	51	...
Permanente Foundation Hospital +1	Oakland	NPAsn	315	11,572	...	R	12	7	No	None	61	75
Orange County General Hospital +1	Orange	County	370	3,424	109	R	12	11	No	Req	50	120
Collis P. and Howard Huntington Memorial Hospital +1	Pasadena	NPAsn	238	6,482	5	R	12	8	No	Req	65	117.50
St. Luke Hospital	Pasadena	Church	145	6,783	...	R	12	...	...	None	56	...
Riverside County Hospital +1-3	Riverside	County	320	3,624	100	R	12	8	No	Req	38	156
Sacramento County Hospital	Sacramento	County	375	9,828	...	R	12	9	No	Req	50	105
San Bernardino County Charity Hospital +1 X13	San Bernardino	County	313	4,922	109	R	12	10	No	Req	55	110
Mercy Hospital +1	San Diego	Church	325	13,316	...	R	12	6	No	None	29	65
San Diego County General Hospital +1	San Diego	County	1,187	8,751	99	R	12	17	No	Req	37	65
Children's Hospital +1 X12	San Francisco	NPAsn	250	7,792	17	R	12	8	No	Req	64	35
Franklin Hospital +1	San Francisco	NPAsn	250	7,707	10	R-S	12	10	No	None	41	35
French Hospital +1	San Francisco	NPAsn	225	6,074	...	R	12	7	No	Req	36	35
Mary's Help Hospital +1	San Francisco	Church	172	8,115	9	R	12	6	No	Req	51	50
Mount Zion Hospital +1-3	San Francisco	NPAsn	163	5,725	12	R	12	8	No	Req	71	25
St. Joseph's Hospital +1	San Francisco	Church	238	7,573	10	R	12	8	No	None	30	50
St. Luke's Hospital +1	San Francisco	Church	220	7,658	15	R	12	6	No	Req	39	40
St. Mary's Hospital +	San Francisco	NPAsn	371	11,153	...	R	12	13	No	Req	39	50
San Francisco Hospital +1-3 X12, X15	San Francisco	CyCo	1,366	20,762	100	R	12	52	(170)	Req	21	35
Stanford University Hospitals +1 X15	Stanford	NPAsn	358	11,698	43	S	12	15	No	Req	67	25
University of California Hospital +1 X12	San Francisco	State	256	7,891	57	S	12	23	(114)	Req	74	25
Santa Clara County Hospital +1	San Jose	County	435	5,800	100	R	12	11	No	Req	46	75
St. Francis Hospital	Santa Barbara	Church	91	3,506	...	R	12	3	No	None	28	100
Santa Barbara Cottage Hospital +1	Santa Barbara	NPAsn	210	6,584	...	R	12	10	(115)	Req	68	50
Santa Barbara General Hospital +1	Santa Barbara	County	264	1,708	100	S	12	3	(116)	Req	67	50
St. John's Hospital +1	Santa Monica	Church	108	5,934	...	R	12	4	No	None	35	50
Santa Monica Hospital +1	Santa Monica	Church	178	9,244	...	R	12	10	(171)	Req	52	60
Harbor General Hospital +1	Torrance	County	577	6,743	100	R	24	24	(108)	Req	50	60
COLORADO												
Glockner-Penrose Hospital +	Colorado Springs	Church	198	3,897	...	R	12	...	...	None	26	...
Mercy Hospital +	Denver	Church	266	15,303	4	R	12	8	No	Req	46	50
Porter Sanitarium and Hospital +1	Denver	Church	130	6,430	10	R	12	6	(117)	Req	48	76
Presbyterian Hospital +1 X16	Denver	Church	160	7,339	...	R	12	5	(172)	Req	69	32.50
St. Anthony Hospital +1	Denver	Church	220	9,351	4	R	12	3	No	Req	37	50
St. Joseph's Hospital +1	Denver	Church	270	10,817	...	R	12	4	No	Req	35	50
St. Luke's Hospital +	Denver	Church	271	11,144	10	R	12	8	(118)	Req	43	30
University of Colorado Medical Center	Denver	State	270	4,913	100	R	12	15	No	Req	80	30
Denver General Hospital +1 X16	Denver	CyCo	550	10,585	100	R	12	10	No	Req	...	30
Corwin Hospital +1	Pueblo	NPAsn	206	6,176	100	R	12	6	No	Req	53	60
CONNECTICUT												
Bridgeport Hospital +1	Bridgeport	NPAsn	409	12,025	14	R	12	12	No	None	44	50
St. Vincent's Hospital +1	Bridgeport	Church	315	11,387	10	R	12	14	No	Req	29	100
Danbury Hospital	Danbury	NPAsn	180	5,306	33	R	12	4	No	None	54	100
Hartford Hospital +1-3	Hartford	NPAsn	664	25,110	26	R-M	24	26	No	Req	60	20
J. J. McCook Memorial Hospital +1	Hartford	City	281	4,158	100	R	12	6	No	Req	38	90
St. Francis Hospital +1-3	Hartford	Church	550	18,024	23	R	12	20	No	Req	32	35
Meriden Hospital +1	Meriden	NPAsn	146	5,377	9	R-S	12	5	(119)	Req	40	100
Middlesex Hospital +1	Middletown	NPAsn	150	4,895	19	R	24	6	(120)	None	44	100
New Britain General Hospital +1	New Britain	NPAsn	257	7,377	16	R	12	6	No	None	49	50
Grace-New Haven Community Hospital	New Haven	NPAsn	230	6,632	34	R	12	6	No	Req	41	25
Grace Unit +1	New Haven	NPAsn	534	11,336	51	S	12-18	35	No	Req	58	...
New Haven Unit (University Service) +1-3 X17	New Haven	Church	370	11,838	...	M	24	20	No	Req	25	30
Hospital of St. Raphael +	New London	NPAsn	218	6,910	35	R	12	4	No	None	27	105
Lawrence and Memorial Assoc. Hospitals +1	Stamford	NPAsn	337	7,962	7	R	12	6	No	Req	39	117.50
Norwalk Hospital +	Stamford	NPAsn	217	7,199	11	R	12	9	No	Req	62	100
Stamford Hospital +1	Waterbury	Church	324	9,873	...	R	12	6	No	Req	33	75
St. Mary's Hospital +1	Waterbury	Church	324	9,873	...	R	12	6	No	Req	50	75
Waterbury Hospital +1-3	Waterbury	NPAsn	316	12,773	15	R	12	9	No	Req	50	75

Name of Hospital	Location	Control	Bed Capacity	Total Patients Admitted	% Service Cases	Type of Internship	Length of Service in Months	Internships Offered	Affiliated Service	Outpatient Service	Autopsy Percentage	Stipend per Month
DELAWARE												
Delaware Hospital ⁺¹⁻³	Wilmington.....	NPAssn	376	9,839	18	R	12	14	No	Req	54	73
Memorial Hospital ⁺¹ X61	Wilmington.....	NPAssn	210	6,552	...	R	12	9	No	Req	63	100
DISTRICT OF COLUMBIA												
Central Dispensary and Emergency Hospital ⁺¹⁻³ x19...	Washington.....	NPAssn	310	7,574	30	R	12	14	(121)	Req	52	25
Doctors Hospital ⁺¹	Washington.....	Corp	240	8,839	6	R	12	8	No	None	65	50
Gallinger Municipal Hospital ⁺¹⁻³ X18-19, x20...	Washington.....	City	1,416	22,566	...	S	12	44	No	Req	49	75
Garfield Memorial Hospital ⁺¹ x19...	Washington.....	NPAssn	323	10,251	20	R	12	13	No	Req	59	15
Georgetown University Hospital ⁺¹ X18...	Washington.....	Church	328	8,274	17	S	12	10	No	Req	47	25
George Washington University Hospital ⁺¹ X19...	Washington.....	NPAssn	400	3,941	6	S	12	17	No	....	66	25
Providence Hospital ⁺¹ x18...	Washington.....	Church	340	11,331	13	R	12	10	No	Req	70	50
Sibley Memorial Hospital ⁺¹	Washington.....	Church	265	11,881	...	R	12	9	No	Req	74	50
FLORIDA												
Duval Medical Center ⁺	Jacksonville.....	County	225	4,762	100	R	12	8	No	Req	57	30
St. Luke's Hospital ⁺	Jacksonville.....	NPAssn	180	7,597	5	R	12	5	No	None	24	65
St. Vincent's Hospital ⁺	Jacksonville.....	Church	228	9,605	...	R	12	5	No	Req	50	50
Jackson Memorial Hospital ⁺¹⁻³	Miami.....	County	533	17,904	31	R	12	24	No	Req	46	34.50
Orange Memorial Hospital ¹	Orlando.....	NPAssn	212	7,411	8	R	12	6	No	None	22	100
Tampa Municipal Hospital	Tampa.....	City	295	12,026	25	R	12	5	No	Req	22	75
GEORGIA												
Crawford W. Long Memorial Hospital ⁺¹	Atlanta.....	NPAssn	349	17,129	...	R	12	16	(122)	Req	46	50
Georgia Baptist Hospital ⁺¹	Atlanta.....	Church	194	7,009	13	R	12	7	No	Req	30	35
Grady Memorial Hospital ⁺¹⁻³ X21	Atlanta.....	Counties	610	17,490	100	S	12	30	No	Req	58	10
Piedmont Hospital ⁺¹ x21	Atlanta.....	NPAssn	132	5,572	...	R	12	6	No	None	50	35
St. Joseph's Infirmary ⁺	Atlanta.....	Church	139	6,675	11	R	12	3	No	Req	32	50
University Hospital ⁺¹ X22	Augusta.....	City	509	15,311	25	R	12	18	No	Req	17	20
Emory University Hospital ⁺¹ X21	Emory University.	NPAssn	277	9,555	12	S	12	10	(123)	Req	60	25
ILLINOIS												
MacNeal Memorial Hospital ¹	Berwyn.....	NPAssn	165	7,735	8	M	12	10	No	Req	47	75
Burnham City Hospital ¹	Champaign.....	City	115	5,304	...	R	12	4	No	Req	24	Varies
Alexian Brothers Hospital ⁺¹	Chicago.....	Church	275	4,823	...	R	12	7	(197)	None	52	50
American Hospital ⁺¹	Chicago.....	NPAssn	175	7,637	18	R	12	4	No	Req	41	25
Augustana Hospital ⁺	Chicago.....	Church	275	8,074	5	R	12	10	No	Req	57	25
Belmont Community Hospital	Chicago.....	NPAssn	110	4,355	...	R	12	4	No	None	21	100
Chicago Memorial Hospital ⁺¹	Chicago.....	NPAssn	92	3,018	100	R	12	5	No	Req	66	150
Columbus Hospital	Chicago.....	Church	132	6,635	15	R	12	6	(123)	None	61	100
Cook County Hospital ⁺¹⁻³ X23-24, X26, X80...	Chicago.....	County	3,200	80,562	100	..	24	116	No	Req	26	15
Edgewater Hospital ⁺	Chicago.....	NPAssn	138	5,180	...	R	12	8	No	None	42	100
Englewood Hospital ⁺	Chicago.....	NPAssn	157	6,459	...	R	12	6	No	None	27	100
Evangelical Hospital ¹	Chicago.....	Church	195	7,933	...	R	12	7	No	None	14	150
Garfield Park Community Hospital	Chicago.....	NPAssn	150	5,782	...	R	12	6	No	None	39	100
Grant Hospital ⁺¹ X24	Chicago.....	NPAssn	236	7,698	...	R	12	9	No	Req	58	50
Henrotin Hospital ⁺¹	Chicago.....	NPAssn	100	3,260	...	R	12	4	No	Req	42	75
Holy Cross Hospital	Chicago.....	Church	125	6,363	...	R	12	2	No	None	31	100
Hospital of St. Anthony de Padua ⁺¹	Chicago.....	Church	217	7,560	...	R	12	9	No	None	33	100
Illinois Central Hospital ⁺¹	Chicago.....	NPAssn	262	6,072	45	R	12	9	No	Req	34	110
Illinois Masonic Hospital ⁺¹	Chicago.....	NPAssn	225	7,378	...	R	12	6	No	Req	60	25
Jackson Park Hospital ¹	Chicago.....	Corp	135	4,778	...	R	12	6	No	None	34	150
Loyola University Hospital Group												
Loretto Hospital ⁺¹ X80	Chicago.....	Church	137	5,131	...	R	12	6	No	None	79	100
University Hospital ¹ X80	Chicago.....	...	...	...	...	..	..	..	...	...	...	...
Lutheran Deaconess Home and Hospital ⁺¹	Chicago.....	Church	193	8,508	12	R	12	4	No	None	39	75
Mercy Hospital—Loyola University Clinics ⁺ X80	Chicago.....	Church	365	9,901	10	R	12	12	No	None	41	25
Michael Reese Hospital ⁺¹ X23, X24, X26	Chicago.....	NPAssn	573	16,267	18	R	12	36	(125)	Req	70	15
Mother Cabrini Memorial Hospital	Chicago.....	Church	150	4,574	31	R	12	5	No	None	30	100
Mount Sinai Hospital ⁺¹ X23	Chicago.....	NPAssn	253	9,005	14	R-S	12	15	(125)	Op	44	15
Norwegian-American Hospital ⁺¹	Chicago.....	NPAssn	161	6,072	...	R	12	6	No	None	39	100
Passavant Memorial Hospital ⁺¹ X24	Chicago.....	NPAssn	273	6,520	...	R	12	13	(126)	None	67	..
Presbyterian Hospital ⁺ X26	Chicago.....	NPAssn	435	12,374	10	R-S	12-24	34	No	None	65	..
Provident Hospital ⁺¹	Chicago.....	NPAssn	180	5,900	27	R	12	9	No	None	51	25
Ravenswood Hospital ⁺¹	Chicago.....	NPAssn	183	6,147	...	R-S	12	12	No	None	79	50
Research and Educational Hospitals ⁺¹⁻³ X26	Chicago.....	State	432	6,724	100	R-S	12-24	22	No	Req	88	..
Roseland Community Hospital	Chicago.....	NPAssn	101	3,747	...	R	..	4	No	None	30	175
St. Anne's Hospital ⁺¹ X80	Chicago.....	Church	320	10,973	...	R	12	10	No	None	32	100
St. Bernard's Hospital ⁺¹	Chicago.....	Church	189	6,652	...	..	12	5	No	None	52	100
St. Elizabeth's Hospital ⁺¹	Chicago.....	Church	275	9,942	7	R	12	8	No	None	37	100
St. Joseph Hospital ⁺¹ X24, X80	Chicago.....	Church	220	6,201	7	R	12	6	No	Req	69	50
St. Luke's Hospital ⁺¹ X24, X26	Chicago.....	NPAssn	547	15,533	12	R	12	40	No	Req	70	..
St. Mary of Nazareth Hospital ⁺ X80	Chicago.....	Church	263	9,816	100	R	12	8	No	None	43	100
South Chicago Community Hospital ¹	Chicago.....	NPAssn	150	6,475	...	R	12	5	No	None	29	150
Swedish Covenant Hospital ⁺¹	Chicago.....	Church	193	6,222	...	R	12	4	No	Req	28	75
University of Chicago Clinics ⁺¹⁻³ X25	Chicago.....	NPAssn	526	12,845	100	R-S	12	32	No	Req	..	..
Walther Memorial Hospital ¹	Chicago.....	Church	175	6,292	...	R	12	6	No	None	36	100
Wesley Memorial Hospital ⁺¹ X24	Chicago.....	Church	562	15,699	...	R	12	33	No	None	66	..
Women and Children's Hospital ⁺²	Chicago.....	NPAssn	115	3,530	13	R	12	4	No	Req	57	50
Woodlawn Hospital ⁺¹	Chicago.....	NPAssn	115	4,397	...	R	12	5	No	Req	69	100
St. Mary's Hospital	East St. Louis.	Church	265	6,720	...	R	12	5	No	None	16	150
Evanston Hospital ⁺ X24	Evanston.....	NPAssn	250	8,040	5	R	12	18	(199)	Req	88	..
St. Francis Hospital ⁺	Evergreen Park...	Church	359	11,285	...	R	12	15	No	None	43	50
Little Company of Mary Hospital ⁺ X80	Joliet.....	Church	200	10,205	...	R	12	4	No	None	25	100
St. Joseph's Hospital	Moline.....	Church	303	8,506	...	R	12	6	No	None	23	100
Moline Public Hospital ¹	Moline.....	Church	198	6,729	100	R	12	3	No	None	23	100
Oak Park Hospital	Oak Park.....	Church	312	5,217	...	R	12	5	No	None	32	75
West Suburban Hospital ⁺ X26	Oak Park.....	NPAssn	312	11,617	...	R	12	12	No	Req	49	50
Methodist Hospital of Central Illinois ⁺	Peoria.....	Church	200	7,191	...	M	12	8	No	None	38	75
St. Francis Hospital ⁺¹	Peoria.....	Church	500	14,582	10	R	12	12	No	Req	47	75
St. Mary's Hospital ¹	Quincy.....	Church	195	5,240	25	R	12	3	No	None	18	75
St. Anthony's Hospital ⁺¹	Rockford.....	Church	265	8,474	...	R	12	6	No	None	40	50
Memorial Hospital ¹	Springfield.....	NPAssn	253	6,306	...	R	12	6	No	None	26	50
INDIANA												
St. Catherine Hospital ¹	East Chicago.....	Church	264	8,358	...	R	12	4	No	None	26	100
Protestant Deaconess Hospital ¹	Evansville.....	Church	242	13,144	10	R	12	4	(127)	Req	25	75
Lutheran Hospital	Fort Wayne.....	Church	210	6,492	...	M	12	4	No	Req	21	75

Name of Hospital	Location	Control	Bed Capacity	Total Patients Admitted	% Service Cases	Type of Internship	Length of Service in Months	Internships Offered	Alumniated Service	Outpatient Service	Autopsy Percentage	Stipend per Month
INDIANA—Continued												
Methodist Hospital ¹	Gary.....	Church	269	8,449	...	R	12	8	No	None	29	100
St. Mary's Mercy Hospital ¹	Gary.....	Church	286	7,481	...	R	12	8	No	None	20	125
St. Margaret's Hospital ¹	Hammond.....	Church	260	10,322	...	R	12	8	No	None	20	150
Indianapolis General Hospital ¹⁻³ X27	Indianapolis.....	City	704	10,365	90	R	12	31	(128)	Req	47	70
Indiana University Medical Center ¹⁻³ X27	Indianapolis.....	State	581	9,847	85	R	12	35	(129)	Req	69	125.50
Methodist Hospital ¹	Indianapolis.....	Church	639	22,305	5	R	12	21	No	None	33	137.50
St. Vincent's Hospital ¹	Indianapolis.....	Church	229	12,741	5	R	12	10	No	Req	39	150
St. Elizabeth Hospital ¹	LaFayette.....	Church	309	8,042	5	R	12	10	(128)	None	39	100
St. Joseph Hospital ¹	Mishawaka.....	Church	160	3,745	...	R	12	3	No	None	27	..
Bail Memorial Hospital ¹	Muncie.....	NPAsen	217	8,751	100	R	12	8	No	None	66	50
Memorial Hospital ¹	South Bend.....	NPAsen	217	8,059	...	R	12	6	No	Req	46	100
St. Joseph Hospital ¹	South Bend.....	Church	181	7,096	4	R	12	12	No	Req	11	100
St. Anthony's Hospital ¹	Terre Haute.....	Church	185	5,962	...	R	12	9	No	None	17	..
Union Hospital ¹	Terre Haute.....	NPAsen	182	6,314	0	R	12	4	No	None	20	150
IOWA												
Mercy Hospital ¹	Cedar Rapids.....	Church	200	7,274	...	R	12	2	No	None	23	100
Jeannette Edmundson Memorial Hospital ¹	Council Bluffs.....	NPAsen	126	4,260	...	R-M	12	3	No	None	23	75
Mercury Hospital ¹ X43	Council Bluffs.....	NPAsen	153	4,382	...	R	12	4	No	None	14	75
Mercury Hospital ¹	Davenport.....	Church	259	8,512	...	R	12	6	(130)	Req	24	75
Broadway Polk County Hospital ¹	Des Moines.....	County	166	5,072	100	R	12	8	No	Req	31	75
Iowa Lutheran Hospital ¹	Des Moines.....	Church	145	5,293	...	R	12	3	(131)	Req	20	100
Iowa Methodist Hospital ¹	Des Moines.....	Church	312	11,570	...	R	12	12	No	None	71	75
Mercury Hospital ¹	Des Moines.....	Church	160	8,228	...	R	12-14	8	No	None	53	150
University Hospitals ¹⁻³ X28	Iowa City.....	State	881	20,255	100	R	12	20	No	Req	61	85
St. Joseph Mercy Hospital ¹	Sioux City.....	Church	250	9,291	...	R	12	6	No	Req	16	..
KANSAS												
Bethany Hospital ¹	Kansas City.....	Church	150	5,391	...	R	12	5	No	None	51	50
Providence Hospital ¹	Kansas City.....	Church	140	5,314	...	R	12	4	No	Req	43	50
St. Margaret's Hospital ¹	Kansas City.....	Church	231	5,231	...	R	12	6	No	None	50	75
University of Kansas Medical Center ¹ X29	Kansas City.....	State	355	8,524	...	R	12	12	No	None	60	25
St. Francis Hospital ¹	Wichita.....	Church	473	14,570	...	R	12	12	No	None	41	100
Wesley Hospital ¹	Wichita.....	Church	325	10,153	...	R	12	10	(132)	Req	40	75
Wichita Hospital ¹	Wichita.....	Church	140	2,552	...	R	12	6	(133)	Req	29	150
KENTUCKY												
St. Elizabeth Hospital ¹	Covington.....	Church	305	10,025	6	R	12	12	No	Req	26	75
Good Samaritan Hospital ¹	Lexington.....	Church	285	8,635	...	R	12	6	No	None	31	75
St. Joseph Hospital ¹	Lexington.....	Church	309	10,037	15	R	12	8	No	None	39	50
Kentucky Baptist Hospital ¹	Louisville.....	Church	245	10,892	5	R	12	8	No	None	32	35
Louisville General Hospital ¹ X30	Louisville.....	CyCo	389	8,389	100	R	12	25	(134)	Req	45	20
Norton Memorial Hospital ¹	Louisville.....	NPAsen	157	6,241	5	R	12	6	No	None	54	50
St. Anthony's Hospital ¹	Louisville.....	Church	165	6,082	...	R	12	3	No	None	27	125
St. Joseph Infirmary ¹	Louisville.....	Church	100	12,463	0	R	12	12	No	Req	49	50
SS. Mary and Elizabeth Hospital ¹	Louisville.....	Church	202	8,010	...	R	12	4	No	None	22	100
LOUISIANA												
Baptist Hospital ¹	Alexandria.....	Church	210	8,110	...	R	12	6	No	None	23	..
Charity Hospital of Louisiana ¹⁻³ X31-32	New Orleans.....	State	3,200	41,313	100	R	12	120	No	Req	50	10
Hotel Dieu, Sisters' Hospital ¹	New Orleans.....	Church	301	11,268	4	R	12	12	No	None	60	50
Mercury Hospital-Soniat Memorial ¹	New Orleans.....	Church	125	6,043	...	R	12	5	No	None	37	100
Southern Baptist Hospital ¹	New Orleans.....	Church	350	13,632	8	R	12	16	No	None	41	30
Touro Infirmary ¹ X22	New Orleans.....	NPAsen	381	14,231	...	R	12	20	No	Req	54	10
Highland Sanitarium ¹	Shreveport.....	Part	102	5,892	...	R	12	4	No	None	31	75
North Louisiana Sanitarium ¹	Shreveport.....	Corp	130	4,283	...	R-M	12	3	(135)	None	47	75
T. E. Schumpert Memorial Sanitarium ¹	Shreveport.....	Church	107	5,180	...	R	12	2	No	Req	29	200
Shreveport Charity Hospital ¹	Shreveport.....	State	650	14,531	100	R	12	21	No	Req	43	20
Tri-State Hospital ¹	Shreveport.....	Corp	120	6,240	...	R-M	12	4	No	Req	20	100
MAINE												
Eastern Maine General Hospital ¹	Bangor.....	NPAsen	251	7,550	...	R	12	6	No	Req	38	25
Central Maine General Hospital ¹	Lewiston.....	NPAsen	226	5,656	...	R	12	6	No	Req	44	25
St. Mary's General Hospital ¹	Lewiston.....	Church	155	4,139	...	R-M	12	8	No	Req	45	85
Maine General Hospital ¹	Portland.....	NPAsen	340	8,401	68	R	15-24	9	No	Req	36	25
MARYLAND												
Baltimore City Hospitals ¹⁻³ X33, X34	Baltimore.....	City	1,914	7,407	100	R	12	32	No	Req	59	15
Bon Secours Hospital ¹	Baltimore.....	Church	150	4,831	13	R	12	3	No	Req	33	30
Church Home and Hospital ¹	Baltimore.....	Church	165	6,122	13	R-S	12	7	No	Req	56	25
Franklin Square Hospital ¹	Baltimore.....	NPAsen	218	5,335	...	R	12	0	No	Req	49	30
Hospital for Women ¹	Baltimore.....	NPAsen	129	4,528	24	R	12	4	(136)	Req	31	25
Johns Hopkins Hospital ¹⁻³ X35	Baltimore.....	NPAsen	990	19,893	...	S	12	61	No	Req	74	..
Maryland General Hospital ¹	Baltimore.....	Church	242	6,365	6	R	12	8	No	Req	32	25
Mercury Hospital ¹ X34	Baltimore.....	Church	201	8,785	20	R	12	14	No	Req	43	25
Provident Hospital and Free Dispensary ¹⁻³	Baltimore.....	NPAsen	130	3,147	...	R	12	7	No	Req	25	25
St. Agnes' Hospital ¹	Baltimore.....	Church	221	7,032	25	R	12	6	(137)	Req	45	30
St. Joseph's Hospital ¹	Baltimore.....	Church	250	7,510	22	R	12	8	No	Req	30	25
Sinal Hospital ¹	Baltimore.....	NPAsen	311	9,309	21	R-S	12	21	(138)	Req	62	10
South Baltimore General Hospital ¹	Baltimore.....	NPAsen	157	6,632	...	R	12	0	No	Req	39	50
Union Memorial Hospital ¹	Baltimore.....	NPAsen	311	9,261	28	R	12	17	No	Req	60	..
University Hospital ¹⁻³ X34	Baltimore.....	State	435	10,688	51	R	21	21	No	Req	51	..
West Baltimore General Hospital ¹⁻³	Baltimore.....	NPAsen	185	6,233	19	R	12	7	(138)	Req	48	50
Washington County Hospital ¹	Hagerstown.....	NPAsen	158	6,400	...	R	12	0	No	Req	20	75
Peninsula General Hospital ¹	Salisbury.....	NPAsen	177	6,667	10	R	12	6	No	Req	30	50
Washington Sanitarium and Hospital ¹	Takoma Park.....	Church	188	4,237	75	R	12	4	No	Req	32	108
MASSACHUSETTS												
Beverly Hospital ¹	Beverly.....	NPAsen	166	5,266	20	R	12	4	No	Req	86	..
Beth Israel Hospital ¹ X36-37	Boston.....	NPAsen	216	5,781	37	S	12	12	(139)	None	68	..
Boston City Hospital ¹⁻³ X35-36-37	Boston.....	City	2,378	36,421	100	S	12	110	No	Req	45	..
Carney Hospital ¹ X37	Boston.....	Church	228	6,213	20	S	12	9	No	Req	41	..
Children's Hospital ¹⁻³ X36, X37	Boston.....	NPAsen	345	9,250	68	S	12	26	(140)	Req	79	..
Faulkner Hospital ¹	Boston.....	NPAsen	141	4,538	15	R	12	3	No	None	70	..
Massachusetts General ¹	Boston.....	NPAsen	526	7,390	100	S	12	23	200	Req	53	..
Massachusetts Memorial ¹	Boston.....	NPAsen	465	8,140	40	S	6-12-21	22	(141)	Req	80	..
New England Hospital ¹	Boston.....	NPAsen	103	4,561	36	R-S	12	8	No	Req	69	..

Name of Hospital		Location	Control	Bed Capacity	Total Patients Admitted	% Service Cases	Type of Internship	Length of Service in Months	Internships Offered	Accumulated Service	Outpatient Service	Autopsy Percentage	Stipend per Month
MASSACHUSETTS—Continued													
Peter Bent Brigham Hospital +1 X36	Boston	NPAssn	250	5,133	...	S	12	26	(142)	Req	68	...	...
St. Elizabeth's Hospital +1 X37	Boston	Church	256	7,127	12	R	12	8	No	Req	38	25	...
Brockton Hospital +1	Brockton	NPAssn	124	3,705	25	R	12	4	No	Req	31	50	...
Cambridge City Hospital + X37	Cambridge	City	300	5,724	56	R	12	8	No	Req	56	10	...
Mount Auburn Hospital +1 X37	Cambridge	NPAssn	221	6,831	14	R	12	6	No	Req	47	...	...
Truesdale Hospital +1	Fall River	NPAssn	170	4,786	...	R	12	6	No	Req	52	35	...
Union Hospital +1	Fall River	NPAssn	165	5,216	15	R	12	3	No	Req	26	150	...
Burbank Hospital +1	Fitchburg	City	250	6,005	50	R	12	4	No	Req	25	125	...
Holyoke Hospital +1	Holyoke	NPAssn	140	3,806	...	R	12	3	No	Req	21	25	...
Lawrence General Hospital +1	Lawrence	NPAssn	190	5,903	15	R	12	3	No	Req	54	50	...
Lowell General Hospital +1	Lowell	NPAssn	183	4,714	19	R	12-24	3	No	Req	29	25	...
St. John's Hospital +1	Lowell	Church	189	5,560	38	R	12	4	No	Req	41	100	...
St. Joseph's Hospital +1	Lowell	Church	135	4,951	17	R	12-24	2	No	Req	21	100	...
Lynn Hospital +1	Lynn	NPAssn	242	7,900	18	R	12	6	No	Req	35	50	...
St. Luke's Hospital +1	New Bedford	NPAssn	294	9,821	20	M	12	8	No	Req	35	25	...
Newton-Wellesley Hospital +1	Newton	NPAssn	240	6,599	21	R	12	6	No	Req	40	...	...
Pittsfield General Hospital +1	Pittsfield	NPAssn	189	4,651	7	M	12	2	No	Req	22	50	...
St. Luke's Hospital +1	Pittsfield	Church	150	4,424	...	R	12	2	No	None	27	100	...
Quincy City Hospital +1	Quincy	City	324	7,873	12	R	12	12	No	Req	36	75	...
Salem Hospital +1	Salem	NPAssn	237	6,809	17	R	12	6	No	Req	63	30	...
Mercy Hospital +1	Springfield	Church	340	9,924	14	R	12	6	No	Req	29	40	...
Springfield Hospital +1	Springfield	NPAssn	281	7,861	14	R	12	4	(143)	Req	45	...	...
Wesson Memorial Hospital +1	Springfield	NPAssn	112	3,384	12	R	12	3	(144)	None	65	25	...
Waltham Hospital +1	Waltham	NPAssn	174	4,409	8	M	12	4	No	Req	30	25	...
Memorial Hospital +1-3	Worcester	NPAssn	269	8,636	30	R	12-24	10	No	Req	50	50	...
St. Vincent Hospital +1	Worcester	Church	242	7,203	13	S	12	8	No	None	48	...	...
Worcester City Hospital +1-3 X37, X75	Worcester	City	480	10,366	63	R	24	20	No	Req	32	...	...
Worcester Hahnemann Hospital +1	Worcester	NPAssn	118	4,354	6	R	12	4	No	None	22	85	...
MICHIGAN													
St. Joseph's Mercy Hospital +1	Ann Arbor	Church	250	8,065	100	R-M	12	5	No	Req	67	100	...
University Hospital +1-3 X38	Ann Arbor	State	999	17,348	...	R	12	41	No	Req	70	85.13	...
Community Hospital +1	Battle Creek	NPAssn	100	5,192	...	...	...	...	No	None	43	...	...
Lella Y. Post Montgomery Hospital +1	Battle Creek	Church	175	7,401	...	...	...	2	No	Req	34	100	...
Charles Godwin Jennings Hospital +1	Detroit	NPAssn	83	2,550	...	R	12	4	(145)	None	51	...	...
City of Detroit Receiving Hospital +1 X39	Detroit	City	538	17,570	100	R-M	12	40	(146)	Req	41	137.68	...
Evangelical Deaconess Hospital +1	Detroit	Church	185	9,040	...	R	12	6	No	Req	20	125	...
Grace Hospital +1	Detroit	NPAssn	641	25,178	8	R	12	30	No	Req	50	50	...
Harper Hospital +1	Detroit	NPAssn	546	20,937	3	R	12	36	(147)	Req	38	110	...
Henry Ford Hospital +1-3	Detroit	NPAssn	550	17,224	85	R	12	30	No	None	60	170	...
Mount Carmel Mercy Hospital +1	Detroit	Church	400	15,833	20	R	12	12	No	Req	28	100	...
Providence Hospital +1	Detroit	Church	329	13,691	3	R	12	18	(147)	Req	64	125	...
St. Joseph's Mercy Hospital +1	Detroit	Church	185	6,570	4	R	12	6	(201)	Req	32	100	...
St. Mary's Hospital +1	Detroit	Church	294	9,681	4	R	12	12	(148)	Req	42	125	...
Woman's Hospital +1	Detroit	NPAssn	246	9,498	5	R	12	8	(150)	Req	55	85	...
Wayne County General Hospital and Infirmary +1 X39	Eloise	County	5,127	7,923	99	R	12	24	(146)	Req	31	205	...
Hurley Hospital +1	Flint	City	413	15,774	...	R	12	16	No	None	31	110	...
St. Joseph Hospital +1	Flint	Church	230	10,397	...	R	12	...	...	...	22	...	...
Blodgett Memorial Hospital +1	Grand Rapids	NPAssn	179	5,956	...	R	12	6	(151)	None	55	75	...
Butterworth Hospital +1	Grand Rapids	NPAssn	270	11,481	...	R	12	9	No	Req	50	50	...
St. Mary's Hospital +1	Grand Rapids	Church	256	9,028	3	R	12	8	No	Req	33	100	...
Highland Park General Hospital +1	Highland Park	City	255	8,753	5	R	12	10	No	Req	38	100	...
W. A. Foote Memorial Hospital +1	Jackson	City	150	6,512	...	...	...	...	No	None	29	100	...
Bronson Methodist Hospital +1	Kalamazoo	Church	145	5,802	...	R	12	4	No	None	62	100	...
Edward W. Sparrow Hospital +1	Lansing	NPAssn	228	9,201	4	R	12	10	(201)	None	56	...	...
St. Lawrence Hospital +1	Lansing	Church	210	8,058	...	R	12	8	(153)	None	51	...	...
Pontiac General Hospital +1	Pontiac	City	237	8,643	...	R	12	3	(203)	None	33	50	...
St. Joseph Mercy Hospital +1	Pontiac	Church	257	9,163	...	R	12	6	No	Req	29	...	...
Saginaw General Hospital +1	Saginaw	NPAssn	204	9,406	100	R	12	4	No	Req	66	50	...
St. Mary's Hospital +1	Saginaw	Church	170	6,909	4	R	12	4	No	None	32	...	...
MINNESOTA													
St. Luke's Hospital +1	Duluth	NPAssn	276	10,160	...	R-S	12	12	(154)	Req	74	25	...
St. Mary's Hospital +1	Duluth	Church	285	10,099	...	R-S	12	11	(154)	Req	66	25	...
Abbott Hospital +1	Minneapolis	Church	126	6,351	...	R	12	3	(155)	None	40	50	...
Asbury Hospital +1	Minneapolis	Church	148	5,885	...	R	12	4	No	None	42	100	...
Lutheran Deaconess Home and Hospital +1	Minneapolis	Church	160	6,163	25	M	12	3	No	None	38	50	...
Minneapolis General Hospital +1 X40	Minneapolis	City	574	9,192	100	R	6-12-18	36	No	Req	54	25	...
Northwestern Hospital +1	Minneapolis	NPAssn	299	10,473	...	R-S	12	12	(156)	None	54	50	...
St. Barnabas Hospital +1	Minneapolis	NPAssn	199	8,544	...	R	12	6	No	None	75	100	...
St. Mary's Hospital +1	Minneapolis	Church	335	12,430	100	R	12	10	(156)	None	51	75	...
Swedish Hospital +1	Minneapolis	State	323	13,788	...	R	12	7	No	None	42	75	...
University of Minnesota Hospitals +1 X40	Minneapolis	State	450	9,423	100	S	12	28	No	Req	76	...	...
Ancker Hospital +1	St. Paul	CyCo	850	7,339	95	R	12	24	No	Req	66	30	...
Bethesda Hospital +1	St. Paul	Church	162	7,558	...	R	12	5	No	Req	40	100	...
Charles T. Miller Hospital +1	St. Paul	NPAssn	275	8,733	11	R	12	10	(157)	Req	61	50	...
St. Joseph's Hospital +1	St. Paul	Church	256	9,616	2	R	12	10	(158)	Req	44	75	...
MISSISSIPPI													
Mississippi Baptist Hospital +1	Jackson	Church	255	11,317	...	R	12	12	No	None	21	50	...
Mercy Hospital-Street Memorial +1	Vicksburg	Church	125	3,943	...	R	12	4	No	None	33	50	...
MISSOURI													
St. Louis County Hospital +1	Clayton	County	216	3,279	...	R	12	8	No	Req	64	50	...
Kansas City General Hospital No. 1 +1 X29	Kansas City	City	550	11,074	100	R	12	28	No	Req	57	25	...
Kansas City General Hospital No. 2 +1	Kansas City	City	260	4,626	...	R-M	12	9	(204)	Req	52	25	...
Menorah Hospital +1	Kansas City	NPAssn	160	6,869	6	R	12	5	No	None	47	100	...
Research Hospital +1	Kansas City	NPAssn	211	8,029	...	R	12	8	No	None	64	50	...
St. Joseph Hospital +1	Kansas City	Church	321	12,484	10	R	12	8	No	Req	58	100	...
St. Luke's Hospital +1	Kansas City	Church	375	11,232	...	R	12	7	No	None	71	50	...
St. Mary's Hospital +1	Kansas City	Church	170	6,754	...	R	12	5	No	None	59	75	...
Missouri Methodist Hospital +1	St. Joseph	Church	225	6,838	...	M	12	4	No	Req	54	150	...
St. Joseph's Hospital +1	St. Joseph	Church	149	6,243	...	M	12	2	No	None	10	200	...
Barnes Hospital +1-3 X42	St. Louis	NPAssn	583	16,092	...	S	12	18	(160)	Req	69	10	...
Christian Hospital +1	St. Louis	NPAssn	125	3,860	...	R	12	3	No	None	32	125	...
DePaul Hospital +1	St. Louis	Church	275	9,022	25	R	12	9	No	Req	27	50	...
Evangelical Deaconess Hospital +1	St. Louis	Church	250	8,443	...	R	12	9	No	Req	34	60	...

Abbreviations and other references will be found on pages 171 and 172.

Name of Hospital	Location	Control	Bed Capacity	Total Patients Admitted	% Service Cases	Type of Internship	Length of Service in Months	Internships Offered	Admitted Service	Outpatient Service	Autopsy Percentage	Shipboard per Month
MISSOURI—Continued												
Homer G. Phillips Hospital +1-3 x42	St. Louis	City	694	15,715	100	R	12	27	(161)	Req	23	70
Jewish Hospital +1	St. Louis	NPA's'n	295	8,488	6	R	12	13	No	Req	42	33
Lutheran Hospital	St. Louis	Church	165	5,890	4	R	12	5	No	None	32	75
Missouri Baptist Hospital +1	St. Louis	Church	450	11,114	...	R	12	8	No	None	21	33
St. Anthony's Hospital + x41	St. Louis	Church	250	8,339	...	R	12	8	(162)	None	46	50
St. John's Hospital + x41	St. Louis	Church	343	9,517	...	R	12	12	(163)	Req	36	35
St. Louis City Hospital +1-3 x42	St. Louis	City	1,125	17,714	100	R-S	12	54	(164)	Req	47	70
St. Luke's Hospital +1	St. Louis	Church	181	5,212	5	R	12	9	(165)	Req	50	25
St. Mary's Group of Hospitals +1-3 x41	St. Louis	Church	673	16,316	74	R	12-24	31	No	Req	46	15
St. Mary's Infirmary + x41	St. Louis	Church	116	3,777	20	R	12	4	No	None	33	..
MONTANA												
Montana Deaconess Hospital +	Great Falls	Church	190	5,261	...	R	12	6	No	Req	60	50
NEBRASKA												
Bryan Memorial Hospital 1-3	Lincoln	Church	125	3,415	...	R	12	3	No	None	49	100
Lincoln General Hospital +1-3	Lincoln	NPA's'n	183	6,372	...	R	12	4	No	Req	60	100
St. Elizabeth Hospital 1-3	Lincoln	Church	230	8,487	23	R	12	6	No	None	29	75
Bishop Clarkson Memorial Hospital +1 x44	Omaha	Church	161	5,455	...	R	12	9	No	None	51	50
Creighton Memorial St. Joseph's Hospital +1 x43	Omaha	Church	404	12,529	7	R	12	16	No	Req	33	25
Immanuel Deaconess Institute + x44	Omaha	Church	125	5,169	100	R	12	4	No	None	40	50
Nebraska Methodist Hospital +1 x44	Omaha	Church	167	7,416	...	R	12	3	No	None	55	50
St. Catherine's Hospital + x43	Omaha	Church	165	5,918	85	R	12	5	(166)	None	39	55
University of Nebraska Hospital +1 x44	Omaha	State	212	3,094	...	R	12	12	No	Req	95	40
NEW HAMPSHIRE												
Mary Hitchcock Memorial Hospital +1	Hannover	NPA's'n	207	5,574	100	R	12	9	No	None	84	8.23
NEW JERSEY												
Atlantic City Hospital +1	Atlantic City	NPA's'n	280	8,214	50	R	12	12	(167)	Req	23	50
Bayonne Hospital and Dispensary +1	Bayonne	NPA's'n	250	5,932	29	R	12	6	No	Req	23	115
Cooper Hospital +1 x62, x64	Camden	NPA's'n	357	10,886	...	R	12	12	No	Req	55	15
West Jersey Hospital +1 x61	Camden	NPA's'n	270	9,381	...	R	12	10	No	Req	56	100
East Orange General Hospital 1	East Orange	NPA's'n	123	5,148	110	R	12	4	(168)	Req	26	63
Alexian Brothers Hospital 1	Elizabeth	Church	159	2,632	16	R	12	4	(169)	Req	17	..
Elizabeth General Hospital and Dispensary 1	Elizabeth	NPA's'n	191	6,144	32	R	12	8	No	Req	25	100
St. Elizabeth Hospital 1	Elizabeth	Church	229	7,044	30	R	12	7	No	Req	24	103
Englewood Hospital +1	Englewood	NPA's'n	190	8,118	25	R	12-18	6	No	Req	31	55
Hackensack Hospital +1	Hackensack	NPA's'n	350	10,193	29	R	12	10	No	Req	40	50
St. Mary's Hospital 1	Honoken	Church	420	9,937	63	R	12	6	No	Req	19	75
Christ Hospital 1-3	Jersey City	Church	216	6,034	...	R	12	12	No	Req	31	103
Jersey City Hospital 1-3	Jersey City	City	1,500	24,819	85	R	12-24	50	(200)	Req	35	25
St. Francis Hospital 1	Jersey City	Church	230	4,133	20	R	12	6	(201)	Req	16	65
Monmouth Memorial Hospital +1	Long Branch	NPA's'n	254	7,318	31	R	12	8	No	Req	28	100
Mountainside Hospital +1	Montclair	NPA's'n	314	7,618	59	R	12-24	8	No	Req	61	48.75
All Saints Hospital	Morris-town	Church	123	3,498	10	R	12	3	No	Req	31	..
Morris-town Memorial Hospital 1	Morris-town	NPA's'n	122	3,763	29	R	12	2	No	Req	29	110
Pltkin Memorial Hospital +1	Neptune	NPA's'n	154	5,568	34	R	12	8	No	Req	29	59
Hospital of St. Barnabas and for Women and Child en +1	Newark	Church	211	7,144	22	R	12	6	No	Req	44	50
Lutheran Memorial Hospital	Newark	NPA's'n	121	4,120	45	R	12	2	No	Req	10	50
Newark Beth Israel Hospital +1-3	Newark	NPA's'n	265	11,752	18	R	12	12	No	Req	49	25
Newark City Hospital +1-3	Newark	City	700	12,076	100	R	24	24	No	None	27	30
St. Michael's Hospital +1	Newark	Church	401	11,072	30	R	12	6	No	Req	25	75
St. Peter's General Hospital 1	New Brunswick	Church	242	8,082	10	R	12	5	No	Req	17	100
Orange Memorial Hospital +1	Orange	NPA's'n	400	9,151	23	R	12	8	No	Req	32	35
St. Mary's Hospital	Orange	Church	148	3,593	5	R	12	2	No	Req	25	75
Passaic General Hospital 1	Passaic	NPA's'n	237	6,732	33	R	12	6	No	Req	34	75
St. Mary Hospital 1	Passaic	Church	190	6,485	25	R	12	5	No	Req	20	60
Nathan and Miriam Barnett Memorial Hospital 1	Paterson	NPA's'n	122	3,830	26	R	12	5	No	Req	26	50
Paterson General Hospital +1	Paterson	NPA's'n	372	9,611	21	R	12	8	No	Req	33	50
St. Joseph Hospital +1	Paterson	Church	553	8,335	45	R	12	10	No	Req	28	100
Perth Amboy General Hospital	Perth Amboy	NPA's'n	225	7,537	11	R	12	5	No	None	23	75
Muhlenberg Hospital +1	Plainfield	NPA's'n	270	8,832	15	R-S	12	8	No	Req	27	50
Overlook Hospital 1	Summit	NPA's'n	145	4,478	...	M	13-21	4	No	Req	39	100
Holy Name Hospital 1	Tenafce	Church	185	7,672	17	R	12-24	8	No	Req	39	75
Mercer Hospital +1	Trenton	NPA's'n	216	7,372	20	R	12	6	No	None	30	25
St. Francis Hospital +1	Trenton	Church	300	8,489	29	R	12	5	No	Req	27	75
William McKinley Memorial Hospital 1	Trenton	NPA's'n	118	3,982	17	R	12	3	No	Req	18	100
North Hudson Hospital 1	Weehawken	NPA's'n	106	3,422	50	R	12	7	(205)	Req	18	100
NEW YORK												
Albany Hospital +1-3 x45	Albany	NPA's'n	541	15,000	41	S	12	32	No	Req	60	..
Memorial Hospital 1	Albany	NPA's'n	137	3,663	9	R	12	6	No	Req	51	125
St. Peter's Hospital + x45	Albany	Church	129	4,366	7	R	12	7	(207)	Req	33	100
Auburn City Hospital 1	Auburn	NPA's'n	239	7,216	...	R	12	6	No	None	31	75
Binghamton City Hospital +1-3	Binghamton	City	461	11,177	30	R	12	8	No	Req	54	50
Beth-El Hospital +1	Brooklyn	NPA's'n	242	8,270	44	R	12-21	11	No	Req	47	50
Brooklyn Hospital +1 x46	Brooklyn	NPA's'n	330	9,181	31	R	12	9	No	Req	47	..
Bushwick Hospital 1	Brooklyn	NPA's'n	101	4,293	16	R	12	5	No	Req	15	125
Coney Island Hospital +1-3	Brooklyn	City	270	6,105	100	R	12	16	No	Req	32	50
Cumberland Hospital +1-3	Brooklyn	City	301	6,812	100	R	24	22	No	Req	62	25
Greenpoint Hospital +1-3 x46	Brooklyn	City	296	6,210	100	R-S	12	14	No	Req	12	35
Jewish Hospital +1-3 x46	Brooklyn	NPA's'n	546	15,438	...	R	12	28	(208)	Req	43	15
Kings County Hospital +1-3 x46	Brooklyn	City	2,509	66,742	100	R-S	12-21	72	No	Req	19	25
Long Island College Hospital +1 x46	Brooklyn	NPA's'n	381	9,718	28	S	12	19	(209)	Req	34	..
Maimonides Hospital +1 x46	Brooklyn	NPA's'n	182	4,588	21	S	6-12	8	No	Req	28	35
Beth Moses Division +1	Brooklyn	NPA's'n	331	11,216	16	S	12	20	No	Req	32	35
Israel Zion Division +1	Brooklyn	Church	456	9,839	39	R-M-S	24	20	No	Req	62	25
Methodist Hospital +1 x46	Brooklyn	Church	210	5,707	65	R	12	4	No	Req	38	25
Norwegian Lutheran Deaconesses' Home and Hospital +1	Brooklyn	Church	287	7,579	29	R	24	13	No	Req	34	35
St. Catherine's Hospital +1	Brooklyn	Church	229	4,695	37	R-S	12	9	No	Req	34	70
St. John's Hospital +1	Brooklyn	Church	237	7,047	50	R-S	24	10	No	Req	39	30
St. Mary's Hospital +1	Brooklyn	Church	176	3,263	11	R	12	6	No	Req	20	100
St. Peter's Hospital 1	Brooklyn	NPA's'n	226	5,982	22	R	12	8	No	Req	17	100
Unity Hospital +1	Brooklyn	NPA's'n	160	5,110	30	R	12	4	No	Req	24	30
Wyckoff Heights Hospital 1	Brooklyn	NPA's'n	160	5,110	30	R	12	4	No	Req	24	30

Name of Hospital NEW YORK—Continued	Location	Control	Bed Capacity	Total Patients Admitted	% Service Cases	Type of Internship	Length of Ser- vice in Months	Internships Offered	Affiliated Service	Outpatient Service	Autopsy Percentage	Stipend per Month
Buffalo General Hospital ¹⁻³ X47	Buffalo	NPAssn	458	11,221	50	S	12	18	(210)	Req	45	..
Deaconess Hospital ¹	Buffalo	NPAssn	277	9,366	...	R	12	8	No	Req	37	40
Edward J. Meyer Memorial Hospital ¹⁻³ X47	Buffalo	County	858	10,777	...	R-M	12	25	(211)	Req	47	91.66
Mercy Hospital	Buffalo	Church	198	7,041	5	R	12	8	No	Req	24	50
Millard Fillmore Hospital ¹ X47	Buffalo	NPAssn	473	13,489	...	R	12	15	(212)	Req	47	25
Sisters of Charity Hospital ¹	Buffalo	Church	435	10,128	...	R	12	14	(213)	Req	26	60
Mary Imogene Bassett Hospital ¹ x45, X48	Cooperstown	NPAssn	100	2,613	100	R-M-S	12-24	8	No	Req	72	50
Arnot-Ordern Memorial Hospital	Elmira	NPAssn	195	6,468	9	R	12	6	(214)	None	37	75
St. Joseph's Hospital ¹	Elmira	Church	253	7,029	12	R	12	4	No	None	22	130
Ideal Hospital ¹	Endicott	City	96	3,005	...	R	12	3	No	None	22	150
Flushing Hospital and Dispensary ¹⁻³	Flushing	NPAssn	266	9,586	17	R	24	8	No	Req	35	100
Mendowbrook Hospital ¹	Hempstead	County	250	5,665	99	R	12-24	12	No	Req	43	50
Jamaica Hospital ¹	Jamaica	NPAssn	185	6,136	...	R	12-24	8	No	Req	20	75
Mary Immaculate Hospital ¹⁻³	Jamaica	Church	273	9,051	...	R-S	12	9	No	Req	37	45
Queens General Hospital ¹⁻³ X50	Jamaica	City	705	14,557	100	R-S	24	38	No	Req	47	25
Charles S. Wilson Memorial Hospital ¹	Johnson City	NPAssn	360	9,241	...	R	12	8	No	Req	40	100
Our Lady of Victory Hospital ¹	Lackawanna	Church	175	5,224	...	...	12	4	No	Req	18	120
St. John's Long Island City Hospital ¹	Long Island City	Church	230	5,987	55	R	24	18	No	Req	45	50
Nassau Hospital ¹	Mineola	NPAssn	227	7,769	18	R	12	4	No	None	28	75
Mount Vernon Hospital ¹	Mount Vernon	NPAssn	217	7,665	17	R	12	6	No	Req	35	75
St. Luke's Hospital ¹⁻³	Newburgh	NPAssn	186	5,927	22	R	12	5	No	Req	22	100
New Rochelle Hospital ¹	New Rochelle	NPAssn	312	8,814	...	R	12	10	No	Req	32	100
Bellevue Hospital ¹⁻³ X48, X51, x49	New York	City	3,049	58,182	...	R-M-S	12-18-24	148	No	Varies	41	..
Division I—Columbia University ¹	...	...	...	...	...	M	12-24	10	No	Req	..	45
Division II—Cornell University ¹	...	...	...	...	...	M-S	12	13	No	Req	..	45
Division III—New York University ¹	...	...	...	...	...	...	...	...	...	...	..	..
Division IV—New York University ¹	...	...	...	...	...	...	...	...	...	...	..	..
Beth David Hospital x50	New York	NPAssn	160	4,457	28	R	12-24	15	No	Req	31	50
Beth Israel Hospital ¹⁻³ x51	New York	NPAssn	326	9,174	35	R	12	12	No	None	40	25
Bronx Hospital ¹⁻³	New York	NPAssn	308	9,125	28	R-S	12	10	No	Req	25	35
Columbus Hospital	New York	Church	260	5,414	...	R	18	12	No	None	38	75
Flower and Fifth Avenue Hospitals ¹⁻³ X50	New York	NPAssn	337	9,325	32	S	12	13	No	Req	36	..
Fordham Hospital ¹⁻³	New York	City	414	10,456	100	R	12	24	No	Req	27	50
French Hospital ¹	New York	NPAssn	251	6,465	35	R	24	12	No	Req	37	20
Goldwater Memorial Hospital ¹⁻³ X48, x51	New York	City	1,560	1,571	100	M	12	5	No	Req	38	30
Gouverneur Hospital ¹⁻³	New York	City	172	3,881	100	R	12	7	(215)	Req	16	50
Harlem Hospital ¹⁻³	New York	City	676	21,697	100	R	12	48	No	Req	19	25
Hospital for Joint Diseases ¹⁻³	New York	NPAssn	362	5,621	34	R	12-24	12	(216)	Req	38	25
Jewish Memorial Hospital ¹⁻³	New York	NPAssn	185	5,510	39	R	12	11	No	Req	40	50
Knickerbocker Hospital ¹	New York	NPAssn	182	4,159	50	M	12	8	No	Req	57	50
Lebanon Hospital ¹	New York	NPAssn	207	6,246	12	R	12-24	11	No	None	30	50
Lenox Hill Hospital ¹⁻³ x51	New York	NPAssn	539	12,675	44	R	24	24	No	Req	47	..
Lincoln Hospital ¹⁻³	New York	City	391	14,927	100	R	12	24	No	None	20	30
Metropolitan Hospital ¹⁻³ X50	New York	City	1,060	12,512	100	M-S	12-24	36	No	Req	23	80
Miscorcordia Hospital	New York	Church	181	5,226	33	R	12	6	No	Req	31	50
Montefiore Hospital for Chronic Diseases ¹⁻³ X48	New York	NPAssn	599	4,027	39	M-S	12	13	No	Req	53	25
Morrisania City Hospital ¹⁻³ X50	New York	City	466	13,516	100	R	12	24	No	Req	18	30
Mother Cabrini Memorial Hospital ¹	New York	Church	175	5,409	74	R	12-24	6	No	Req	15	50
Mount Sinai Hospital ¹⁻³ x48	New York	NPAssn	803	15,986	54	R	12	24	No	None	40	23
New York City Hospital ¹⁻³ X50	New York	City	823	12,040	100	R-S	24	24	No	Req	38	35
New York Hospital ¹⁻³ x49	New York	NPAssn	1,044	20,743	...	S	12	48	No	Req	69	..
New York Infirmary ¹⁻³	New York	NPAssn	121	3,176	68	R	12	6	No	Req	55	30
New York Polyclinic Medical School and Hospital ¹⁻³	New York	NPAssn	374	9,552	...	R	12	8	No	Req	25	25
Presbyterian Hospital ¹⁻³ X48	New York	NPAssn	1,422	30,220	60	M-S	18-24	15	No	Req	55	..
Roosevelt Hospital ¹ X48	New York	NPAssn	410	9,002	55	M	12-24	12	No	Req	37	..
St. Clare's Hospital ¹	New York	Church	441	9,513	34	R	12	18	No	Req	60	10
St. Francis Hospital ¹	New York	Church	350	7,400	48	R	12	6	No	None	25	50
St. Luke's Hospital ¹⁻³ X48	New York	NPAssn	520	9,829	63	M	12	9	No	Req	50	..
St. Vincent's Hospital ¹ x51	New York	Church	544	11,887	100	R	12	22	No	Req	42	..
Sydenham Hospital ¹⁻³	New York	NPAssn	202	5,014	52	R	12	15	No	Req	42	25
University Hospital ¹⁻³	New York	NPAssn	466	9,420	100	S	12	6	No	Req	40	..
United Hospital ¹	Port Chester	NPAssn	182	6,107	20	R	12	6	No	Req	27	100
St. Francis Hospital ¹	Poughkeepsie	Church	106	2,823	6	R	12	3	No	None	50	200
Vassar Brothers Hospital	Poughkeepsie	NPAssn	207	6,535	28	R	12	5	No	Req	22	100
Genesee Hospital ¹ x52	Rochester	NPAssn	226	7,850	15	S	12	8	No	Req	64	15
Highland Hospital ¹	Rochester	NPAssn	200	6,966	15	R	12	7	No	Req	51	25
Rochester General Hospital ¹	Rochester	NPAssn	324	14,963	20	R	12	18	(217)	Req	74	60
St. Mary's Hospital ¹	Rochester	Church	325	12,322	8	R	12	12	No	Req	42	50
Strong Memorial-Rochester Municipal Hospitals ¹ X52	Rochester	NPAssn	746	17,524	54	M-S	12-24	42	(218)	Req	74	15
Ellis Hospital ¹ X45	Schenectady	NPAssn	423	13,634	5	R-S	12	8	No	Req	41	60
St. Vincent's Hospital ¹	Staten Island	Church	211	7,336	40	R	12	8	No	Req	24	100
Staten Island Hospital ¹	Staten Island	NPAssn	221	5,755	35	R	24	7	No	Req	34	100
Crouse-Irving Hospital ¹ x53	Syracuse	NPAssn	215	7,960	...	R	12	4	No	Req	27	25
General Hospital ¹ x53	Syracuse	NPAssn	127	4,843	13	M	12	4	No	Req	34	25
St. Joseph's Hospital ¹ x53	Syracuse	Church	205	7,915	31	R	12	6	No	Req	17	35
Syracuse University Medical Center Hospitals	...	...	...	...	...	...	...	...	...	...	...	...
Hospital of the Good Shepherd ¹ X53	Syracuse	NPAssn	204	4,371	39	R-M	12	8	(219)	None	57	..
Syracuse Memorial Hospital ¹ X53	Syracuse	NPAssn	276	11,423	26	S	12	23	(219)	None	45	..
St. Mary's Hospital ¹	Troy	Church	244	6,168	8	R	12	6	No	Req	22	90
Samaritan Hospital ¹	Troy	NPAssn	188	5,323	7	R	12	6	No	Req	41	75
Grasslands Hospital ¹⁻³	Valhalla	County	800	4,424	100	R	12	20	No	Req	68	25
St. Agnes Hospital	White Plains	Church	138	3,676	35	R	12	4	No	Req	46	100
White Plains Hospital ¹	White Plains	NPAssn	188	6,188	15	R	12	3	No	Req	52	50
St. John's Riverside Hospital ¹	Yonkers	NPAssn	188	5,822	...	R-M-S	12	5	No	Req	28	100
St. Joseph's Hospital ¹	Yonkers	Church	184	3,442	24	R-S	12	7	No	Req	22	75
Yonkers General Hospital ¹	Yonkers	NPAssn	143	5,190	10	R	12	5	No	Req	21	100
NORTH CAROLINA												
Charlotte Memorial Hospital ¹	Charlotte	NPAssn	371	10,297	19	R	12	10	No	Req	53	40
Duke Hospital ¹⁻³ X54	Durham	NPAssn	549	13,862	52	M-S	12	42	(220)	Req	57	..
Lincoln Hospital ¹	Durham	NPAssn	99	2,732	42	R	12	4	No	Req	13	25
Watts Hospital ¹	Durham	NPAssn	200	8,668	11	R-S	12	14	No	Req	50	25
Rex Hospital ¹	Raleigh	NPAssn	294	10,977	10	R	12	10	No	Req	24	105
St. Agnes Hospital ¹	Raleigh	Church	114	3,224	40	R	12	4	No	Req	15	50
James Walker Memorial Hospital ¹	Wilmington	NPAssn	300	9,955	18	R	12-24	7	No	Req	21	50
City Memorial Hospital ¹	Winston-Salem	City	193	7,100	100	R	12	9	No	Req	35	25
Kate Bitting Reynolds Memorial Hospital ¹	Winston-Salem	City	200	5,821	30	R	12	6	(221)	Req	25	50
North Carolina Baptist Hospital ¹⁻³ X55	Winston-Salem	Church	200	7,762	40	S	12	18	No	Req	62	..

Name of Hospital	Location	Control	Bed Capacity	Total Patients Admitted	% Service Cases	Type of Internship	Length of Service in Months	Internships Offered	Allylate Service	Outpatient Service	Autopsy Percentage	Stipend per Month
NORTH DAKOTA												
St. John's Hospital ¹	Fargo	Church	180	6,319	...	R	12	2	No	None	31	75
St. Luke's Hospital ⁺	Fargo	Church	127	5,165	...	R	12	4	No	Req	50	50
Grand Forks Deaconess Hospital ¹	Grand Forks	NPAFsn	140	4,895	...	R	12	3	No	Req	55	..
Trinity Hospital ⁺	Minot	Church	183	6,600	...	R	12	2	No	None	54	..
OHIO												
City Hospital ⁺	Akron	NPAFsn	418	16,017	7	R	12	15	(222)	Req	48	30
Peoples Hospital ⁺	Akron	NPAFsn	210	9,520	5	R	12	6	(222)	Req	63	50
St. Thomas Hospital ⁺	Akron	Church	205	9,187	...	R	12	8	(225)	Req	42	75
Aultman Hospital ⁺	Canton	NPAFsn	201	10,077	14	R	12	10	No	Req	46	50
Mercy Hospital ⁺	Canton	Church	229	10,132	...	R	12	6	No	Req	35	75
Beltesda Hospital ⁺	Cincinnati	Church	218	8,407	21	R	12	8	(224)	Req	62	75
Christ Hospital ⁺	Cincinnati	Church	370	11,327	15	R	12	16	(221)	Req	43	20
Cincinnati General Hospital ⁺ X56	Cincinnati	City	850	11,953	100	R-S	12	42	(225)	Req	57	..
Deaconess Hospital ⁺	Cincinnati	Church	163	4,827	15	R	12	5	(226)	Req	21	100
Good Samaritan Hospital ⁺	Cincinnati	Church	558	16,131	5	R	12	18	No	Req	49	50
Jewish Hospital ⁺	Cincinnati	NPAFsn	261	9,432	7	R	12	10	(227)	Req	54	50
St. Mary's Hospital ⁺	Cincinnati	Church	260	5,517	35	R	12-21	6	(228)	Req	41	75
City Hospital ⁺ X57	Cleveland	City	1,075	12,953	100	R-S	12	24	No	Req	60	40
Evangelical Deaconess Hospital ¹	Cleveland	Church	122	6,231	...	R	12	3	No	Req	20	75
Fairview Park Hospital ⁺	Cleveland	Church	160	7,551	3	R	12	6	No	Req	40	75
Glenville Hospital ¹	Cleveland	NPAFsn	120	4,552	5	M	12	4	No	None	42	75
Mount Sinai Hospital ⁺ X57	Cleveland	NPAFsn	219	9,641	10	R	12-21	8	No	None	45	50
St. Alexis Hospital ⁺	Cleveland	Church	235	10,629	14	R-S	12	8	No	Req	51	50
St. John's Hospital ⁺	Cleveland	Church	234	8,820	12	R	12	9	No	None	35	..
St. Luke's Hospital ⁺	Cleveland	Church	337	14,044	14	R	12	20	No	Req	44	30
St. Vincent Charity Hospital ⁺ X57	Cleveland	Church	297	8,731	16	R	12	12	(229)	Req	42	50
University Hospitals ⁺ X57	Cleveland	NPAFsn	703	22,735	20	S	21	46	No	Req	65	Varies
Grant Hospital ⁺	Columbus	NPAFsn	290	9,068	5	R	12	8	No	None	43	50
Mount Carmel Hospital ⁺	Columbus	Church	265	10,211	5	R	12	8	(230)	None	23	50
Ohio State University Hospital ⁺ X58	Columbus	State	279	8,876	51	R-S	21	22	(231)	None	81	9
St. Francis Hospital ⁺ X58	Columbus	State	101	4,153	61	R	12	7	No	None	55	..
White Cross Hospital ⁺	Columbus	Church	250	10,718	12	R	12	12	No	None	41	50
Good Samaritan Hospital ¹	Dayton	Church	310	12,791	6	R-S	12	6	No	Req	14	..
Miami Valley Hospital ⁺	Dayton	NPAFsn	425	13,752	10	R	12	10	No	Req	44	50
St. Elizabeth Hospital ¹	Dayton	Church	325	15,245	12	R	12	6	No	Req	63	125
Huron Road Hospital ⁺	East Cleveland	NPAFsn	277	10,717	...	R	12	11	No	Req	51	50
Mercy Hospital ⁺	Hamilton	Church	300	8,659	15	R	12	..	No	None	24	100
Lakewood Hospital ⁺	Lakewood	City	120	6,830	...	R	12	4	No	Req	55	75
Lima Memorial Hospital ¹	Lima	NPAFsn	165	6,330	5	R	12	6	No	None	24	90
St. Rita's Hospital ¹	Lima	Church	200	10,458	10	R	12	8	No	Req	23	100
Springfield City Hospital ¹	Springfield	City	270	10,115	6	R	12	8	No	Req	43	100
Flower Hospital ¹	Toledo	Church	155	6,256	...	R	12	6	No	None	29	150
Maumee Valley Hospital ⁺	Toledo	County	292	4,386	90	R	12	10	No	Req	53	75
Mercy Hospital ⁺	Toledo	Church	295	11,750	20	R	12	8	No	Req	47	100
St. Vincent's Hospital ⁺	Toledo	Church	310	10,079	...	R	12	2	No	Req	35	75
Toledo Hospital ⁺	Toledo	NPAFsn	294	9,574	4	R	12	10	No	Req	53	75
St. Elizabeth Hospital ⁺	Youngstown	Church	320	11,585	...	R	12	10	No	Req	26	100
Youngstown Hospital ⁺	Youngstown	NPAFsn	627	19,327	...	R	12-21	20	No	Req	40	25
OKLAHOMA												
St. Anthony Hospital ⁺ X59	Oklahoma City	Church	275	12,060	12	R	12	10	No	Req	31	50
University Hospitals ⁺ X59	Oklahoma City	State	761	6,474	83	R	12	15	No	Req	47	25
Wesley Hospital ⁺ X59	Oklahoma City	Part	185	8,171	10	R	12	6	No	Req	40	50
Hillcrest Memorial Hospital ⁺	Tulsa	NPAFsn	258	10,780	...	R	12	5	No	None	34	50
St. John's Hospital ⁺	Tulsa	Church	429	14,857	...	R	12	12	No	None	29	100
OREGON												
Emanuel Hospital ⁺ X60	Portland	Church	350	13,183	...	R	12	14	(232)	Req	50	50
Good Samaritan Hospital ⁺ X60	Portland	Church	430	13,527	5	R	12	16	No	None	51	50
Portland Sanitarium and Hospital ⁺	Portland	Church	144	8,072	...	R	12	5	No	None	45	101(a)
Providence Hospital ⁺ X60	Portland	Church	210	7,890	5	R	12	6	(233)	None	50	50
St. Vincent's Hospital ⁺ X60	Portland	Church	356	10,815	6	R	12	12	(234)	Req	39	50
University of Oregon Medical School Hospitals and Clinics ⁺ X60	Portland	State	418	6,679	91	R	12	16	No	Op	71	50
PENNSYLVANIA												
Abington Memorial Hospital ⁺	Abington	NPAFsn	203	8,023	...	R	24	10	No	Req	57	..
Allentown Hospital ⁺	Allentown	NPAFsn	364	13,658	60	R	12	10	No	Req	56	75
Sacred Heart Hospital ⁺	Allentown	Church	501	7,655	90	R	12	5	No	Req	37	75
Altoona Hospital ¹	Altoona	NPAFsn	193	6,576	95	R	12	6	No	Req	19	100
St. Luke's Hospital ⁺	Bethlehem	NPAFsn	323	14,210	13	R	12	10	No	Req	56	30
Bryn Mawr Hospital ⁺	Bryn Mawr	NPAFsn	285	7,501	20	R	12	10	No	Req	56	75
Chester Hospital	Chester	NPAFsn	235	7,695	19	R	12	8	No	Req	39	75
George P. Geisler Memorial Hospital ⁺ X61	Danville	NPAFsn	205	8,358	100	R	12	10	No	Req	83	20
Fitzgerald-Mercy Hospital ⁺ X64	Darby	Church	262	6,789	17	R	12	8	No	Req	50	50
Easton Hospital ¹	Easton	NPAFsn	186	6,076	20	R	12	6	No	Req	32	100
Hamot Hospital ⁺	Erie	NPAFsn	289	9,491	20	R	12	8	No	Req	51	100
St. Vincent's Hospital ⁺	Erie	NPAFsn	299	12,825	10	R	12	8	No	Req	24	75
Westmoreland Hospital ⁺	Greensburg	NPAFsn	190	7,170	11	R	12	5	No	None	25	100
Harrisburg Hospital ⁺ X61	Harrisburg	NPAFsn	312	9,838	16	R	12	12	No	Req	41	100
Harrisburg Polyclinic Hospital ⁺	Harrisburg	NPAFsn	265	6,736	16	R	12	8	No	Req	28	100
Nesbitt Memorial Hospital ¹	Kingston	NPAFsn	200	6,473	18	R	12	3	No	Req	30	100
Lancaster General Hospital ¹	Lancaster	NPAFsn	248	8,764	15	R	12	9	No	Req	50	75
St. Joseph's Hospital ⁺	Lancaster	Church	232	6,031	...	R	12	6	No	Req	63	100
McKeesport Hospital ¹	McKeesport	NPAFsn	275	8,332	14	R	12	7	No	Req	23	150
University of Pennsylvania ⁺	Norristown	NPAFsn	193	7,200	30	R	12	8	No	Req	22	100
Philadelphia ⁺	Philadelphia	NPAFsn	171	4,121	50	R	12	4	No	Req	36	25
Philadelphia ⁺	Philadelphia	Church	488	12,317	...	R	12	16	No	Req	23	..
Philadelphia ⁺	Philadelphia	NPAFsn	141	4,181	90	R	12	7	No	Req	60	75
Philadelphia ⁺	Philadelphia	NPAFsn	349	7,056	65	R	12	12	No	Req	48	..
University of Pennsylvania ⁺	Philadelphia	NPAFsn	401	7,580	100	R	12	11	(235)	Req	58	..
Hahnemann Hospital ⁺ X61	Philadelphia	NPAFsn	605	14,184	49	R	12	24	No	Req	62	..
Hospital of the University ⁺	Philadelphia	NPAFsn	691	18,393	61	R	12	20	No	None	81	..
Hospital of the Woman's ⁺	Philadelphia	NPAFsn	167	4,835	39	R	12	6	No	Req	57	..
Jefferson Medical College Hospital ⁺ X62	Philadelphia	NPAFsn	679	17,277	57	R	24	27	No	Req	49	..
Jewish Hospital ⁺ X61, X63	Philadelphia	NPAFsn	407	9,221	31	R	24	18	(236)	Req	57	..
Lankenau Hospital ⁺	Philadelphia	NPAFsn	257	6,052	50	R	12	10	...	None	50	..

Name of Hospital	Location	Control	Bed Capacity	Total Patients Admitted	% Service Cases	Type of Internship	Length of Service in Months	Internships Offered	Affiliated Service	Outpatient Service	Autopsy Percentage	Stipend per Month
PENNSYLVANIA—Continued												
Memorial Hospital ¹	Philadelphia.....	NPAasn	113	3,356	90	R	12	3	No	Req	24	125
Methodist Episcopal Hospital ¹ X62, X65.....	Philadelphia.....	Church	210	4,222	...	R	12	7	No	Req	39	24
Misericordia Hospital ¹ X62.....	Philadelphia.....	Church	200	6,926	...	R	12	7	No	Req	42	...
Mount Sinai Hospital ¹⁻³ X61, X62.....	Philadelphia.....	NPAasn	259	6,231	46	R	12	12	No	Req	75	...
Nazareth Hospital ¹	Philadelphia.....	Church	150	6,106	35	R	12	6	No	None	26	75
Pennsylvania Hospital ¹⁻³ X62, X64.....	Philadelphia.....	NPAasn	433	10,459	100	R	24	18	(237)	Req	62	...
Philadelphia General Hospital ¹⁻³ X61-62-63-64-65.....	Philadelphia.....	City	2,560	25,436	100	R	24	96	(236)	Req	57	...
Presbyterian Hospital ¹⁻³ X64.....	Philadelphia.....	Church	334	7,174	38	R	24	12	No	Req	71	...
St. Joseph's Hospital X62.....	Philadelphia.....	Church	200	5,582	...	R	12	8	No	Req	33	100
St. Luke's and Children's Medical Center ¹ X61-62.....	Philadelphia.....	NPAasn	281	7,792	40	R	12	9	No	Req	25	75
St. Mary's Hospital.....	Philadelphia.....	Church	230	6,195	100	R	12	6	No	Req	31	100
Temple University Hospital ¹ X63.....	Philadelphia.....	NPAasn	558	14,563	...	R	12	21	(236)	None	60	...
Woman's Hospital ¹⁻² X65.....	Philadelphia.....	NPAasn	137	4,333	42	R	12	6	No	Req	52	...
Women's Homeopathic Hospital ¹	Philadelphia.....	NPAasn	183	5,314	52	R	12	3	No	Req	30	175
Allegheny General Hospital ¹ X66.....	Pittsburgh.....	NPAasn	554	11,946	47	R	12	16	No	Req	25	...
Mercy Hospital ¹ X66.....	Pittsburgh.....	Church	667	14,945	35	R	12	24	(238)	Req	40	...
Montefiore Hospital ¹	Pittsburgh.....	NPAasn	242	8,986	20	R	12	11	No	Req	44	25
Pittsburgh Hospital ¹	Pittsburgh.....	NPAasn	186	6,160	90	R	12	6	No	Req	23	60
Presbyterian Hospital ¹ X66.....	Pittsburgh.....	NPAasn	235	5,027	...	R	12	10	(239)	Req	46	...
St. Francis Hospital ¹ X66.....	Pittsburgh.....	NPAasn	690	14,674	...	R	12	20	(240)	Req	19	...
St. John's General Hospital ¹	Pittsburgh.....	NPAasn	197	6,990	8	R	12	6	No	None	19	100
St. Joseph's Hospital and Dispensary.....	Pittsburgh.....	Church	170	6,107	95	R	12	6	No	Req	36	75
St. Margaret Memorial Hospital ¹	Pittsburgh.....	Church	129	3,082	...	R	12	4	No	Req	36	75
Shadyside Hospital ¹	Pittsburgh.....	NPAasn	301	8,419	14	R	12	10	No	Req	18	75
South Side Hospital ¹	Pittsburgh.....	NPAasn	207	6,965	95	R	12	7	No	Req	15	75
Western Pennsylvania Hospital ¹⁻³	Pittsburgh.....	NPAasn	552	13,533	65	R	12	16	No	Req	25	...
Pottsville Hospital ¹	Pottsville.....	NPAasn	155	3,781	...	R	12	3	No	None	...	...
Community General Hospital ¹	Reading.....	NPAasn	113	3,539	22	R	12	4	No	Req	56	150
Reading Hospital ¹⁻³	Reading.....	NPAasn	348	9,214	14	R	12	10	No	Req	56	50
St. Joseph's Hospital ¹	Reading.....	Church	191	6,085	16	R	12	6	No	Req	45	...
Robert Packer Hospital ¹	Sayre.....	NPAasn	304	10,558	100	R	12	10	No	Req	64	...
Moses Taylor Hospital ¹	Seranton.....	NPAasn	120	2,460	54	R	12	3	(241)	Req	33	100
Seranton State Hospital ¹	Seranton.....	State	290	5,876	53	R	12	9	No	Req	27	128.50
Sewickley Valley Hospital ¹	Sewickley.....	NPAasn	153	5,533	6	R	12	7	No	Req	19	200
Uniontown Hospital ¹	Uniontown.....	NPAasn	215	7,258	28	R	12	6	No	Req	65	100
Washington Hospital ¹	Washington.....	NPAasn	188	5,433	13	R	12	6	No	Req	26	150
Chester County Hospital ¹⁻³	West Chester.....	NPAasn	153	4,279	...	R	12	4	No	Req	21	100
Mercy Hospital ¹	Wilkes-Barre.....	Church	201	5,514	33	R	12	6	No	Req	41	50
Wilkes-Barre General Hospital ¹	Wilkes-Barre.....	NPAasn	370	9,581	35	R	12	10	No	Req	31	60
Columbia Hospital ¹	Wilkesburg.....	Church	171	5,785	100	R	12	5	No	Req	25	50
Williamsport Hospital ¹	Williamsport.....	NPAasn	260	8,773	22	R	12	8	No	Req	34	100
York Hospital ¹	York.....	NPAasn	196	7,544	...	R	12	8	No	Req	38	100
RHODE ISLAND												
Memorial Hospital.....	Pawtucket.....	NPAasn	172	6,992	40	R	12	6	No	Req	51	50
Rhode Island Hospital ¹⁻³	Providence.....	NPAasn	569	14,393	42	R	24	12	No	Req	56	...
Roger Williams General Hospital.....	Providence.....	NPAasn	162	5,811	10	R	12	6	No	Req	25	100
St. Joseph's Hospital.....	Providence.....	Church	310	8,076	17	R	24	4	(175)	Req	26	100
SOUTH CAROLINA												
Roper Hospital ¹ X67.....	Charleston.....	NPAasn	450	12,089	45	R	12	21	No	Req	41	...
Columbia Hospital ¹	Columbia.....	County	437	11,492	30	R	12	12	No	Req	30	50
McLeod Infirmary ¹	Florence.....	NPAasn	195	7,743	...	R	12	6	No	Req	7	100
Greenville General Hospital ¹	Greenville.....	City	327	11,672	22	R	12	12	No	Req	26	75
Spartanburg General Hospital ¹	Spartanburg.....	County	296	11,287	...	R	12	8	No	Req	22	50
SOUTH DAKOTA												
McKenna Hospital ¹	Sioux Falls.....	Church	164	6,995	...	R	12	4	No	None	51	75
Sioux Valley Hospital ¹	Sioux Falls.....	NPAasn	190	8,272	...	R	12	8	No	None	40	60
Sacred Heart Hospital ¹	Yankton.....	Church	170	5,118	...	R	12	9	No	None	31	50
TENNESSEE												
Baroness Erlanger Hospital ¹⁻³	Chattanooga.....	CyCo	450	15,565	...	R	12	8	(176)	Req	23	60
Fort Sanders Hospital ¹	Knoxville.....	NPAasn	200	8,277	...	R	12	8	No	None	27	90
Knoxville General Hospital ¹⁻³	Knoxville.....	City	285	9,163	49	R	12	10	No	Req	20	60
Baptist Memorial Hospital ¹	Memphis.....	Church	500	18,934	23	R-S	12	16	No	Req	23	50
John Gaston Hospital ¹⁻³ X68.....	Memphis.....	City	489	16,649	95	R-S	12	24	No	Req	65	35
Methodist Hospital ¹	Memphis.....	Church	267	15,465	7	R	12	12	No	Req	38	50
St. Joseph Hospital ¹	Memphis.....	Church	230	10,818	...	R	12	1	No	Req	41	50
George W. Hubbard Hospital ¹⁻³ X69.....	Nashville.....	NPAasn	163	3,077	90	R	12	7	No	Req	36	35
Mid-State Baptist Hospital.....	Nashville.....	Church	119	4,806	...	M	12	5	No	None	21	75
Nashville General Hospital ¹ X70.....	Nashville.....	City	260	6,525	...	R-S	12-15	14	No	Req	33	30
St. Thomas Hospital ¹	Nashville.....	Church	231	11,161	28	S	12	10	(177)	None	39	30
Vanderbilt University Hospital ¹ X70.....	Nashville.....	NPAasn	340	9,234	65	S	12	36	(178)	Req	68	...
Oak Ridge Hospital ¹	Oak Ridge.....	NPAasn	292	7,976	2	R	12	6	No	Req	60	136
TEXAS												
Brackenridge Hospital ¹	Austin.....	City	237	6,903	48	R	12	6	No	Req	32	60
Baylor University Hospital ¹ X71.....	Dallas.....	Church	392	16,594	10	R-S	12	28	No	None	36	...
Methodist Hospital ¹⁻³ X71.....	Dallas.....	Church	208	10,757	10	R	12	6	No	Req	26	50
Parkland Hospital ¹⁻³ X71.....	Dallas.....	CyCo	416	9,932	80	M-S	12	5	No	Req	60	10
St. Paul's Hospital ¹ X71.....	Dallas.....	Church	310	13,670	100	R-S	12	14	No	Req	29	50
El Paso City-County Hospital.....	El Paso.....	CyCo	192	2,939	100	R	12	6	No	Req	55	100
City-County Hospital.....	Fort Worth.....	Church	297	12,884	7	R	12	8	No	Req	35	50
Harris Hospital ¹	Fort Worth.....	Church	243	10,497	3	R	12	16	No	Req	38	50
St. Joseph's Hospital ¹	Fort Worth.....	Church	231	11,161	28	S	12	10	(177)	None	39	30
University of Texas Medical Branch Hospitals ¹ X72.....	Galveston.....	State	701	11,132	74	R	12	24	No	Req	23	100
Hermann Hospital ¹ X73.....	Houston.....	NPAasn	300	9,054	50	R	12	10	No	Req	67	25
Jefferson Davis Hospital ¹⁻³ X72 X73.....	Houston.....	CyCo	441	12,707	...	R	12	10	No	Req	53	20
Methodist Hospital ¹ X72-73.....	Houston.....	Church	135	5,080	13	R	12	4	No	Req	19	25
St. Joseph's Infirmary X72-73.....	Houston.....	Church	377	20,790	10	R	12	12	No	Req	48	50
Baptist Memorial Hospital ¹	San Antonio.....	NPAasn	252	12,393	6	R	12	10	No	None	30	75
Nix Memorial Hospital ¹	San Antonio.....	Corp	157	7,102	...	R	12	3	No	None	27	75
Santa Rosa Hospital ¹	San Antonio.....	Church	365	13,004	...	R	12	12	No	None	19	125
Kings Daughters Hospital ¹	Temple.....	NPAasn	110	3,223	...	R	12	4	No	Req	34	75
Scott and White Hospital ¹	Temple.....	Corp	236	6,914	100	R	12	13	(180)	Req	20	125
Wichita Falls Clinic Hospital ¹	Wichita Falls.....	Part	102	4,718	...	R	12	3	No	Req	46	75

Name of Hospital	Location	Control	Bed Capacity	Total Patients Admitted	% Service Cases	Type of Internship	Length of Service in Months	Internships Offered	Unfilled Service	Outpatient Service	Autopsy Percentage	Stipend per Month
UTAH												
St. Benedict's Hospital ¹ x74	Ogden	Church	150	5,717	...	R	12	6	No	None	51	75
Thomas D. Dee Memorial Hospital ¹ x74	Ogden	Church	300	10,590	...	R	12	6	(181)	Req	46	50
Dr. W. H. Groves Latter-Day Saints Hospital ¹ x74	Salt Lake City	Church	357	11,481	5	R	12	12	No	Req	40	25
Holy Cross Hospital ¹ x74	Salt Lake City	Church	100	7,397	...	R	12	5	No	None	36	25
St. Mark's Hospital ¹ x74	Salt Lake City	Church	211	7,212	...	R-S	12	6	No	Req	24	50
Salt Lake County General Hospital ¹ x74	Salt Lake City	County	241	3,672	100	R-M-S	12	15	No	Req	70	25
VERMONT												
Bishop DeGoesbriand Hospital ¹ x75	Burlington	Church	215	3,512	35	R	12	5	No	None	26	50
Mary Fletcher Hospital ¹ x75	Burlington	NP Assn	103	7,316	33	R	12	8	No	Req	59	50
VIRGINIA												
Alexandria Hospital ¹	Alexandria	NP Assn	169	6,111	...	R	12	6	No	Req	51	75
Arlington Hospital ¹ x18	Arlington	NP Assn	115	4,634	...	R	12	4	No	None	39	..
University of Virginia Hospital ¹ x76	Charlottesville	State	300	11,271	100	R-M-S	12	25	(182)	Req	43	..
Elizabeth Buxton Hospital ¹	Newport News	Indy	146	5,463	5	R	12	1	No	Req	43	150
Riverside Hospital ¹	Newport News	NP Assn	100	5,481	...	R	12	4	No	Req	20	50
De Paul Hospital ¹	Norfolk	Church	258	8,872	8	R	12	6	(183)	None	49	50
Norfolk General Hospital ¹	Norfolk	NP Assn	340	9,700	15	R	12	13	No	Req	34	50
Johnston-Willis Hospital ¹	Richmond	Corp	200	6,720	...	R	12	6	No	Req	29	25
Medical College of Virginia Hospital Division ¹ x77 (Memorial, Dooley and St. Philip Hospitals)	Richmond	State	861	10,850	55	R-M	12	35	(185)	Req	13	..
Stuart Circle Hospital ¹	Richmond	Corp	111	4,592	...	R	12	1	No	None	48	50
Jefferson Hospital ¹	Roanoke	NP Assn	150	5,520	75	R	12	3	(186)	Req	33	50
Lewis-Gale Hospital ¹	Roanoke	NP Assn	180	6,162	100	R	12	4	No	Req	31	75
Roanoke Hospital ¹	Roanoke	NP Assn	160	4,871	...	R	12-21	6	No	Req	45	75
WASHINGTON												
Columbus Hospital ¹	Seattle	Church	185	5,375	...	R	12	5	(187)	None	33	50
Doctors Hospital ¹	Seattle	NP Assn	200	7,083	...	R	12	6	No	None	53	50
King County Hospital, Unit No. 1 (Harborview) ¹	Seattle	County	591	12,133	...	R	12	22	No	Req	50	60
Providence Hospital ¹	Seattle	Church	357	11,018	100	R	12	11	(188)	Req	51	50
Seattle General Hospital ¹	Seattle	NP Assn	128	4,752	...	R	12	4	(189)	Req	27	75
Swedish Hospital ¹	Seattle	NP Assn	310	11,808	...	R	12-13	12	(190)	Req	61	50
Virginia Mason Hospital ¹	Seattle	NP Assn	238	9,530	...	R	12	8	No	None	74	50
Deaconess Hospital ¹	Spokane	Church	200	8,574	...	R	12	6	No	None	47	85
Sacred Heart Hospital ¹	Spokane	Church	460	16,005	...	R	12	12	No	None	15	100
St. Luke's Hospital ¹	Spokane	NP Assn	265	7,264	...	R	12	5	(192)	Req	47	75
Pierce County Hospital ¹	Tacoma	CyCo	215	4,214	...	R	12	8	(193)	Req	45	100
St. Joseph's Hospital ¹	Tacoma	Church	279	8,779	...	R	12	5	No	Req	49	100
Tacoma General Hospital ¹	Tacoma	NP Assn	213	8,365	...	R	12	6	No	None	38	75
Northern Permanente Hospital ¹	Vancouver	NP Assn	360	3,237	...	R	12	4	No	Req	68	100
WEST VIRGINIA												
Bluefield Sanitarium	Bluefield	Corp	165	7,428	10	R	12	4	No	None	25	75
Charleston General Hospital ¹	Charleston	NP Assn	250	8,782	50	R	12	7	No	Req	35	100
Kanawha Valley Hospital ¹	Charleston	Corp	150	6,539	80	M	12	2	No	Req	26	100
Chesapeake and Ohio Hospital ¹	Huntington	NP Assn	165	4,633	...	R	12	4	No	Req	32	50
St. Mary's Hospital ¹	Huntington	Church	300	11,470	10	R	12	8	No	Req	36	75
St. Joseph's Hospital ¹	Parkersburg	Church	170	5,748	...	R	12	3	No	None	33	100
Ohio Valley General Hospital	Wheeling	NP Assn	320	9,055	1	R	12	10	No	Req	20	100
Wheeling Hospital ¹	Wheeling	Church	250	7,791	8	R	12	5	No	None	9	100
WISCONSIN												
St. Elizabeth Hospital	Appleton	Church	205	6,761	...	R	12	3	No	None	21	50
Luther Hospital ¹ x78	Eau Claire	NP Assn	193	6,399	...	R	12	4	No	Req	57	50
St. Agnes Hospital	Fond du Lac	Church	284	10,313	...	R	12	4	No	None	34	50
Mercy Hospital ¹ x78	Janesville	Church	260	4,092	...	R-M-S	12	4	No	None	31	40
La Crosse Lutheran Hospital ¹ x78	La Crosse	Church	110	4,677	...	R	12	3	No	None	49	50
St. Francis Hospital ¹ x78	La Crosse	Church	282	8,251	...	R	12	10	No	None	27	100
Madison General Hospital ¹	Madison	NP Assn	177	7,029	...	R	12	6	No	Req	47	25
Methodist Hospital ¹	Madison	Church	120	4,531	...	R	12	4	No	Req	60	75
St. Mary's Hospital ¹	Madison	Church	250	7,090	...	R	12	8	No	None	41	50
State of Wisconsin General Hospital ¹ x78	Madison	State	750	14,319	100	R	12	20	No	Req	64	..
St. Joseph's Hospital ¹ x78	Marshfield	Church	195	6,858	...	R	12	6	No	None	43	100
Columbia Deaconess Hospital ¹	Milwaukee	NP Assn	160	5,291	...	R	12	7	No	Req	56	25
Evangelical Deaconess Hospital ¹	Milwaukee	Church	135	6,547	...	R	12	6	No	Req	46	100
Milwaukee County Hospital ¹ x79	Milwaukee	County	950	18,184	100	R	12	40	(191)	Req	26	10
Milwaukee Hospital ¹ x79	Milwaukee	Church	285	11,650	...	R	12	9	No	Req	50	20
Misericordia Hospital	Milwaukee	Church	110	4,526	100	R	12	3	No	None	33	100
Mount Sinai Hospital ¹ x79	Milwaukee	NP Assn	175	8,050	...	R	12	6	No	Req	44	40
St. Joseph Hospital ¹ x79	Milwaukee	Church	370	13,051	...	R-S	12	12	(193)	Req	31	40
St. Luke's Hospital ¹	Milwaukee	Church	135	6,652	...	R	12	6	No	None	20	130
St. Mary's Hospital ¹	Milwaukee	Church	210	9,321	...	R	12	6	No	Req	60	50
St. Michael's Hospital ¹	Milwaukee	Church	135	4,735	13	M	12	4	No	Req	29	250
Mercy Hospital ¹	Oshkosh	Church	220	7,242	...	R	12	5	No	None	26	100
St. Mary's Hospital ¹	Racine	Church	250	7,033	...	R	12	4	No	None	38	75
CANAL ZONE												
Gorgas Hospital ¹	Ancon	Federal	831	11,773	100	R	12	16	No	None	68	164.66
HAWAII												
Kauai Hospital ¹	Honolulu	NP Assn	120	5,108	...	R	12	2	No	None	64	75
Queen's Hospital ¹	Honolulu	NP Assn	402	12,360	10	R	12	12	(173)	Req	60	30
St. Francis Hospital ¹	Honolulu	Church	213	7,740	7	R	12	8	No	Req	41	75
PUERTO RICO												
Arecibo District Hospital ¹	Arecibo	Govt	286	4,393	100	R	12	4	No	None	24	75
Bayamon District Hospital ¹	Bayamon	Govt	300	6,871	100	R	12	8	No	Req	22	75
Pajardo District Hospital ¹	Pajardo	Govt	300	4,631	...	R	15	4	No	Req	16	..
Ponce District Hospital ¹	Ponce	NP Assn	217	3,709	95	R	12	4	No	Req	30	100
San Juan District Hospital ¹	San Juan	Church	100	2,507	43	R	12	3	(174)	Req	17	25
San Juan District Hospital ¹	San Juan	City	366	10,012	100	R	12	12	(174)	Req	32	75

HOSPITALS APPROVED FOR INTERNSHIPS IN THE DOMINION OF CANADA

For the benefit of graduates of approved medical colleges who desire an internship in Canada, the Council on Medical Education and Hospitals of the American Medical Association has declared that hospitals which conform to the standards of the Canadian Medical Association should be regarded as giving an internship equivalent in educational value to that offered by hospitals in the United States approved for intern training by the Council. It is understood, however, that this statement applies only to hospitals that are unqualifiedly "Approved" under the Canadian plan and does not apply to that group referred to as "Commended."

The following list of hospitals, revised to Jan. 1, 1949, has been furnished by the Canadian Medical Association.

Name of Hospital	Location	Name of Hospital	Location	Name of Hospital	Location
Camp Hill Hospital.....	Halifax, N. S.	Hamilton General Hospital.....	Hamilton, Ont.	Hotel Dieu of St. Joseph.....	Windsor, Ont.
Victoria General Hospital.....	Halifax, N. S.	St. Joseph's Hospital.....	Hamilton, Ont.	Children's Hospital.....	Winnipeg, Man.
St. John General Hospital.....	St. John, N. B.	St. Joseph's Hospital.....	London, Ont.	Deer Lodge Hospital.....	Winnipeg, Man.
Hospital du St. Sacrement.....	Quebec, Que.	Victoria Hospital.....	London, Ont.	Misericordia Hospital.....	Winnipeg, Man.
Hospital Dieu de Quebec.....	Quebec, Que.	Westminster Hospital.....	London, Ont.	Winnipeg General Hospital.....	Winnipeg, Man.
Hospital of the Infant Jesus.....	Quebec, Que.	Oshawa General Hospital.....	Oshawa, Ont.	St. Boniface Hospital.....	Man.
Jeffrey Hale's Hospital.....	Quebec, Que.	Ottawa Civic Hospital.....	Ottawa, Ont.	Regina Grey Nun's Hospital.....	Regina, Sask.
Veterans Hospital.....	Quebec, Que.	Ottawa General Hospital.....	Ottawa, Ont.	Regina General Hospital.....	Regina, Sask.
Children's Memorial Hospital.....	Montreal, Que.	Hotel Dieu Hospital.....	Kingston, Ont.	St. Paul's Hospital.....	Saskatoon, Sask.
Herbert Reddy Mem. Hospital.....	Montreal, Que.	Kingston General Hospital.....	Kingston, Ont.	Saskatoon City Hospital.....	Saskatoon, Sask.
Homeopathic Hospital.....	Montreal, Que.	Christie Street Hospital.....	Toronto, Ont.	Calgary General Hospital.....	Calgary, Alta.
Hospital Notre Dame.....	Montreal, Que.	Hospital for Sick Children.....	Toronto, Ont.	Colonel Belcher Hospital.....	Calgary, Alta.
Hospital Ste. Jeanne d'Arc.....	Montreal, Que.	Mount Sinai Hospital.....	Toronto, Ont.	Holy Cross Hospital.....	Calgary, Alta.
Hospital Ste. Justine.....	Montreal, Que.	St. Joseph's Hospital.....	Toronto, Ont.	Edmonton General Hospital.....	Edmonton, Alta.
Hotel Dieu de Montreal.....	Montreal, Que.	St. Michael's Hospital.....	Toronto, Ont.	Misericordia Hospital.....	Edmonton, Alta.
Hospital Ste. Luc.....	Montreal, Que.	Toronto East General Hospital.....	Toronto, Ont.	Royal Alexandra Hospital.....	Edmonton, Alta.
Jewish General Hospital.....	Montreal, Que.	Toronto General Hospital.....	Toronto, Ont.	University of Alberta Hosp.....	Edmonton, Alta.
Montreal General Hospital.....	Montreal, Que.	Toronto Western Hospital.....	Toronto, Ont.	St. Paul's Hospital.....	Vancouver, B. C.
Queen Mary Veterans Hospital.....	Montreal, Que.	Wellesley Hospital.....	Toronto, Ont.	Shaughnessy Hospital.....	Vancouver, B. C.
Royal Victoria Hospital.....	Montreal, Que.	Women's College Hospital.....	Toronto, Ont.	Vancouver General Hospital.....	Vancouver, B. C.
St. Mary's Hospital.....	Montreal, Que.	Grace Hospital.....	Windsor, Ont.	Royal Jubilee Hospital.....	Victoria, B. C.
Ste. Anne's Hospital.....	Ste. Anne de Bellevue, Que.	Metropolitan Hospital.....	Windsor, Ont.	St. Joseph's Hospital.....	Victoria, B. C.
Brantford General Hospital.....	Brantford, Ont.			Veterans Hospital.....	Victoria, B. C.

ABBREVIATIONS AND NOTES

1. Women interns admitted
2. Women interns only
3. Dental interns employed
4. Male patients only

CyCo City and County
Corp Corporation unrestricted as to profit
NPA:sn Nonprofit association
Part Partnership

Op Optional
Req Required
R Rotation
M Mixed
S Straight

+ The plus sign indicates additional approval for residencies in specialties, as shown in the Council's list of Approved Residencies and Fellowships for Veteran and Civilian Physicians.

Medical School Affiliations

Footnotes 10 to 80 refer to medical schools affiliated with hospitals for undergraduate clinical clerkships.

Hospitals have been identified with symbol X when a medical school has indicated that the hospital is a major unit in the school's teaching program. Hospitals have been identified with symbol x when a medical school has indicated that the hospital is used to a limited extent in the school's teaching program.

10. Medical College of Alabama, Birmingham, Ala.
11. University of Arkansas School of Medicine, Little Rock, Ark.
12. University of California Medical School, Berkeley-San Francisco, Calif.
13. College of Medical Evangelists, Loma Linda-Los Angeles, Calif.
14. University of Southern California School of Medicine, Los Angeles, Calif.
15. Stanford University School of Medicine, Stanford University—San Francisco, Calif.
16. University of Colorado School of Medicine, Denver, Colo.
17. Yale University School of Medicine, New Haven, Conn.
18. Georgetown University School of Medicine, Washington, D. C.
19. George Washington University School of Medicine, Washington, D. C.
20. Howard University College of Medicine, Washington, D. C.
21. Emory University School of Medicine, Atlanta, Ga.
22. University of Georgia School of Medicine, Augusta, Ga.
23. Chicago Medical School, Chicago, Ill.
24. Loyola University School of Medicine, Chicago, Ill.—See footnote 80.
25. Northwestern University Medical School, Chicago, Ill.
26. University of Chicago School of Medicine, Chicago, Ill.
27. University of Illinois College of Medicine, Chicago, Ill.
28. Indiana University School of Medicine, Bloomington-Indianapolis, Ind.
29. State University of Iowa College of Medicine, Iowa City, Iowa.
30. University of Kansas School of Medicine, Lawrence-Kansas City, Kan.
31. University of Louisville School of Medicine, Louisville, Ky.
32. Louisiana State University School of Medicine, New Orleans, La.
33. Tulane University of Louisiana School of Medicine, New Orleans, La.
34. Johns Hopkins University School of Medicine, Baltimore, Md.
35. University of Maryland School of Medicine and College of Phys. and Surg., Baltimore, Md.
36. Boston University School of Medicine, Boston, Mass.
37. Harvard Medical School, Boston, Mass.
38. Tufts College Medical School, Boston, Mass.
39. University of Michigan Medical School, Ann Arbor, Mich.
40. Wayne University College of Medicine, Detroit, Mich.
41. University of Minnesota Medical School, Minneapolis, Minn.
42. St. Louis University School of Medicine, St. Louis, Mo.
43. Washington University School of Medicine, St. Louis, Mo.
44. Creighton University School of Medicine, Omaha, Neb.
45. University of Nebraska College of Medicine, Omaha, Neb.
46. Albany Medical College, Albany, N. Y.
47. Long Island College of Medicine, Brooklyn, N. Y.
48. University of Buffalo School of Medicine, Buffalo, N. Y.
49. Columbia University College of Physicians and Surgeons, New York, N. Y.
50. Cornell University Medical College, New York, N. Y.
51. New York Medical College, Flower and Fifth Avenue Hospitals, New York, N. Y.
52. New York University College of Medicine, New York, N. Y.
53. University of Rochester School of Medicine and Dentistry, Rochester, N. Y.
54. Syracuse University College of Medicine, Syracuse, N. Y.
55. Duke University School of Medicine, Durham, N. C.
56. Bowman Gray School of Medicine of Wake Forest College, Winston-Salem, N. C.
57. University of Cincinnati College of Medicine, Cincinnati, Ohio.
58. Western Reserve University School of Medicine, Cleveland, Ohio.
59. Ohio State University College of Medicine, Columbus, Ohio.
60. University of Oklahoma School of Medicine, Oklahoma City, Okla.
61. University of Oregon Medical School, Portland, Ore.
62. Hahnemann Medical College and Hospital of Philadelphia, Philadelphia, Pa.
63. Jefferson Medical College of Philadelphia, Philadelphia, Pa.
64. Temple University School of Medicine, Philadelphia, Pa.
65. University of Pennsylvania School of Medicine, Philadelphia, Pa.
66. Woman's Medical College of Pennsylvania, Philadelphia, Pa.
67. University of Pittsburgh School of Medicine, Pittsburgh, Pa.
68. Medical College of the State of South Carolina, Charleston, S. C.
69. University of Tennessee College of Medicine, Memphis, Tenn.
70. Meharry Medical College, Nashville, Tenn.
71. Vanderbilt University School of Medicine, Nashville, Tenn.
72. Southwestern Medical College of the Southwestern Medical Foundation, Dallas, Tex.
73. University of Texas School of Medicine, Galveston, Tex.
74. Baylor University College of Medicine, Houston, Tex.
75. University of Utah School of Medicine, Salt Lake City, Utah.
76. University of Vermont College of Medicine, Burlington, Vt.
77. University of Virginia Department of Medicine, Charlottesville, Va.
78. Medical College of Virginia, Richmond, Va.
79. University of Wisconsin Medical School, Madison, Wis.
80. Marquette University School of Medicine, Milwaukee, Wis.
81. Stritch School of Medicine of Loyola University, Chicago, Ill.

Affiliations as Referred to in Column Headed: "Affiliated Service"

104. Convalescent Home for Crippled Children, Phoenix, orthopedics.
105. Pima County General Hospital Tucson, tuberculosis.
106. University Hospital; St. Vincent Infirmary, Little Rock.
107. Arkansas Baptist Hospital; St. Vincent Infirmary, Little Rock.
108. Los Angeles County Hospital, Los Angeles.
109. Santa Monica Hospital, emergency, outpatient service.
110. Children's Hospital, Los Angeles, pediatrics.
111. Children's Hospital; Los Angeles Maternity Service, pediatrics, obstetrics.
112. Fairmont Hospital of Alameda County, San Leandro.
113. San Francisco Hospital, obstetrics, gynecology.
114. Langley Porter Clinic; Children's Hospital, San Francisco, psychiatry, pediatrics.
115. Santa Barbara General Hospital, Santa Barbara.
116. Santa Barbara Cottage Hospital, Santa Barbara, medicine, surgery.
117. Boulder-Colorado Sanitarium and Hospital.
118. Children's Hospital, Denver, pediatrics.
119. Undercliff Sanatorium, Meriden, Connecticut.
120. Connecticut State Hospital, Middletown, psychiatry; Undercliff Sanatorium, Meriden, tuberculosis; Veterans Administration Hospital, Newington, Connecticut.
121. Gallinger Municipal Hospital, Washington, D. C.
122. Grady Memorial Hospital, Atlanta, pediatrics, gynecology, surgery.
123. Grady Memorial Hospital, Atlanta, medicine.
124. Frank Cuneo Hospital, Chicago, obstetrics, gynecology.
125. Winfield Hospital, Winfield, tuberculosis.
126. Children's Memorial Hospital, Chicago, pediatrics; Lake County Tuberculosis Sanatorium, pediatrics, tuberculosis.
127. Evansville State Hospital; Boehne Tuberculosis Hospital, Evansville.
128. Indiana University Medical Center, Indianapolis.
129. Norfolk General Hospital, Norfolk, obstetrics; Kings Daughters Hospital, Portsmouth, pediatrics.
130. Isolation Hospital; Pine Knoll Sanatorium, Davenport, communicable diseases, tuberculosis.
131. Broadlawn Polk County Hospital, Des Moines.
132. Salvation Army Home and Hospital; Sedgwick County Hospital, Wichita, obstetrics.
133. St. Joseph's Hospital; Sedgwick County Hospital, Wichita.
134. Children's Free Hospital, Louisville, pediatrics; Waverly Hills Sanatorium, Waverly Hills, tuberculosis.
135. Shreveport Charity Hospital, pathology.
136. John Hopkins Hospital, Baltimore, male urology.
137. University Hospital, Baltimore.
138. Sydenham Hospital, Baltimore, pediatrics.
139. Charles V. Chapin Hospital, Providence, R. I., contagious diseases.
140. Boston Lying-In Hospital; House of the Good Samaritan, Boston, obstetrics, pediatrics, rheumatic fever.
141. Framingham Union Hospital, surgery.
142. Robert Breck Brigham Hospital; New England Deaconess Hospital; Haynes Memorial Hospital, Boston, medicine.
143. Wesson Maternity Hospital, Springfield, obstetrics.
144. Health Department Hospital; Shriner's Hospital for Crippled Children, Springfield, tuberculosis, contagious diseases, orthopedics.
145. Herman Klefer Hospital; Children's Hospital; City of Detroit Receiving Hospital, pediatrics, contagious diseases.
146. Herman Klefer Hospital, Detroit, obstetrics, contagious diseases.
147. Herman Klefer Hospital; Children's Hospital, Detroit, pediatrics, contagious diseases, obstetrics.
148. St. Joseph's Retreat, Dearborn, psychiatry.
149. Grace Hospital, Detroit, obstetrics.
150. Children's Hospital, City of Detroit Receiving Hospital.
151. Salvation Army Evangeline Booth Home and Hospital, Grand Rapids, obstetrics.
152. Jackson County Sanatorium, Jackson, tuberculosis, contagious diseases.
153. Ingham Sanatorium, Lansing.
154. Miller Memorial Hospital, Duluth, outpatient service.
155. University Hospitals, Minneapolis.
156. Minneapolis General Hospital, outpatient service.
157. Children's Hospital, St. Paul, pediatrics.
158. Gillette State Hospital for Crippled Children, St. Paul, orthopedics.
159. Children's Mercy Hospital, Kansas City, Missouri, pediatrics.
160. St. Louis City Hospital; St. Louis Children's Hospital, medicine and pediatrics.
161. Robert Koch Hospital, Koch, tuberculosis, contagious diseases.
162. Alexian Brothers Hospital, St. Louis, psychiatry.
163. St. Louis City Hospital, isolation.
164. St. Louis City Sanitarium, psychiatry.
165. St. Louis City Hospital, contagious diseases, tuberculosis; Shriner's Hospital for Crippled Children, orthopedics.
166. St. Bernard's Hospital, Council Bluffs, psychiatry.
167. Children's Seashore House for Invalid Children, Atlantic City, pediatrics, communicable diseases.
168. New Jersey Orthopedic Hospital, Orange; Essex County Hospital for Contagious Diseases, Belleville; Essex Mountain Sanatorium, Verona.
169. St. Elizabeth Hospital, Elizabeth, obstetrics.
170. Laguna Honda Home, San Francisco, chronic diseases; Hassler Health Home, Redwood City, tuberculosis.
171. California Hospital, Los Angeles, pediatrics.
172. University of Colorado Medical School, Denver, pediatrics, outpatient service.
173. Kaulkeolani Children's Hospital, Honolulu, pediatrics.
174. University Hospital, San Juan, Puerto Rico, pathology.
175. Charles V. Chapin Hospital, Providence, contagious diseases, psychiatry.
176. T. C. Thompson Children's Hospital; Pine Breeze Sanatorium, Chattanooga, pediatrics, tuberculosis.
177. Vanderbilt University Hospital, Nashville.
178. St. Thomas Hospital; Nashville General Hospital, Tennessee; Sydenham Hospital, Baltimore.
179. St. Mary's Infirmary, Galveston, gynecology, pediatrics.
180. Gulf, Colorado and Santa Fe Hospital, Temple, Texas, medicine, surgery.
181. Utah State Tuberculosis Sanatorium.
182. Blue Ridge Sanatorium, Charlottesville, Virginia, tuberculosis.
183. Grandy and Wiso Hospital, Norfolk, tuberculosis.
184. Norfolk General Hospital, Norfolk, obstetrics; Kings Daughters Hospital, Portsmouth, pediatrics.
185. Interns are rotated through the following hospitals: Stuart Circle Hospital; St. Luke's Hospital; St. Elizabeth's Hospital; Balford Memorial Hospital, Franklin; Mary Washington Hospital, Fredericksburg; Southside Community Hospital, Farmville; Northampton-Accomack Memorial Hospital, Massawadox, Virginia.
186. Southern Pacific Hospital, Houston, industrial medicine, surgery.
187. King County Hospital, Seattle, outpatient service.
188. Firland Sanatorium, Seattle, chest diseases.
189. Children's Orthopedic Hospital, Seattle.
190. Shriner's Hospital for Crippled Children, Spokane, orthopedics.
191. St. Joseph's Hospital, South View Hospital, Milwaukee, isolation.
192. Mountain View Sanatorium, Lakeview, tuberculosis.
193. St. Michael Hospital, Milwaukee, outpatient service.
194. Misericordia Hospital, New York City, obstetrics, gynecology, pediatrics.
195. Mount Sinai Hospital, Cleveland, obstetrics, gynecology, pediatrics.
196. Chicago Maternity Center; Chicago Memorial Hospital, obstetrics, gynecology, pediatrics.
197. St. Elizabeth Hospital, Chicago, obstetrics, gynecology.
198. Loretto Hospital, Chicago, obstetrics, psychiatry.
199. Children's Memorial Hospital, City of Chicago Municipal Tuberculosis Sanatorium, pediatrics, tuberculosis.
200. Salem Hospital, Salem, Massachusetts, surgery.
201. Mount Carmel Mercy Hospital, Detroit, pediatrics.
202. Ingham Sanatorium, Lansing, medicine, surgery.
203. Pontiac State Hospital, Oakland County Tuberculosis Sanatorium.
204. Kansas City General Hospital #1, Kansas City, Missouri.
205. Margaret Hague Maternity Hospital, Berthold S. Pollak Hospital for Chest Diseases, Jersey City.
206. Margaret Hague Maternity Hospital, Jersey City.
207. Anthony N. Brady Maternity Home, Albany, obstetrics.
208. Sydenham Hospital, Baltimore, contagious diseases.
209. Brooklyn Thoracic Hospital, tuberculosis.
210. Children's Hospital, Buffalo, pediatrics.
211. Emergency Hospital, Buffalo, traumatic surgery.
212. Emergency Hospital, Children's Hospital, Buffalo, emergency, pediatrics.
213. Edward J. Meyer Memorial Hospital; Allied Hospitals of the Sisters of Charity include Emergency Hospital, Louise de Marillac Hospital and Sisters Hospital.
214. Chemung County Sanatorium, Elmira, New York.
215. Harlem Hospital, New York City, obstetrics.
216. Beth Israel Hospital, New York City, obstetrics, gynecology, surgery; Rochester General Hospital.
217. Geneva General Hospital, Geneva.
218. Bradford Hospital, Bradford, Pennsylvania, surgery; Frederick Ferris Thompson Hospital, Canandaigua, New York, surgery; Tompkins County Memorial Hospital, Ithaca, New York, surgery; Corning Hospital, Corning, New York, pediatrics, obstetrics, gynecology; Genesee Hospital, Rochester, New York, medicine, obstetrics, gynecology, surgery; Rochester General Hospital, Rochester, New York, surgery.
219. Rotation service established between Hospital of the Good Shepherd; Syracuse Memorial Hospital; City Hospital and Syracuse Psychopathic Hospital; comprising Syracuse University Medical Center Hospitals.
220. North Carolina Orthopedic Hospital, Gastonia, orthopedics; Sydenham Hospital, Baltimore, pediatrics; Charity Hospital of Louisiana, New Orleans.
221. Forsyth County Sanatorium, Winston-Salem, North Carolina, tuberculosis.
222. Children's Hospital, Akron, pediatrics.
223. Edwin Shaw Sanatorium, tuberculosis; Summit County Receiving Hospital, Cuyahoga Falls, psychiatry.
224. Children's Hospital, Cincinnati, pediatrics.
225. Dunham Hospital, tuberculosis; Hamilton County Home and Chronic Disease Hospital, Cincinnati, chronic diseases.
226. Cincinnati General Hospital, contagious diseases, pediatrics.
227. Cincinnati General Hospital, pediatrics.
228. Cincinnati General Hospital, contagion.
229. St. Ann's Maternity Hospital, Cleveland, obstetrics.
230. Children's Hospital, Columbus, pediatrics.
231. Children's Hospital, St. Francis Hospital, Columbus, pediatrics, medicine.
232. Shriner's Hospital for Crippled Children, Portland, orthopedics.
233. St. Vincent's Hospital, Portland, obstetrics.
234. Providence Hospital; Multnomah Hospital, Portland, pediatrics and outpatient service.
235. Hospital of the University of Pennsylvania, Philadelphia, obstetrics.
236. Philadelphia Hospital for Contagious Diseases.
237. Children's Hospital, Philadelphia, pediatrics.
238. Rosella Foundling and Maternity Hospital, Pittsburgh, obstetrics.
239. Children's Hospital; Eye, Ear, Nose and Throat Hospital; Municipal Hospital; Elizabeth Steel Magee Hospital, Pittsburgh.
240. Municipal Hospital, Pittsburgh, contagion.
241. West Side Hospital, Scranton, obstetrics.

APPROVED RESIDENCIES AND FELLOWSHIPS

Council on Medical Education and Hospitals of the American Medical Association
355 North Dearborn Street, Chicago 10

Revised to May 1, 1949

Hospitals, 1,187; Assistant Residencies, Residencies and Fellowships, 17,293

The following services are approved by the Council on Medical Education and Hospitals as meeting the requirements of the Essentials of Approved Residencies and Fellowships. In those specialties in which certifying boards have been established approval is extended in concurrence with the Board concerned. The number of years of training for which approval has been granted is indicated in the column, "Length of Approved Program (years)." Residencies in which this designation does not appear have been approved without specifying the number of years for which they are accredited.

The (*) indicates hospitals approved for intern training. All hospitals included in the internship list are also accredited for general residency training. This category will be replaced by the residency in general practice in the next Internship and Residency Number.

The (†) represents temporary approval, pending formal inspection, in accordance with the plan announced in THE JOURNAL, March 2, 1946, p. 586. Granting of approval on this basis has been terminated by action of the Council and the Advisory Board for Medical Specialties. Hospitals temporarily approved prior to this action currently are being inspected to determine whether or not approval should be continued and, if so, the number of years of training for which they will be accredited.

INDEX TO LIST

INDEX TO LIST

	Page		Page		Page
1. Allergy	173	10. Neurological Surgery	185	19. Physical Medicine	205
2. Anesthesiology	173	11. Neurology	186	20. Plastic Surgery	206
3. Cardiovascular Disease	176	12. Obstetrics and Gynecology	187	21. Proctology	206
4. Contagious Diseases	176	13. Occupational Medicine	192	22. Psychiatry	207
5. Dermatology and Syphilology	177	14. Ophthalmology and Otolaryngology ..	192	23. Pulmonary Diseases	210
6. Gastroenterology	178	15. Orthopedic Surgery	195	24. Radiology	211
7. General Residency	178	16. Otolaryngology (see Ophthalmology)		25. Surgery	215
8. Internal Medicine	179	17. Pathology	198	26. Thoracic Surgery	222
9. Malignant Diseases	185	18. Pediatrics	203	27. Urology	223

1. ALLERGY

The following services are approved by the Council and the American Board of Internal Medicine
Hospitals, 12; Assistant Residencies and Residencies, 30

Name of Hospital	Location	Chief of Service	Inpatients Treated	Outpatient Visits	Asst. Res. and Residencies Offered	Beginning of Service (1949)	Beginning Stipend (Month)
Veterans Administration							
†Veterans Admin. Hospital.....	Aspinwall, Pa.....	L. H. Crip.....	503	.....	2	7/1	n
Nonfederal							
†Northwestern University Medical Center.....	Chicago.....	.....	...	.....	3	.....	.....
†Johns Hopkins Hospital*1.....	Baltimore.....	.....	...	9,589	1	.....	.....
†Massachusetts General Hospital*.....	Boston.....	W. S. Burrage.....	(Included in Medicine)	14	.....	.....	.....
†Jewish Hospital*.....	Brooklyn.....	.....	...	.....	1	.....	.....
†Buffalo General Hospital*.....	Buffalo.....	H. Osgood.....	...	1,918	1	.....	.....
†Roosevelt Hospital*1.....	New York City.....	R. A. Cooke.....	77	37,747	2	7/1	\$200.00
†University Hospital*.....	New York City.....	R. W. Robertazzi.....	...	11,257	(Included in Medicine)	.....	.....
†Montefiore Hospital*.....	Pittsburgh.....	L. H. Crip.....	17	1,911	1	7/1	50.00
†University of Virginia Hospital*1.....	Charlottesville, Va.....	O. W. Swineford.....	...	1,175	2	7/1	.....
†Medical College of Virginia, Hospital Division*1.....	Richmond, Va.....	W. B. Blanton.....	...	3,126	2	7/1	.....
†Milwaukee County Hospital*1.....	Milwaukee.....	.....	...	1,261	1	.....	153.02

2. ANESTHESIOLOGY

The following services are approved by the Council and the American Board of Anesthesiology
Hospitals, 214; Assistant Residencies and Residencies, 650

Name of Hospital	Location	Chief of Service	Total Anesthetics	Inhalation Anesthetics	Asst. Res. and Residencies Offered	Beginning of Service (1949)	Beginning Stipend (Month)
United States Army							
†Letterman General Hospital*.....	San Francisco.....	E. P. Shannon.....	5,065	1,831	1	.....	n
†Fitzsimons General Hospital*.....	Denver.....	J. H. Forsee.....	3,626	1,894	4	.....	n
†Walter Reed General Hospital*.....	Washington, D. C.....	J. Gardiner.....	6,610	2,626	2	1/7	n
†Oliver General Hospital*.....	Augusta, Ga.....	C. H. Mitchell.....	2,956	1,560	3	1/1	n
†Brooke General Hospital*.....	San Antonio, Texas.....	F. O. Dye.....	7,696	1,157	5	.....	n
United States Navy							
U. S. Naval Hospital*.....	Long Beach, Calif.....	.....	.....	.....	..	.....	n
†U. S. Naval	Oakland, Calif.....	.....	.....	.....	4	.....	n
†U. S. Naval	Bethesda, Md.....	H. A. Gross.....	3,639	1,603	4	.....	n
†U. S. Naval	Chelsea, Mass.....	M. L. Connerley.....	2,068	369	..	.....	n
†U. S. Naval	St. Albans, N. Y.....	J. G. Kurfees.....	2,422	334	4	.....	n
†U. S. Naval	Philadelphia.....	S. Whitehouse.....	3,769	440	1	.....	n
United States Public Health Service							
†U. S. Marine Hospital*1.....	Stapleton, N. Y.....	C. L. Herbert.....	6,358	1,711	2	7/1	n
Veterans Administration							
Veterans Admin. Hospital 1.....	Los Angeles.....	N. H. Rupp.....	4,997	421	8	.....	n
Veterans Admin. Hospital 1.....	San Francisco.....	W. B. Neff.....	1,456	593	4	7/1	n
†Veterans Admin. Hospital.....	Van Nuys, Calif.....	W. Greene.....	3,361	247	2	1/1, 7/1	n

Numerical and other references will be found on page 225.

2. ANESTHESIOLOGY—Continued

Name of Hospital	Location	Chief of Service	Total Anesthetics	Inhalation Anesthetics	Asst. Res. and Residents Offered	Beginning of Service (1949)	Beginning Salary (Month)
Veterans Admin. Hospital ¹	Ft. Logan, Colo.						n
Veterans Admin. Hospital ¹	Washington, D. C.	L. M. Jones	2,097	372	1	7/1	n
Veterans Admin. Hospital ¹	Chamblee, Ga.	W. H. Galvin	2,796	314	1	7/1	n
Veterans Admin. Hospital ¹	Hines, Ill.	W. A. Conroy	5,902	1,670	8	7/1, 1/2	n
Veterans Admin. Center ¹	Des Moines, Iowa	J. L. Bailey	2,847	285	5	1, 7	n
Veterans Admin. Hospital ¹	Indianapolis	L. B. Mueller	1,532	266	1	1, 7	n
Veterans Admin. Hospital ¹	Des Moines, Iowa	J. L. Bailey	2,847	285	5	1, 7	n
Veterans Admin. Center ¹	Wadsworth, Kan.	R. S. McKee	3,670	190	2	1, 7	n
Veterans Admin. Hospital ¹	Louisville, Ky.	L. A. Gittelsohn	4,300	600	2		n
Veterans Admin. Hospital ¹	New Orleans, La.	R. L. Gleason	2,008	271	1	7/1	n
Veterans Admin. Hospital ¹	Boston		2,896	451	1		n
Veterans Admin. Hospital ¹	Framingham, Mass.		3,826	333	2		n
Veterans Admin. Hospital ¹	Minneapolis		4,219	687	10		n
Veterans Admin. Hospital ¹	Jefferson Bks., Mo.		3,700	896	2		n
Veterans Admin. Hospital ¹	Batavia, N. Y.		1,519	312	2	7/1	n
Veterans Admin. Hospital ¹	New York City	P. K. Sauer	5,016	1,455	8	1, 7	n
Veterans Admin. Hospital ¹	Staten Island, N. Y.	B. C. Gilbert	4,043	437	4	7/1	n
Veterans Admin. Hospital ¹	Oklahoma City	H. A. Bennett	1,231	157	1	7	n
Veterans Admin. Hospital ¹	Portland, Ore.	J. H. Hutton	2,779	750	2	1/1, 7/1	n
Veterans Admin. Hospital ¹	Aspenwall, Pa.	I. W. Flannberg	3,717	819	2	7/1	n
Veterans Admin. Hospital ¹	Memphis, Tenn.	R. Popper	5,637	845	1	7/1	n
Veterans Admin. Hospital ¹	Nashville, Tenn.	H. H. Robbins	1,456	273	2	7/1	n
Veterans Admin. Hospital ¹	Dallas, Texas		1,125	118	1	1/1, 7/1	n
Veterans Admin. Hospital ¹	McKinney, Texas	F. A. D. Alexander	1,642	413	2		n
Veterans Admin. Center ¹	White River Jet., Va.	R. E. Lapointe	1,515	168		7/1	n
Veterans Admin. Hospital ¹	Richmond, Va.	I. Gold	3,888	917	2	7/1	n
Veterans Admin. Center ¹	Milwaukee, Wis.	R. A. Tulin	2,890	1,820	5	7/1	n
Nonfederal							
Jefferson-Hillman Hospital ¹	Birmingham, Ala.	A. McNeal	8,435	7,321	1		
Employees' Hospital of the Tennessee Coal, Iron and Railroad Company ¹	Fairfield, Ala.	E. B. Robinson, Jr.	3,885	2,278	1	7/1	\$235.00
Los Angeles County Hospital ¹	Los Angeles	J. B. Dillon			15	Varies	165.00
White Memorial Hospital ¹	Los Angeles	L. D. Lee	4,298	750	4	7/1	140.00
Peralta Hospital ¹	Oakland, Calif.	F. E. Davis	6,684	2,385	4	7/1	125.00
Samuel Merritt Hospital ¹	Oakland, Calif.	B. M. Anderson	5,277	3,413	1	1/15	110.00
Children's Hospital ¹	San Francisco	H. D. Lapp	3,370	1,695	2	7/1	50.00
Franklin Hospital ¹	San Francisco	J. L. Cardwell	5,266	3,358	1	7/1	100.00
French Hospital ¹	San Francisco		3,207	1,091			
St. Joseph's Hospital ¹	San Francisco	C. Wyckoff	4,233	1,110			200.00
Stanford University Hospitals ¹	San Francisco	W. B. Neff	8,169	3,440	3	7/1	50.00
University of California Hospitals ¹	San Francisco	F. J. Murphy			5	7/1, 8/1, 9/1	50.00
Colorado General Hospital ¹	Denver, Colo.	P. A. Lief	2,419	911	4	7/1	75.00
Denver General Hospital ¹	Denver, Colo.	P. A. Lief	2,987	1,423	2	7/1	40.00
Bridgeport Hospital ¹	Bridgeport, Conn.	D. M. Massey	5,395	2,586	1	10/1	100.00
Hartford Hospital ¹	Hartford, Conn.	R. M. Towell	20,958	11,471	38		50.00
St. Francis Hospital ¹	Hartford, Conn.	S. J. Martin	12,448	6,937	9	10, 1, 7	75.00
Grace-New Haven Community Hospital	New Haven, Conn.		3,118	1,512		7/1	52.00
Grace Unit ¹	New Haven, Conn.	L. J. Hampton	5,511	3,131	6	7/1	40.00
Hospital of St. Raphael ¹	New Haven, Conn.	M. Garofalo				7/1	75.00
St. Mary's Hospital ¹	Waterbury, Conn.	W. Grillo	5,412	1,619	2		
Waterbury Hospital ¹	Waterbury, Conn.		6,457	2,154	1		100.00
Memorial Hospital ¹	Wilmington, Del.	R. E. Allen	3,276	1,116	3	7/1	110.00
Children's Hospital ¹	Washington, D. C.		3,395	8,388			
Doctors' Hospital ¹	Washington, D. C.	C. W. Hyde	4,885	600	2		
Gallinger Municipal Hospital ¹	Washington, D. C.		8,697	3,763	2	7/1	100.00
Garfield Memorial Hospital ¹	Washington, D. C.	E. B. Macdon					
Georgetown University Hospital ¹	Washington, D. C.	E. B. Touhy	6,008	4,820	2		25.00
George Washington University Hospital ¹	Washington, D. C.	L. Mousel	2,754	2,078	9		50.00
Riverside Hospital ¹	Jacksonville, Fla.		1,147	750	1	9	
University Hospital ¹	Augusta, Ga.	P. P. Volpitta	6,234	4,182	4	7	40.00
Cook County Hospital ¹	Chicago	F. Grem	14,832	8,405	2	1, 7	32.00
Michael Reese Hospital ¹	Chicago	B. Stodsky	8,769	6,624	4	1, 7	25.00
Mount Sinai Hospital ¹	Chicago	R. Weyl	5,201	4,000	1	7/1	50.00
Passavant Memorial Hospital ¹	Chicago		3,748	2,500	1		
Presbyterian Hospital ¹	Chicago	C. D. Anderson	8,490	5,091	2		50.00
Research and Educational Hospitals ¹	Chicago	L. J. Loveseth	2,588	2,276	6	7/1	55.00
St. Luke's Hospital ¹	Chicago	W. A. Conroy	6,261	5,623	4	7/1	25.00
University of Chicago Clinics ¹	Chicago	H. Livingstone	8,330	4,917	8	7/1	25.00
Wesley Memorial Hospital ¹	Chicago	M. Karp	7,531	5,671	3		25.00
Evanston Hospital ¹	Evanston, Ill.	J. E. Romlinger	5,655	2,933	5		50.00
Indianapolis General Hospital ¹	Indianapolis	L. J. Mueller	20,307	2,321	2	7/1	100.00
Indiana University Medical Center ¹	Indianapolis	V. K. Stoettinger	4,510	2,990	3	7/1	68.33
Methodist Hospital ¹	Indianapolis	J. M. Whitehead	19,579	11,508	4	7/1	200.00
Ball Memorial Hospital ¹	Muncie, Ind.	W. B. Adams	9,785	5,738	1	7/1	100.00
Memorial Hospital ¹	South Bend, Ind.	R. Rosenheimer	4,863	3,530	1		15.00
University Hospitals ¹	Iowa City, Iowa	S. Cullen	8,925	5,013	8	7/1	50.00
University of Kansas Medical Center ¹	Kansas City, Kan.	P. H. Lorlan	4,828	3,186	5	7/1, 1/1	
St. Joseph Hospital ¹	Lexington, Ky.	W. R. Sergeant	7,300	6,000			
Louisville General Hospital ¹	Louisville, Ky.	M. Davis, Jr.	3,112	1,927	3	7/1	45.00
Charity Hospital of Louisiana ¹	New Orleans		10,617	6,284	9	7/1	25.00
Ochsner Foundation Hospital ¹	New Orleans	G. B. Grant	3,697	1,639	4	1/1, 7/1	150.00
Touro Infirmary ¹	New Orleans						
Eastern Maine General Hospital ¹	Bangor, Maine						
Central Maine General Hospital ¹	Lewiston, Maine	G. Clapperton	3,347	1,847	2	1/1	
Maine General Hospital ¹	Portland, Maine						
University Hospital ¹	Baltimore, Md.	A. T. Nelson	6,795	1,533	4	7/1	50.00
Beverly Hospital ¹	Beverly, Mass.	J. H. Fine	4,154	1,533	1	7/1	Varies
Boston City Hospital ¹	Boston	S. C. Wiegman	21,719	6,165	16		
Faulkner Hospital ¹	Boston				1		
Lahey Hospital ¹	Boston				10		
Massachusetts General Hospital ¹	Boston	H. K. Beecher			7		
New England Hosp. for Women and Children ¹	Boston	J. G. Arrowood	4,367	2,891	6	9/1	50.00
St. Elizabeth's Hospital ¹	Boston	E. Bartlett	5,371	2,097	1		50.00
	Boston	L. Zentgraf	6,068	3,314	1		

2. ANESTHESIOLOGY—Continued

Name of Hospital	Location	Chief of Service	Total Anesthetics	Inhalation Anesthetics	Asst. Res. and Residents Offered	Beginning of Service (1949)	Beginning Salary (Month)
Cambridge City Hospital*	Cambridge, Mass.	D. R. Branch	3,247	1,575	1	8/17	\$ 58.33
†Mount Auburn Hospital*1	Cambridge, Mass.	J. H. Buskirk	5,139	2,514	2	9/1	.....
Newton-Wellesley Hospital*1	Newton, Mass.	R. S. Hunt	5,019	2,112	1	7/1	100.00
†Salem Hospital*	Salem, Mass.	R. R. Richardson	4,379	2,712	1	.....	50.00
†Memorial Hospital*1	Worcester, Mass.	C. B. Hinds	4,467	1,909	.....	.....	100.00
†St. Vincent's Hospital*	Worcester, Mass.	W. J. Martin	5,204	2,579	1	7/1	41.67
City of Detroit Receiving Hospital*1	Detroit	I. B. Taylor	7,309	2,481	5	7/1	188.00
Providence Hospital*	Detroit	N. M. Bittrich	6,358	2,885	1	7/1	140.00
Butterworth Hospital*1	Grand Rapids, Mich.	M. L. Byrd	5,248	2,470	1	7/1	100.00
University of Minnesota Hospitals*1	Minneapolis	R. Knight	4,214	2,647	9	.....	.....
Mayo Foundation	Rochester, Minn.	J. S. Lundy	.....	.....	15	.....	92.50
Ancker Hospital*	St. Paul	R. Knight	4,622	1,034	3	.....	150.00
Kansas City General Hospital, No. 1*	Kansas City, Mo.	E. Grandstaff	3,713	870	.....	.....	50.00
Research Hospital*1	Kansas City, Mo.	C. R. McCubbin	.....	.....	2	7/1	.....
†Mary Hitchcock Memorial Hospital*1	Hanover, N. H.	R. H. Barrett	5,450	1,611	2	7/1	150.00
†Elliot Hospital*	Manchester, N. H.	H. Elliot	3,997	1,671	.....	.....	.....
West Jersey Hospital*	Cumden, N. J.	K. S. Russell	.....	.....	1	4/1	125.00
Jersey City Hospital*	Jersey City, N. J.	W. Gleason	6,098	1,734	5	.....	.....
†St. Joseph Hospital*	Paterson, N. J.	H. G. Walker	3,951	2,838	.....	.....	150.00
Albany Hospital*1	Albany, N. Y.	M. H. Harmel	7,212	.....	8	7/1	41.67
†Beth-El Hospital*1	Brooklyn	I. Goldfeder	6,574	1,557	1	7	100.00
Jewish Hospital*	Brooklyn	I. M. Pallin	12,163	3,569	6	7	100.00
†Maimonides Hospital*1	Brooklyn	J. Burcham	2,320	983	1	7/1	125.00
†Beth Moses Division*	Brooklyn	L. Holzmann	9,480	6,029	.....	7/1	75.00
†Israel Zion Division*1	Brooklyn	R. Waelsh	5,256	.....	2	.....	.....
†Methodist Hospital*1	Brooklyn	.....	.....	.....	.....	.....	.....
†St. Catherine's Hospital*1	Brooklyn	.....	.....	.....	.....	7/1	100.00
†Unity Hospital*	Brooklyn	.....	.....	.....	.....	7/1	100.00
Bunalo General Hospital*	Buffalo	C. J. Dursbordwe	11,427	3,762	3	7/1	50.00
†Edward J. Meyer Memorial Hospital*	Buffalo	P. W. Searles	.....	.....	2	.....	100.00
Mildard Fillmore Hospital*	Buffalo	.....	8,729	1,415	.....	.....	50.00
†Mary Immaculate Hospital*1	Jamaica, N. Y.	G. Frank	5,243	4,139	3	7/1	75.00
Bellevue Hospital, Div. 111-N. Y. Univ.*1	New York City	E. A. Roventine	5,563	.....	12	.....	.....
†Beth Israel Hospital*1	New York City	S. G. Hershey	7,563	4,984	3	1/1, 7/1	50.00
Flower and Fifth Avenue Hospitals*1	New York City	D. E. Brace	7,482	5,073	2	7/1	.....
French Hospital*1	New York City	.....	2,055	1,791	3	.....	100.00
Goldwater Memorial Hospital*1	New York City	E. A. Roventine	1,660	352	2	7/1	175.00
Hospital for Joint Diseases*1	New York City	A. Becker	3,913	2,417	2	7/1	40.00
†Hospital for Special Surgery*1	New York City	C. Buxtein	2,717	2,156	2	1/1, 7/1	100.00
†Lenox Hill Hospital*1	New York City	M. Fricke	9,138	6,174	2	7/1	50.00
Metropolitan Hospital*1	New York City	F. E. Ferro	3,111	2,177	5	.....	.....
†Montenore Hospital for Chronic Diseases*1	New York City	B. Cohen	.....	.....	1	.....	.....
Mount Sinai Hospital*1	New York City	B. H. Eliasberg	8,890	5,444	3	.....	50.00
†New York City Hospital*1	New York City	P. M. Wood	2,359	778	3	7/1	229.16
†New York Hospital*	New York City	J. Artusio	.....	.....	1	7/1	25.00
New York Polyclinic Medical School and Hospital*1	New York City	.....	6,411	3,344	4	7/1	100.00
Presbyterian Hospital*1	New York City	V. Appar	15,958	9,854	18	.....	41.66
†St. Clare's Hospital*1	New York City	A. A. Rose	14,332	2,320	1	7/1	25.00
St. Luke's Hospital*	New York City	G. E. Burford	7,369	3,327	4	7	150.00
St. Vincent's Hospital*1	New York City	V. J. Collins	4,789	3,481	1	7/1	100.00
†Sydenham Hospital*1	New York City	M. C. Fischman	2,325	1,530	1	7	35.00
University Hospital*1	New York City	R. W. Robertazzi	5,403	4,180	6	.....	.....
Rochester General Hospital*1	Rochester, N. Y.	J. F. Kellogg	5,912	3,564	2	.....	.....
†St. Mary's Hospital*1	Rochester, N. Y.	D. Bianchi	5,817	3,146	.....	7/1	125.00
†Syracuse Univ. Medical Center Hospitals*	Syracuse, N. Y.	.....	.....	.....	.....	.....	.....
Grasslands Hospital*1	Valhalla, N. Y.	H. F. Bishop	1,126	637	2	7	.....
†Duke Hospital*1	Durham, N. C.	R. Martin	9,928	6,467	2	7/1	83.33
†Mercy Hospital*	Canton, Ohio	J. A. McAllely	9,255	5,588	.....	.....	.....
Christ Hospital*	Cincinnati	L. E. Larlick	6,957	1,932	1	7/1	75.00
Cleveland Clinic Hospital*	Cleveland	D. E. Hale	9,356	1,407	4	7/1	100.00
†Mount Sinai Hospital*	Cleveland	S. Katz	8,269	7,139	1	7/1	65.00
St. Luke's Hospital*	Cleveland	B. B. Sankey	10,550	6,242	1	6/25	75.00
†Woman's Hospital*	Cleveland	.....	3,032	2,147	.....	.....	.....
Ohio State University Hospital*1	Columbus, Ohio	J. J. Jacoby	6,545	2,055	3	7/1	50.00
Huron Road Hospital*1	East Cleveland, Ohio	R. J. Whitacre	9,241	5,451	5	7/1	100.00
†Lakewood Hospital*	Lakewood, Ohio	S. Gardner	4,391	2,957	1	.....	.....
†Mansfield General Hospital*	Mansfield, Ohio	C. R. Damron	.....	.....	2	.....	.....
Maumee Valley Hospital*1	Toledo, Ohio	.....	1,094	430	1	.....	125.00
†Youngstown Hospital*	Youngstown, Ohio	A. J. Fisher	11,706	5,612	1	7/1	100.00
University Hospitals*1	Oklahoma City	H. A. Bennett	3,900	2,700	4	7/1	35.00
University of Oregon Medical School Hospitals and Clinics*1	Portland Ore.	F. P. Haugen	10,206	2,519	4	7/1	75.00
†Abington Memorial Hospital*	Abington, Pa.	R. Mafo	5,860	3,842	2	10/1	100.00
†Harrisburg Hospital*1	Harrisburg, Pa.	F. F. Toth	8,335	5,656	2	1/1, 7/1	100.00
Hahnemann Hospital*1	Philadelphia	H. S. Ruth	9,015	3,895	5	.....	25.00
Hosp. of the University of Pennsylvania*1	Philadelphia	R. Drripps	11,712	3,840	13	Varies	.....
Hospital of the Woman's Medical College of Pennsylvania*1	Philadelphia	W. Weiss	3,092	1,826	1	7/1	60.00
†Jewish Hospital*1	Philadelphia	.....	.....	.....	.....	.....	.....
†Lankenau Hospital*1	Philadelphia	C. S. Turville	6,174	4,161	1	7/1	50.00
†Mount Sinai Hospital*1	Philadelphia	A. R. Rose	4,495	2,235	3	6/21	100.00
†Philadelphia General Hospital*1	Philadelphia	.....	4,911	2,375	5	7/1	70.00
Presbyterian Hospital*	Philadelphia	.....	.....	.....	1	.....	25.00
Temple University Hospital*1	Philadelphia	.....	14,562	5,078	4	7/1	.....
†Women's Homeopathic Hospital*	Philadelphia	.....	2,290	1,624	1	7/1	200.00
†Allegheny General Hospital*	Pittsburgh	R. L. Patterson	7,831	2,611	3	7/1	100.00
†Mercy Hospital*1	Pittsburgh	F. F. Foides	10,734	4,812	3	9/1	100.00
†Montefiore Hospital*	Pittsburgh	I. Greenfield	5,554	3,175	1	7/1	50.00
†St. Francis Hospital*	Pittsburgh	G. J. Thomas	7,584	2,010	3	7/1	100.00
Reading Hospital*1	Reading	P. D. Woodbridge	6,619	3,837	4	7/1	100.00
†Robert Packer Hospital*	Sayre, Pa.	W. Brehm	5,761	2,535	.....	7/1	150.00
†Christian H. Buhl Hospital	Sharon, Pa.	M. E. Cushnie	4,184	3,759	2	.....	250.00
Rhode Island Hospital*1	Providence, R. I.	M. Saklad	6,991	3,318	2	7/1	50.00
Baroness Erlanger Hospital*1	Chattanooga, Tenn.	.....	.....	.....	1	.....	.....
†John Gaston Hospital*	Memphis, Tenn.	J. L. McGhee	4,005	2,789	2	.....	.....
†Vanderbilt University Hospital*1	Nashville, Tenn.	B. H. Robbins	4,586	3,240	1	7/1	55.41

2. ANESTHESIOLOGY—Continued

Name of Hospital	Location	Chief of Service	Total Anesthetics	Inhalation Anesthetics	Asst. Res. and Residencies Offered	Beginning of Service (1949)	Beginning Stipend (Month)
†Baylor University Hospital*	Dallas, Texas	E. F. Weir	15,138	10,180	1	7/1	\$ 50.00
University of Texas Medical Branch Hosps.* ¹	Galveston, Texas	H. C. Storum	4,300	2,710	6	1, 7	50.00
Hermann Hospital* ¹	Houston, Texas	L. F. Schuhmacher, Jr.	5,350	1,004	3	.....	50.00
Dr. W. H. Groves Lutter-Day Saints Hosp.* ¹	Salt Lake City	S. Smith	10,078	8,426	1	7/1	75.00
†Bishop DeGoesbriand Hospital* ¹	Burlington, Vt.	J. Abajjian	1,105	523	2	1/1	100.00
Mary Fletcher Hospital*	Burlington, Vt.	J. Abajjian	2,274	815	2	7/1	50.00
King County Hospital*	Seattle, Wash.	J. E.	3,308	2,030	2	7/1	90.00
†Providence Hospital* ¹	Seattle, Wash.	C. P.	6,546	5,091	2	.....	.....
†Virginia Mason Hospital*	Seattle, Wash.	D. C.	3,540	2,865	2	.....	75.00
†Tacoma General Hospital*	Tacoma, Wash.	.....	.....	.....	.....	.....	.....
State of Wisconsin General Hospital* ¹	Madison, Wis.	J. T. McCoy	5,367	4,518	6	7	25.00
Columbia Hospital*	Milwaukee	R. B. Dodd	3,970	1,951	2	.....	.....
†Milwaukee County Hospital* ¹	Milwaukee	.....	2,832	1,153	2	7/1, 7/15, 8/1	138.00
†Mt. Sinai Hospital* ¹	Milwaukee	.....	2,621	2,850	1	7/1	75.00

3. CARDIOVASCULAR DISEASE

The following services are approved by the Council and the American Board of Internal Medicine Hospitals, 22; Assistant Residencies and Residencies, 66

Name of Hospital	Location	Chief of Service	Inpatients Treated	Outpatient Visits	Deaths	Autopsies	Asst. Res. and Residencies Offered	Beginning of Service (1949)	Beginning Stipend (Month)
United States Army									
†Letterman General Hospital*	San Francisco	.....	(Included in Internal Med.)				1	.....	n
Fitzsimons General Hospital*	Denver, Colo.	.....	.....	.....	.....	.....	1	.....	n
†Walter Reed General Hospital*	Washington, D. C.	J. S. Taylor	242	4,021	17	14	1	1, 7	n
United States Navy									
†U. S. Naval Hospital*	Bethesda, Md.	R. O. Parker	680	451	64	62	.....	.....	n
Veterans Administration									
Veterans Admin. Hospital	Hines, Ill.	L. A. Baker	1,644	.....	157	92	2	.....	n
Nonfederal									
†La Rabida Jackson Park Sanitarium ¹	Chicago	H. G. Poncher	.....	0	4	4	6	1, 4, 7, 10/1	\$75.00
†Michael Reese Hospital*	Chicago	L. N. Katz	.....	.....	.....	.....	13	1/1, 7	.....
Indiana University Medical Center* ¹	Indianapolis	.....	(Included in Internal Med.)				.....	1	.....
House of the Good Samaritan ¹	Boston	.....	197	.....	5	3	4	7/1	50.00
Massachusetts General Hospital*	Boston	P. D. White	.....	(Included in Internal Med.)				1	.....
Henry Ford Hospital*	Detroit	F. J. Smith	823	14,726	91	35	4	7/1	200.00
†Irvington House ¹	Irrington, N. Y.	A. C. DeGraff	100	450	.....	.....	1	7	200.00
†Mount Sinai Hospital* ¹	New York City	.....	.....	.....	.....	.....	7	.....	50.00
†St. Francis Sanatorium for Cardiac Children ¹	Roslyn, L. I., N. Y.	L. M. Taran	261	.....	6	2	3	7/1	200.00
†Duke Hospital* ¹	Durham, N. C.	.....	(Included in Internal Med.)				14	.....	.....
White Cross Hospital*	Columbus, Ohio	.....	(Included in Internal Med.)				.....	.....	.....
Hospital of the Woman's Medical College of Pennsylvania* ¹	Philadelphia	W. G. Leaman	.....	.....	.....	.....	1	.....	.....
Pennsylvania Hospital*	Philadelphia	J. B. Van der Veer	.....	2,875	.....	9	3	1/1, 7/1	50.00
†Philadelphia General Hospital* ¹	Philadelphia	.....	(Included in Internal Med.)				3	.....	.....
St. Francis Hospital*	Pittsburgh	A. P. D'Zmurn	400	101	101	17	1	7/1	100.00
Rhode Island Hospital* ¹	Providence, R. I.	F. B. Cutts	.....	.....	.....	.....	1	7/1	50.00
†University of Texas Medical Branch Hospitals* ¹	Galveston, Texas	.....	.....	.....	.....	.....	.....	.....	.....

4. CONTAGIOUS DISEASES

Hospitals, 19; Assistant Residencies and Residencies, 77

Name of Hospital	Location	Chief of Service	Inpatients Treated	Outpatient Visits	Deaths	Autopsies	Asst. Res. and Residencies Offered	Beginning of Service (1949)	Beginning Stipend (Month)
United States Navy									
U. S. Naval Hospital*	Great Lakes, Ill.	H. H. Carroll	800	64	2	2	1	.....	n
Nonfederal									
Los Angeles County Hospital* ¹	Los Angeles	A. G. Bower	5,472	.....	183	118	3	Varies	\$165.00
Children's Hospital* ¹	San Francisco	E. B. Shaw	403	.....	8	4	1	7/1	50.00
J. J. McCook Memorial Hospitals* ¹	Hartford, Conn.	C. I. Thenebe	614	.....	13	7	1	7/1	230.00
Cook County Hospital* ¹	Chicago	H. Lechenger	1,100	.....	50	.....	1	1, 7	32.00
Municipal Contagious Disease Hospital ¹	Chicago	A. L. Hoyne	1,701	4,354	57	51	6	1/1	147.00
Sydenham Hospital ¹	Baltimore	.....	982	.....	36	27	3	1	100.00
Boston City Hospital* ¹	Boston	E. H. Place	1,511	.....	14	8	6	.....	.....
Massachusetts Memorial Hospitals* ¹	Boston	L. Weinstein	1,352	.....	28	22	6	7/1	50.00
Belmont Hospital	Worcester, Mass.	W. D. MacDonald	489	.....	4	2	2	1/1, 7/1	155.00
Herman Kiefer Hospital ¹	Detroit	D. C. Young	1,521	.....	70	49	6	7/1	363.00
Kansas City General Hospital No. 1*	Kansas City, Mo.	C. R. Ferris	432	.....	16	15	1	.....	50.00
St. Louis City Hospital* ¹	St. Louis	I. R. Maxwell	671	.....	22	11	1	.....	.....
Essex County Hosp. for Contagious Diseases ¹	Belleville, N. J.	E. L. Smith	2,095	.....	26	14	6	1/1, 7/1	75.00
Kingston Avenue Hospital ¹	Brooklyn	T. Glvan	4,001	.....	42	18	9	1/1, 7/1	130.00
Queens General Hospital* ¹	Jamaica, N. Y.	H. A. Reisman	458	.....	3	3	2	7/1	50.00
Willard Parker Hospital ¹	New York City	.....	5,371	.....	40	29	10	1/1, 7/1	50.00
City Hospital* ¹	Cleveland	J. A. Toomey	1,313	.....	77	25	4	7/1	60.00
Philadelphia Hosp. for Contagious Diseases ¹	Philadelphia	A. O. LaBocetta	2,699	.....	64	35	3	1/1	190.00

5. DERMATOLOGY AND SYPHILOLOGY

The following services are approved by the Council and the American Board of Dermatology and Syphilology
Hospitals, 79; Assistant Residencies and Residencies, 299

Name of Hospital	Location	Chief of Service	Inpatients Treated	Outpatient Visits	Deaths	Autopsies	Asst. Res. and Residencies Offered *	Beginning of Service (1919)	Length of Approved Pro- gram (Years)	Beginning Stipend (Month)
United States Army										
Letterman General Hospital*	San Francisco	R. S. Higdon	368	4,534	0	0	5	.....	2	n
Army Institute of Pathology ¹	Washington, D. C.	.....	.....	.....	.....	.....	.....	.....	1	n
Walter Reed General Hospital*	Washington, D. C.	L. S. Leland	345	5,118	..	..	3	1, 7	3	n
Brooke General Hospital*	San Antonio, Tex.	C. B. White	959	11,838	2	2	5	.....	2	n
United States Navy										
U. S. Naval Hospital*	San Diego, Calif.	L. K. MacClatchie	1,685	2,994	..	..	2	.....	1	n
U. S. Naval Hospital*	St. Albans, N. Y.	C. D. Bell	410	2,315	..	..	5	.....	2	n
U. S. Naval Hospital*	Philadelphia	R. L. Gilman	142	7,560	2	1	5	.....	2	n
United States Public Health Service										
U. S. Marine Hospital* ¹	Stapleton, S. I., N. Y.	C. B. Mayes	2,739	20,497	..	..	4	7/1	2	n
Veterans Administration										
Veterans Administration Center ¹	Los Angeles, Calif.	.....	243	6,220	7	4	5	.....	2	n
Veterans Admin. Hospital ¹	Van Nuys, Calif.	M. E. Obermayer	407	3,885	2	2	1	7/1, 1/1	1	n
Veterans Admin. Hospital	Hines, Ill.	E. A. Oliver	1,032	.....	7	4	2	1/2, 7/1	1	n
Veterans Admin. Hospital	New Orleans, La.	C. B. Kennedy	175	1,457	1	1	1	7/1	1	n
Veterans Admin. Hospital ²¹	Fort Howard, Md.	M. Sullivan	.....	(Included in Medicine)	.....	.....	3	7/1	2	n
Veterans Admin. Hospital	Minneapolis	.....	593	.....	2	2	3	.....	3	n
Veterans Admin. Hospital	New York City	B. Straus	397	5	2	1	4	1	2	n
Veterans Admin. Hospital	Aspinwall, Pa.	S. H. Crawford	160	.....	1	1	2	7/1	1	n
Nonfederal										
Jefferson-Hillman Hospital* ¹	Birmingham, Ala.	R. Noojin	264	7,456	..	..	2	.....	3	.....
Los Angeles County Hospital* ¹	Los Angeles	S. Ayres	861	15,244	30	10	5	Varies	3	\$165.00
White Memorial Hospital*	Los Angeles	C. E. Counter	6	8,049	..	..	1	7/1	2	142.00
Stanford University Hospital*	San Francisco	O. E. L. Schmidt	26	11,374	..	..	1	7/1	1	50.00
University of California Hospital* ¹	San Francisco	.....	28	8,357	1	1	3	7/1, 8/1, 9/1	3	50.00
University of Colorado Medical Center, Colorado General Hospital* ¹	Denver	O. S. Philippott	42	4,337	.....	.....	2	7/1	1	75.00
Georgetown University Hospital*	Washington, D. C.	.....	.....	(Included in Medicine)	.....	.....	2	7	2	25.00
Alto Medical Center ²²	Alto, Ga.	E. M. Christensen	14,325	.....	3	1	1	.....	1	.....
Chicago Intensive Treatment Center ²²	Chicago	.....	.....	.....	.....	.....	1	.....	1	.....
Cook County Hospital* ¹	Chicago	T. Cornbleet	499	10,479	47	.....	2	1, 7	2	32.00
Michael Reese Hospital* ¹	Chicago	E. P. Lieberthal	19	6,356	..	..	1	1/1, 7	1	25.00
Northwestern University Medical Center, Research and	Chicago	.....	.....	.....	.....	.....	1	.....	3	.....
University of	Chicago	F. E. Senear	53	11,911	..	..	1	7/1	3	55.00
Indianapolis	Chicago	S. Rothman	122	4,530	2	2	7	7/1	3	25.00
University Hospitals* ¹	Indianapolis	J. R. Brayton	119	7,237	1	0	3	7/1	3	80.00
University of Kansas Medical Center*	Iowa City	R. Nomland	366	3,699	3	0	3	7/1	3	50.00
Louisville General Hospital*	Kansas City, Kan.	C. C. Denie	91	1,500	2	1	1	.....	1	.....
Charity Hospital of Louisiana* ¹	Louisville, Ky.	W. U. Rutledge	.....	5,280	..	..	1	7/1	1	100.00
Johns Hopkins Hospital* ²²	New Orleans	.....	353	33,119	2	0	6	7/1	3	25.00
University Hospital* ¹	Baltimore	.....	.....	28,417	..	..	3	7/1	1	41.65
Boston City Hospital* ¹	Baltimore	H. M. Robinson, Sr.	.....	23,995	..	..	1	.....	2	.....
Massachusetts General Hospital*	Boston	J. G. Downing	84	18,522	1	0	5	.....	2	.....
Massachusetts Memorial Hospital* ¹	Boston	C. N. Frazier	478	.....	4	2	5	.....	3	.....
University Hospital* ¹	Boston	J. G. Downing	.....	2,361	..	..	1	.....	1	.....
City of Detroit Receiving Hospital* ¹	Ann Arbor, Mich.	W. L. Fleming	.....	11,557	..	..	1	9/15	1	50.00
Minneapolis General Hospital* ¹	A. C. Curtis	629	10,882	8	4	6	7/1	3	118.80	
University of Minnesota Hospitals* ¹	Detroit	L. W. Snaffer	24	6,726	..	..	6	.....	3	.....
Mayo Foundation	Minneapolis	C. W. Laymon	351	7,558	3	3	2	1/1, 7/1	3	115.00
Ancker Hospital*	Minneapolis	H. McMichaelson	131	5,025	4	3	1	.....	3	.....
Barnard Free Skin and Cancer Hospital	Rochester, Minn.	P. A. O'Leary	.....	.....	..	..	12	.....	3	92.50
Barnes Hospital*	St. Paul	J. F. Madden	279	3,699	3	2	2	.....	3	.....
St. Mary's Group of Hospitals* ¹	St. Louis	R. S. Weiss	46	12,494	0	..	7	7/1	3	110.00
Kings County Hospital* ¹	St. Louis	.....	.....	(Included in Internal Medicine)	.....	.....	2	.....	2	.....
Buffalo General Hospital*	St. Louis	G. V. Stryker	152	7,473	..	..	2	7/1	3	35.00
Edward J. Meyer Memorial Hospital* ¹	Brooklyn	L. J. Frank	1,023	17,356	21	5	2	7/1	1	80.00
Bellevue Hospital, Div. III—N. Y. Univ.* ¹	Buffalo	E. Osborne	.....	3,478	..	..	2	7/1	2	50.00
Columbia-Presbyterian Medical Center ¹	Buffalo	E. D. Osborne	484	11,621	2	1	3	7/1	3	100.00
Hospital for Joint Diseases* ¹	New York City	F. C. Combes	3,162	18,856	20	1	5	1, 7	3	60.00
Mount Sinai Hospital* ¹	New York City	A. B. Cannon	8	39,502	1	..	2	.....	3	75.00
New York City Hospital* ¹	New York City	P. Gross	7	6,072	..	..	1	1/1	1	40.00
New York City Hospital* ¹	New York City	S. M. Peck	.....	.....	..	..	1	.....	2	50.00
New York Polyclinic Medical School and Hosp.* ¹	New York City	A. B. Cannon	691	8,728	4	..	3	7/1	1	120.00
Roosevelt Hospital* ¹	New York City	Barr and Webster	.....	22,919	(Included in Med.)	.....	3	.....	3	.....
St. Luke's Hospital*	New York City	.....	25	7,253	1	..	1	.....	1	.....
University Hospital*	New York City	G. C. Andrews	.....	9,500	..	..	1	7/1	1	103.33
Duke Hospital* ¹	New York City	L. P. Barker	126	11,409	..	..	1	1/1	2	50.00
Eastern Medical Center ²²	New York City	M. B. Sulzberger	124	106,977	5	2	5	2/1, 10/1	3	.....
Cincinnati General Hospital* ¹	Durham, N. C.	J. L. Callaway	261	2,679	1	..	4	7/1	3	83.33
City Hospital* ¹	Durham, N. C.	R. B. Hogan	.....	.....	..	..	..	.....	1	.....
Cleveland Clinic Hospital ¹	Cincinnati	L. Goldman	337	6,392	9	2	7	7/1	3	.....
University Hospitals* ¹	Cleveland	H. N. Cole	847	15,266	4	1	3	7/1	3	60.00
University of Oregon Medical School Hospitals and Clinics* ¹	Cleveland	E. W. Netherton	380	21,023	3	1	3	7/1	3	100.00
Graduate Hosp. of the Univ. of Pennsylvania*	Cleveland	H. N. Cole	294	16,019	1	..	3	7/1	3	25.00
Hospital of the University of Pennsylvania* ¹	Portland, Ore.	L. B. Kingery	63	5,956	..	..	2	7/1	2	75.00
Jefferson Medical College Hospital*	Philadelphia	D. M. Pillsbury	82	6,685	1	..	3	7/1	2	.....
Pennsylvania Hospital*	Philadelphia	C. S. Livingood	650	21,831	..	..	22	7/1	2	.....
Skin and Cancer Hospital	Philadelphia	C. S. Livingood	16	4,894	..	..	2	7/1	2	.....
University of Pittsburgh Medical Center	Philadelphia	H. Beerman	.....	9,694	..	..	1	.....	1	20.00
Parkland Hospital* ¹	Philadelphia	D. M. Pillsbury and C. S. Wright	266	51,177	6	1	4	Varies	2	50.00
University of Texas Medical Branch Hosps.* ¹	Pittsburgh	.....	.....	.....	..	..	1	.....	3	.....
University of Virginia Hospital* ¹	Dallas, Texas	.....	.....	.....	..	..	6	.....	1	.....
State of Wisconsin General Hospital* ¹	Galveston, Texas	G. Holmes	118	8,003	1	1	7	.....	3	.....
	Charlottesville, Va.	D. C. Smith	269	12,516	4	..	6	7/1	3	62.00
	Madison, Wis.	S. A. M. Johnson	254	3,515	2	1	1	9	1	25.00

6. GASTROENTEROLOGY

The following services are approved by the Council and the American Board of Internal Medicine
Hospitals, 3; Assistant Residencies and Residencies, 3

Name of Hospital	Location	Chief of Service	Inpatients Treated	Outpatient Visits	Deaths	Autopsies	Asst. Res. and Residencies Offered	Beginning of Service (1949)	Beginning Stipend (Month)
Michael Reese Hospital*	Chicago.....	H. Necheles.....	.....	.....	.....	.....	1	1/1, 7/1	.....
Lenox Hill Hospital*	New York City.....	H. A. Rasky.....	186	.....	9	.....	1	7/1	\$50.00
Hospital of the University of Pennsylvania*	Philadelphia.....	T. G. Miller.....	.....	3,217	..	..	1	7/1	.....

7. GENERAL RESIDENCY

The listing of hospitals under this category will be discontinued following publication of the 1949 Internship and Residency Number. Hospitals previously approved under this classification and desiring continued approval will be expected to meet the requirements for residency training in general practice.

Hospitals, 85; Assistant Residencies and Residencies, 216

Name of Hospital	Location	Chief of Staff	Inpatients Treated	Deaths	Autopsies	Asst. Res. and Residencies Offered	Beginning of Service (1949)	Beginning Stipend (Month)
Baptist Hospital ¹	Birmingham, Ala.....	H. Linder.....	8,431	143	69	4	7/1	\$200.00
St. Vincent's Hospital ¹	Birmingham, Ala.....	R. G. Lovelady.....	5,524	115	43	3	1/1, 1/2	.....
St. Margaret's Hospital ¹	Montgomery, Ala.....	J. Blue.....	6,328	171	51	1	.....	.....
Pima County General Hospital ¹	Tucson, Ariz.....	H. C. Thompson.....	2,309	140	78	3	7/1	250.00
Leo N. Levi Memorial Hospital ¹	Hot Springs, Ark.....	D. C. Lee.....	1,461	49	19	1	.....	.....
Kern General Hospital ¹	Bakersfield, Calif.....	J. K. Coker.....	11,282	.....	.....	25	7/1	.....
Paradise Valley Sanitarium and Hospital ¹	National City, Calif.....	S. G. Peck.....	3,076	170	121	.....	.....	.....
Monterey County Hospital ¹	Salinas, Calif.....	J. C. Smith.....	2,910	187	168	6	7/1	215.00
St. Francis Hospital ¹	San Francisco.....	L. R. Reynolds.....	12,280	329	45	1	.....	.....
St. Helena Sanitarium and Hospital ¹	Sanitarium, Calif.....	.....	3,555	65	26	.....	.....	180.00
Community Hospital of San Mateo County ¹	San Mateo, Calif.....	S. Lindsay.....	2,788	215	63	4	7/1	200.00
Sonoma County Hospital ¹	Santa Rosa, Calif.....	P. T. Quinry.....	3,384	88	.....	6	7/1	250.00
Boulder-Colorado Sanitarium and Hospital ¹	Boulder, Colo.....	R. H. Hanson.....	2,520	48	9	1	.....	.....
Memorial Hospital ¹	Colorado Spgs., Colo.....	H. H. Lamberson.....	3,718	164	29	1	7/1	210.00
St. Francis Hospital and Sanitarium ¹	Colorado Spgs., Colo.....	H. C. Bryan.....	3,635	120	56	2	1/1, 7/1	.....
University of Colorado Medical Center ¹	Denver.....	W. Darley and G. D. Ellis.....	15,498	1,163	625	20	7/1	.....
St. Mary Hospital.....	Pueblo, Colo.....	L. I. Ward.....	4,198	158	82	.....	.....	.....
Bristol Hospital.....	Bristol, Conn.....	R. A. Richardson.....	5,012	144	56	.....	7/1	150.00
Greenwich Hospital ¹	Greenwich, Conn.....	J. Miller.....	4,077	123	87	4	7/1	200.00
Eastern Dispensary and Casualty Hospital.....	Washington, D. C.....	J. R. Young.....	3,784	148	21	3	7	250.00
Riverside Hospital ¹	Jacksonville, Fla.....	T. Z. Carson.....	1,900	59	30	.....	7, 9	.....
Alton Memorial Hospital.....	Alton, Ill.....	.....	6,257	93	33	1	7/1	200.00
St. Joseph's Hospital.....	Alton, Ill.....	J. Kontzen.....	6,193	177	81	3	7/1	150.00
St. Francis Hospital.....	Blue Island, Ill.....	F. Vincent.....	4,538	141	25	.....	7	225.00
St. James Hospital.....	Chicago Heights, Ill.....	H. Long.....	4,632	133	49	.....	.....	.....
St. Anthony's Hospital.....	Rock Island, Ill.....	H. P. Miller.....	4,880	215	39	.....	.....	.....
St. Francis Hospital.....	Beech Grove, Ind.....	C. A. Reid.....	6,167	155	57	.....	.....	250.00
Clinic Hospital ¹	Bluffton, Ind.....	T. E. Taylor.....	2,221	60	27	.....	8/30, 7/6	100.00
Lafayette Home Hospital ¹	Lafayette, Ind.....	W. W. Washburn.....	4,644	104	59	.....	.....	.....
St. Luke's Methodist Hospital ¹	Cedar Rapids, Iowa.....	R. D. Proctor.....	2,209	211	67	3	6/1	200.00
Jewish Hospital.....	Louisville, Ky.....	L. W. Frank.....	3,270	143	40	1	.....	.....
E. A. Conway Memorial Hospital ¹	Monroe, La.....	G. McHenry.....	7,744	208	17	6	1/1, 7/1	275.00
Long Island Hospital.....	Hawthorne, N. J.....	R. I. Smith.....	4,093	168	.....	11	.....	200.00
St. Anne's Hospital.....	Fall River, Mass.....	E. Hussey.....	3,673	88	31	1	7/1	150.00
Framingham Union Hospital.....	Framingham, Mass.....	T. J. Caracciolo.....	5,030	86	32	.....	.....	.....
Malden Hospital.....	Malden, Mass.....	.....	6,344	181	85	.....	.....	.....
Cook's Dickinson Hospital ¹	Northampton, Mass.....	J. R. Hobbs.....	5,270	202	77	.....	.....	.....
Tewksbury State Hospital and Infirmary.....	Tewksbury, Mass.....	.....	1,594	322	35	.....	.....	.....
Parkside Hospital.....	Detroit.....	J. A. Graham.....	1,528	51	6	1	7/1	.....
Sarnoga General Hospital.....	Detroit.....	E. L. Sager.....	4,004	86	21	3	6	200.00
Cottage Hospital ¹	Grosse Pointe, Mich.....	W. G. Bernard.....	2,653	47	13	.....	.....	.....
Mersey Ho.....	Muskegon, Mich.....	E. M. Saele.....	4,560	140	41	.....	.....	.....
St. Joseph.....	Pontiac, Mich.....	E. E. Hammonds.....	9,161	182	64	4	.....	.....
Wyandot.....	Wyandotte, Mich.....	D. R. Herkimer.....	8,227	237	76	.....	.....	.....
Hibbing.....	Hibbing, Minn.....	C. N. Harris.....	5,033	124	101	1	7/1	200.00
Ellet Hospital ¹	Minneapolis.....	W. I. Nelson.....	4,544	141	57	.....	1, 7	100.00
Fairview Hospital ¹	Minneapolis.....	N. Wither.....	7,440	239	83	.....	7/1, 11/1	200.00
Midway Hospital.....	St. Paul.....	G. Earl.....	5,648	125	50	2	7	200.00
Northern Pacific.....	St. Paul.....	B. J. Deauf.....	3,008	103	16	.....	.....	.....
Alexian.....	St. Louis.....	B. Welsberg.....	2,043	150	65	.....	.....	200.00
Missouri.....	St. Louis.....	O. B. Reinert.....	7,546	193	70	12	7/1	135.00
Douglas.....	Omaha.....	T. Boier.....	6,379	451	.....	.....	.....	.....
Elliot Hospital ¹	Manchester, N. H.....	G. F. Dwinell.....	3,624	83	51	2	.....	75.00
Sacred Heart Hospital.....	Manchester, N. H.....	J. J. Powers.....	6,491	173	39	1	6/17	200.00
Irrington.....	Irrington, N. J.....	M. F. Baker.....	3,678	100	38	3	7/1	235.00
Jewish Hospital.....	Brooklyn.....	A. M. Rablner.....	178	108	28	6	Varies	150.00
Disenses ¹	Far Rockaway, N. Y.....	M. Morris.....	3,759	85	13	.....	.....	.....
St. Joseph Hospital.....	Huachuca, N. Y.....	N. S. Moore.....	1,886	1	1	.....	.....	.....
Cornell University Infirmary.....	Kingston, N. Y.....	.....	3,057	170	27	.....	7/1	150.00
Kingston Hospital.....	New York City.....	R. Spillman.....	1,703	169	40	.....	1, 7	100.00
Beekman-Downtown Hospital ¹	Staten Island, N. Y.....	J. Klabner.....	2,406	114	36	.....	9/1	200.00
Richmond Memorial Hospital ¹	Warsaw, N. Y.....	H. S. Martin.....	3,175	103	37	.....	7/1	75.00
Wyoming County Community Hospital.....	Charlotte, N. C.....	G. Black.....	7,019	179	32	.....	.....	.....
Mersey Hospital.....	Fayetteville, N. C.....	N. T. Ratney.....	5,181	170	.....	1	7/1	135.00
Highsmith Hospital ¹	Rocky Mount, N. C.....	E. S. Boice.....	2,498	150	2	.....	.....	.....
Park View Hospital.....	Cleveland.....	A. E. Blalock.....	3,678	43	10	.....	.....	200.00
Grace Ho.....	Mansfield, Ohio.....	W. M. Brown.....	2,498	210	20	.....	7	100.00
Mansfield.....	Madison, Tenn.....	J. C. Cant.....	7,530	66	10	.....	7/1	.....
Madison.....	Dallas, Texas.....	M. D. Bell.....	3,844	82	13	1	.....	200.00
Medical.....	Fort Worth, Texas.....	O. C. Garrett.....	4,865	143	50	.....	7/1	150.00
All Saints Hospital ¹	Galveston, Texas.....	E. Klatt.....	5,680	186	152	.....	.....	250.00
St. Mary's Infirmary.....	Portsmouth, Va.....	J. D. Collins.....	5,370	225	49	.....	.....	.....
Kings Daughters Hospital ¹	.....	.....	.....	.....	.....	.....	.....	.....

7. GENERAL RESIDENCY—Continued

Name of Hospital	Location	Chief of Service	Inpatients Treated ^a	Deaths	Autopsies	Asst. Res. and Residencies Offered ^b	Beginning of Service (1919)	Beginning Stipend (Month)
Maryview Hospital	Portsmouth, Va.	R. M. Cox	3,747	153	65	1	.....	.....
Grace Hospital	Richmond, Va.	A. L. Herring	4,671	86	7	2	.....	\$150.00
Retreat for the Sick	Richmond, Va.	R. F. Simms	4,503	104	51	1	.....	.....
St. Elizabeth's Hospital ¹	Richmond, Va.	G. W. Horsley	2,053	26	16	.....	.....	100.00
St. Luke's Hospital	Richmond, Va.	R. Nasse	3,776	85	32	.....	7/1	.....
Sheltering Arms Hospital ¹	Richmond, Va.	C. M. Nelson	1,824	62	46	.....	.....	.....
Maynard Hospital	Seattle	F. Burg	3,094	91	35	2	7	175.00
St. Joseph Hospital	Vancouver, Wash.	C. B. Hutt	5,285	97	48	1	.....	150.00
McMillan Hospital	Charleston, W. Va.	J. Seltzer	4,180	36	8	2	.....	200.00
St. Francis Hospital ¹	Charleston, W. Va.	R. R. Louft	6,663	124	2	.....	5, 8	200.00
St. Mary's Hospital	Clarksburg, W. Va.	C. O. Post	6,890	132	14	.....	.....	.....
Fairmont General Hospital	Fairmont, W. Va.	H. H. Jones	6,418	90	37	.....	.....	.....
St. Mary's Hospital	Superior, Wis.	C. W. Glesen	3,031	230	49	.....	.....	.....

8. INTERNAL MEDICINE

The following services are approved by the Council and the American Board of Internal Medicine
Hospitals, 504; Assistant Residencies and Residencies, 3,313

Name of Hospital	Location	Chief of Service	Inpatients Treated	Outpatient Visits	Deaths	Autopsies	Asst. Res. and Residencies Offered ^b	Beginning of Service (1919)	Beginning Stipend (Month)
United States Army									
Letterman General Hospital*	San Francisco	J. O. Gillespie	3,515	1,617	79	61	10	.....	n
Fitzsimons General Hospital*	Denver	M. M. Green	2,316	278	12	4	13	.....	n
Walter Reed General Hospital*	Washington, D. C.	C. R. Mueller	1,718	19,007	83	79	18	1, 7	n
Oliver General Hospital*	Augusta, Ga.	C. L. Leedham	3,512	713	6	4	9	1/1, 7/1	n
Brooke General Hospital*	San Antonio, Tex.	J. G. Knauer	6,835	15,423	140	101	22	.....	n
Gorgas Hospital*	Ancon, C. Z.	.....	6,160	24,186	234	139	5	1/1	n
Tripler General Hospital*	Moanalua, T. H.	.....	1,612	.....	2	1	.....	7/1	n
United States Navy									
U. S. Naval Hospital*	Long Beach, Calif.	C. L. Andrews	4,327	.....	171	141	5	Varies	n
U. S. Naval Hospital*	Oakland, Calif.	A. R. Higgins	3,706	.....	.....	.....	6	7	n
U. S. Naval Hospital*	San Diego, Calif.	E. F. Evans	3,706	15,018	174	118	7	.....	n
U. S. Naval Hospital*	Great Lakes, Ill.	H. H. Carroll	3,317	4,286	13	11	3	Varies	n
U. S. Naval Hospital*	Bethesda, Md.	I. L. Norman	3,728	23	29	16	11	Varies	n
U. S. Naval Hospital*	Chelsea, Mass.	J. H. L. Heinzelman	.....	.....	.....	.....	1	.....	n
U. S. Naval Hospital*	St. Albans, N. Y.	H. L. Weaver	2,560	248	75	84	4	.....	n
U. S. Naval Hospital*	Philadelphia	J. Love	8,941	3,442	351	196	8	.....	n
United States Public Health Service									
U. S. Marine Hospital*	Chicago	E. E. Mandel	.....	.....	.....	.....	2	.....	n
U. S. Marine Hospital*	New Orleans, La.	A. A. Doerner	3,140	32,968	92	60	4	7/1	n
Federal Security Agency									
Freedmen's Hospital ¹	Washington, D. C.	R. K. Brown	858	4,910	184	62	7	7/1	n
Veterans Administration									
Veterans Admin. Hospital	Tuskegee, Ala.	.....	.....	.....	.....	.....	.....	.....	n
Veterans Admin. Center ¹	Los Angeles	R. O. Egeberg	5,089	111,287	173	104	45	.....	n
Veterans Admin. Hospital	Oakland, Calif.	E. R. Movitt	2,460	8,112	153	111	13	7/1	n
Veterans Admin. Hospital ¹	San Francisco	G. E. Hein	1,542	4,347	89	71	20	7/1	n
Veterans Admin. Hospital	Van Nuys, Calif.	F. W. S. Modern	1,313	18,725	123	106	41	1/1, 7/1	n
Veterans Admin. Hospital	Fort Logan, Colo.	T. P. Sears	1,596	0	32	31	16	.....	n
Veterans Admin. Hospital	Newington, Conn.	P. Kunkel	1,819	.....	75	48	18	7/1	n
Veterans Admin. Hospital	Washington, D. C.	L. K. Alpert	438	2,345	37	73	13	7/1	n
Veterans Admin. Hospital	Coral Gables, Fla.	J. M. Rumball	1,201	7,566	52	48	5	7/1	n
Veterans Admin. Hospital	Augusta, Ga.	J. R. Kaufman	.....	.....	.....	.....	3	.....	n
Veterans Admin. Hospital	Chamblee, Ga.	M. Michael, Jr.	3,039	104	114	80	18	7/1	n
Veterans Admin. Hospital	Hines, Ill.	L. A. Baker	7,824	.....	276	155	53	1/2, 7/1	n
Veterans Admin. Hospital	Indianapolis	R. E. Westmoreland	2,218	.....	128	96	11	1/7	n
Veterans Admin. Hospital	Des Moines, Iowa	D. J. Glosset	3,221	0	159	96	15	7	n
Veterans Admin. Hospital	Topeka, Kan.	R. Chess	1,533	.....	41	35	7	7/1	n
Veterans Admin. Center ¹	Wadsworth, Kan.	M. Slavin	3,327	25	272	230	12	1, 7	n
Veterans Admin. Hospital	Wichita, Kan.	.....	.....	.....	.....	.....	.....	.....	n
Veterans Admin. Hospital ¹	Louisville, Ky.	J. R. Gott, Jr.	4,471	3,069	.....	.....	25	.....	n
Veterans Admin. Hospital ¹	New Orleans, La.	C. A. Jones	1,427	2,237	64	56	16	7/1	n
Veterans Admin. Hospital	Fort Howard, Md.	P. Padget	2,102	2,086	180	116	11	Varies	n
Veterans Admin. Hospital	Perry Pt., Md.	S. Goldgraben	639	100	13	7	2	7	n
Veterans Admin. Hospital (West Roxbury) ¹	Boston	T. A. Warthin	2,068	2,109	115	88	15	7/1	n
Veterans Admin. Hospital ¹	Framingham, Mass.	.....	2,305	.....	142	89	23	7/1	n
Veterans Admin. Hospital	Dearborn, Mich.	H. J. Kullman	3,033	9,418	203	130	21	7/1	n
Veterans Admin. Hospital	Minneapolis	.....	3,397	.....	208	138	31	.....	n
Veterans Admin. Hospital ²	Jefferson Bks, Mo.	.....	1,236	.....	82	47	24	.....	n
Veterans Admin. Hospital	Albuquerque, N. M.	.....	531	.....	20	17	6	7/1	n
Veterans Admin. Hospital	Batavia, N. Y.	J. M. Ruegger	1,780	380	92	40	9	7/1	n
Veterans Admin. Hospital	Bath, N. Y.	A. S. Dowling	1,557	26,634	109	11	4	1, 7	n
Veterans Admin. Hospital	New York City	B. Straus	4,779	894	378	196	30	7/1	n
Veterans Admin. Hospital ¹	Staten Island, N. Y.	H. A. Weller	1,014	10,860	48	59	22	7/1	n
Veterans Admin. Hospital ¹	Cleveland	N. P. Shumway	3,626	.....	232	128	27	3/1, 7/1, 11/1	n
Veterans Admin. Center	Dayton, Ohio	T. Jarrold	205	.....	8	5	24	.....	n
Veterans Admin. Hospital ¹	Oklahoma City	W. Langston	1,532	.....	45	17	6	7	n
Veterans Admin. Hospital	Portland, Ore.	J. H. Mills	3,397	.....	165	112	15	1/1, 7/1	n
Veterans Admin. Hospital	Aspinwall, Pa.	R. Schwartz	3,689	.....	280	167	19	7/1	n
Veterans Admin. Hospital	Columbia, S. C.	S. L. Zimmerman	3,293	.....	162	92	7	7	n
Veterans Admin. Hospital ¹	Memphis, Tenn.	J. E. Cottrell	1,709	18,494	42	28	22	7/1	n
Veterans Admin. Hospital	Nashville, Tenn.	R. France	2,832	.....	50	32	12	7/1	n

Numerical and other references will be found on page 225.

8. INTERNAL MEDICINE—Continued

Name of Hospital	Location	Chief of Service	Inpatients Treated	Outpatient Visits	Deaths	Autopsies	Asst. Res. and Residencies Offered	Beginning of Service (1949)	Residencies Subpend (Month)
Veterans Admin. Hospital ¹	Dallas, Texas	C. W. Sensenbach	433	.....	33	21	13	1/1, 7/1	n
Veterans Admin. Hospital ¹	McKinney, Texas	H. Friedman	.....	.....	.....	.....	17	.....	n
Veterans Admin. Hospital ¹	Salt Lake City	J. C. Nunemaker	3,129	3,621	90	82	11	7	n
Veterans Admin. Center ¹	White River Jet., Vt.	A. Yeomans	1,849	127	63	53	8	7/1	n
Veterans Admin. Hospital ¹	Richmond, Va.	J. P. Williams	5,226	.....	144	60	26	7/1	n
Veterans Admin. Hospital ¹	Milwaukee	M. W. Garry	3,720	4,032	240	156	26	7/1	n
Nonfederal									
Jefferson-Hillman Hospital ^{1,2}	Birmingham, Ala.	J. S. McLester	3,850	13,510	400	153	10	.....	.....
Carraway Methodist Hospital ¹	Birmingham, Ala.	E. D. Lineberry	1,473	4,742	56	8	2	7/1	\$100.00
Employees' Hospital of the Tennessee Coal, Iron and Railroad Company ¹	Fairfield, Ala.	G. M. Hankins	2,117	26,179	136	58	7	7/1	225.00
St. Joseph's Hospital ¹	Phoenix, Ariz.	R. S. Flinn	1,772	0	67	41	1	.....	.....
St. Monica's Hospital and Health Center ¹	Phoenix, Ariz.	R. S. Flinn	1,231	.....	116	51	1	7/1	293.00
St. Mary's Hospital and Sanatorium ¹	Tucson, Ariz.	H. W. Kohl	2,763	462	79	28	1	7/1	175.00
Tucson Medical Center ¹	Tucson, Ariz.	W. Hewitt	901	267	52	23	2	7/1	220.00
Arkansas Baptist Hospital ¹	Little Rock, Ark.	S. T. W. Cull	2,534	.....	238	54	2	7/1	75.00
University Hospital ¹	Little Rock, Ark.	J. N. Compton	630	6,313	71	38	6	7/1	50.00
San Joaquin General Hospital ¹	French Camp, Calif.	G. K. Weyer	4,202	.....	455	272	4	7/1	210.00
General Hospital of Fresno County ¹	Fresno, Calif.	H. A. Randal	1,242	.....	336	100	2	.....	231.00
Glendale Sanitarium and Hospital ¹	Glendale, Calif.	H. J. Hoxie	3,314	.....	198	74	4	7/1	100.00
Seaside Memorial Hospital ¹	Long Beach, Calif.	F. Kellogg	3,559	.....	272	60	2	7	150.00
California Hospital ¹	Los Angeles	W. F. Wessels	2,284	12,557	230	106	3	7/1	100.00
Cedars of Lebanon Hospital ¹	Los Angeles	.....	2,778	12,423	287	104	2	.....	50.00
Hospital of the Good Samaritan ¹	Los Angeles	E. R. Wane	2,297	8,920	221	91	3	7/1	150.00
Los Angeles County Hospital ¹	Los Angeles	D. W. Griggs	19,925	51,170	2,583	876	35	Varies	165.00
Queen of Angels Hospital ¹	Los Angeles	.....	2,061	703	.....	81	2	.....	.....
St. Vincent's Hospital ¹	Los Angeles	J. O. Rudlock	5,796	.....	54	33	1	.....	.....
White Memorial Hospital ¹	Los Angeles	W. E. Macpherson	1,404	28,347	85	55	5	7/1	142.00
Highland-Alameda County Hospital ¹	Oakland, Calif.	H. Rogers	2,165	.....	496	205	2	.....	100.00
Permanente Foundation Hospital ¹	Oakland, Calif.	M. F. Colton	1,213	34,141	116	59	2	.....	.....
Samuel Merritt Hospital	Oakland, Calif.	F. Taylor	1,620	.....	.....	.....	2	1/18	110.00
Collis P. and Howard Huntington Memorial Hospital ¹	Pasadena, Calif.	.....	1,714	.....	179	104	2	7/1	.....
Mercy Hospital ¹	San Diego, Calif.	.....	2,535	8,595	498	190	5	7/1	125.00
San Diego County General Hospital ¹	San Diego, Calif.	J. M. Ramsey	2,535	8,595	498	190	5	7/1	125.00
Children's Hospital ¹	San Francisco	D. Atkinson	370	1,785	21	9	1	7/1	50.00
Franklin Hospital ¹	San Francisco	H. C. Shephardson	1,591	.....	150	45	3	7/1	100.00
French Hospital ¹	San Francisco	D. L. Wilbur	1,660	.....	173	55	2	7	105.00
Mary's Hosp Hospital ¹	San Francisco	.....	.....	.....	.....	.....	.....	.....	.....
Mount Zion Hospital ¹	San Francisco	A. L. Cohn and J. J. Sampson	1,310	6,885	130	56	5	.....	60.00
St. Luke's Hospital ¹	San Francisco	E. L. Bruck	2,608	2,778	175	65	2	7/1	100.00
St. Mary's Hospital ¹	San Francisco	J. J. McGlinn	.....	.....	.....	.....	2	7/1	100.00
San Francisco Hospital ¹	San Francisco	L. H. Briggs	4,238	.....	946	153	6	.....	175.00
Southern Pacific General Hospital	San Francisco	.....	.....	.....	.....	.....	2	.....	.....
Stanford University Hospital ¹	San Francisco	A. L. Bloomfield	2,210	23,382	120	65	15	7/1	50.00
University of California Hospital ^{1,2,3}	San Francisco	W. J. Kerr	1,549	34,436	74	68	8	7/1, 8/1, 9/1	50.00
Santa Clara County Hospital ¹	San Jose, Calif.	P. Morton	3,216	.....	237	95	3	7/1	235.00
Fairmont Hospital of Alameda County ¹	San Leandro, Calif.	H. Rogers	1,610	7,503	348	120	5	7/1	145.00
Santa Barbara Cottage Hospital ¹	Santa Barbara, Calif.	D. H. McNamara	2,817	.....	90	65	3	7/1	100.00
Harbor General Hospital ¹	Torrance, Calif.	D. Root	1,618	.....	355	107	6	7/1	.....
University of Colorado Medical Center, Colorado General Hospital ¹	Denver	R. S. Liggett	1,171	30,501	205	153	17	.....	.....
Denver General Hospital ^{1,2,3}	Denver	S. S. Kauvar	3,433	.....	628	253	3	7	40.00
St. Joseph Hospital ¹	Denver	.....	1,628	.....	86	30	1	7/1	85.00
Colorado State Hospital ¹	Pueblo, Colo.	S. C. Werch	.....	.....	.....	.....	2	.....	275.00
Corwin Hospital ¹	Pueblo, Colo.	R. H. Finney	2,215	38,016	124	120	1	7/1	75.00
Bridgeport Hospital ¹	Bridgeport, Conn.	.....	.....	.....	.....	.....	.....	.....	.....
Hartford Hospital ¹	Hartford, Conn.	G. G. Russell	3,383	6,700	337	181	6	7/1	50.00
New Britain General Hospital ¹	New Britain, Conn.	J. C. White	1,331	.....	170	70	2	7/1	75.00
Grace-New Haven Community Hospital, Grace Unit ¹	New Haven, Conn.	T. Evans	1,146	.....	118	17	3	7/1	52.00
New Haven Unit (University Service) ¹	New Haven, Conn.	F. G. Blake	2,216	23,758	317	108	12	7/1	40.00
Hospital of St. Raphael ¹	New Haven, Conn.	T. S. Evans and J. Mignone	.....	.....	.....	.....	3	.....	75.00
Lawrence and Memorial Associated Hospitals ¹	New London, Conn.	A. Lubensky	1,631	.....	181	37	2	7/1	125.00
Norwalk Hospital ¹	Norwalk, Conn.	D. L. Birle	1,298	.....	118	37	2	7/1	155.00
Waterbury Hospital ¹	Waterbury, Conn.	O. J. Blazzer	1,571	3,930	210	93	2	7/1	100.00
Delaware Hospital ¹	Wilmington, Del.	L. B. Flinn	2,169	4,154	214	88	4	7/1	50.00
Memorial Hospital ¹	Wilmington, Del.	L. B. Flinn	1,677	.....	32	23	3	7/1, 8/1	110.00
Wilmington General	Wilmington, Del.	J. R. Durham, Jr.	1,400	975	85	37	.....	.....	150.00
Central Dispensary	Washington, D. C.	.....	1,581	5,550	151	73	1	7/1	100.00
Doctors Hospital ¹	Washington, D. C.	A. McNitt	2,417	.....	139	81	8	.....	.....
Gallinger Municipal Hospital ¹	Washington, D. C.	.....	2,930	.....	646	211	14	7/1	100.00
Garfield Memorial Hospital ¹	Washington, D. C.	B. F. Weems	1,581	3,231	136	64	5	.....	.....
Georgetown University Hospital ¹	Washington, D. C.	H. Jekkers	2,685	.....	159	74	17	7	25.00
George Washington University Hospital ¹	Washington, D. C.	T. Mel' Brown	410	2,222	10	6	4	7/1	50.00
Providence Hospital ¹	Washington, D. C.	H. R. Schreiber and W. P. Argy	1,943	3,753	206	112	4	7/1	75.00
Duval Medical Center ¹	Jacksonville, Fla.	L. Linbaugh	757	.....	185	100	3	7/1	125.00
Riverside Hospital ¹	Jacksonville, Fla.	.....	.....	.....	.....	.....	1	7/1	.....
Jackson Memorial Hospital ¹	Miami, Fla.	J. H. Putman	5,315	9,423	631	214	7	7/1	60.00
Crawford W. Long Memorial Hospital ¹	Atlanta, Ga.	W. R. Crowe	1,949	720	151	29	4	7/1	75.00
Grady Memorial Hospital ¹	Atlanta, Ga.	P. B. Beeson	2,163	85,411	126	322	12	7/1	.....
Piedmont Hospital ¹	Atlanta, Ga.	.....	917	.....	15	22	2	7/1	75.00
St. Joseph's Infirmary ¹	Atlanta, Ga.	M. I. Lowance	2,255	1,264	73	22	2	7/1	100.00
University Hospital ¹	Augusta, Ga.	V. P. Sydenstricker	2,273	.....	261	36	7	7	40.00
Emory University Hospital ¹	Emory University, Ga.	E. F. James	2,006	.....	131	78	3	7/1	50.00
Alexian Brothers Hospital ¹	Chicago	.....	1,206	.....	135	72	2	7/1	100.00
American Hospital ¹	Chicago	A. Afremow	.....	.....	.....	.....	1	1/1	50.00
Augustana Hospital ¹	Chicago	C. A. Hedberg	2,157	2,012	176	97	6	7/1	50.00
Cook County Hospital ¹	Chicago	E. F. Foley	18,123	18,705	4,315	.....	87	1, 7	82.00
Grant Hospital ¹	Chicago	A. Vander Kloot	1,265	4,513	121	64	2	7/1	145.00
Henrotin Hospital ¹	Chicago	F. K. Hlek	975	.....	52	10	1	.....	100.00

8. INTERNAL MEDICINE—Continued

Name of Hospital	Location	Chief of Service	Inpatients Treated	Outpatient Visits	Deaths	Autopsies	Asst. Res. and Residencies Offered	Beginning of Service (1910)	Beginning of Stipend (Month)
Hospital of St. Anthony de Padua*	Chicago.	F. L. Foran.	1,931	.....	120	38	1	1/1	\$150.00
†Illinois Central Hospital* ^{1,1}	Chicago.	L. H. Sloan.	1,055	.....	34	9	1	1/1	150.00
Illinois Masonic Hospital* ¹	Chicago.	Hayes	1,926	.....	233	142	1	.....	.....
Lutheran Deaconess Home and Hospital* ¹	Chicago.	.....	1,344	.....	147	48	1	1/1	100.00
Mercy Hospital-Loyola University Clinics*	Chicago.	G. F. O'Brien.	2,338	19,893	110	47	1	.....	25.00
Michael Reese Hospital* ^{1,10}	Chicago.	J. Golden.	5,245	27,827	.....	.....	6	1/1, 7	25.00
Mount Sinai Hospital* ¹	Chicago.	M. A. Rabens.	1,820	20,964	198	64	1	1, 7	66.67
Norwegian-American Hospital* ¹	Chicago.	M. P. Gettner.	2,838	.....	155	54	1	7	150.00
Passavant Memorial Hospital* ¹	Chicago.	W. H. Nadler.	1,339	1,596	65	32	5	1/1, 7/1	0
Presbyterian Hospital*	Chicago.	S. H. Armstrong, Jr.	3,537	18,817	179	101	9	.....	25.00
Provident Hospital* ¹	Chicago.	A. F. Connor.	730	5,745	98	31	2	7/1	50.00
†Ravenswood Hospital* ¹	Chicago.	E. W. Shaffer.	1,325	275	114	60	3	7/1	61.00
Research and Educational Hospitals* ¹	Chicago.	R. W. Keeton.	615	14,285	.....	.....	5	7/1	55.00
†St. Anne's Hospital* ¹	Chicago.	S. G. Plice.	1,513	.....	119	11	2	1, 10	125.00
†St. Elizabeth Hospital*	Chicago.	A. E. Luckhardt.	2,617	.....	.....	.....	1	7/1	60.00
St. Joseph Hospital*	Chicago.	L. E. Hines.	1,423	1,612	116	64	2	7/1	75.00
St. Luke's Hospital*	Chicago.	G. W. Scupham.	3,676	9,909	230	153	8	7/1	25.00
University of Chicago Clinics*	Chicago.	L. T. Coggeshall.	2,249	23,172	106	83	20	7/1	25.00
Wesley Memorial Hospital* ¹	Chicago.	P. S. Rhoads.	3,829	.....	160	62	10	.....	25.00
Woodlawn Hospital* ¹	Chicago.	W. E. Gouwens.	1,003	410	40	28	1	7/1	150.00
Evanston Hospital*	Evanston, Ill.	L. D. Snort.	2,303	9,168	146	121	6	.....	50.00
St. Francis Hospital*	Evanston, Ill.	J. T. Paul.	2,778	.....	201	74	4	7/1	75.00
†West Suburban Hospital*	Oak Park, Ill.	.....	1,294	1,281	183	76	1	7	150.00
St. Francis Hospital*	Peoria, Ill.	J. E. McCorvie.	2,485	10,519	243	83	2	7/1	150.00
Indianapolis General Hospital* ¹	Indianapolis.	C. J. Clark.	1,593	24,328	363	170	12	7/1	80.00
Indiana University Medical Center* ¹	Indianapolis.	J. O. Ritchey.	1,346	11,363	137	51	7	7/1	68.33
†Methodist Hospital* ¹	Indianapolis.	R. A. Solomon.	3,315	.....	326	105	4	7/1	260.00
Iowa Methodist Hospital* ¹	Des Moines, Iowa.	J. T. Strawn.	2,312	.....	145	91	4	.....	75.00
University Hospitals* ¹	Iowa City, Iowa.	W. Bean.	2,916	3,167	177	101	16	7/1	60.00
University of Kansas Medical Center* ¹	Kansas City, Kan.	R. J. Major.	1,968	20,150	122	90	7	7	.....
St. Francis Hospital*	Wichita, Kan.	J. B. Fisher.	2,504	.....	145	50	2	7/1	125.00
Wesley Hospital* ¹	Wichita, Kan.	G. F. Corrigan.	1,892	.....	108	42	3	7/1	100.00
†St. Joseph Hospital*	Lexington, Ky.	J. W. Scott.	1,835	.....	147	74	2	7/1	90.00
Louisville General Hospital*	Louisville, Ky.	J. W. Moore.	1,426	25,531	309	73	18	7/1	45.00
†St. Joseph Infirmary*	Louisville, Ky.	M. Thompson.	2,214	2,281	163	65	3	7/1	75.00
Charity Hospital of Louisiana* ¹	New Orleans.	.....	6,463	74,086	915	316	31	7/1	25.00
†Ochsner Foundation Hospital* ^{1,11}	New Orleans.	C. Jamison.	1,832	.....	154	65	1	7/1	100.00
Southern Baptist Hospital* ¹	New Orleans.	T. Findley.	1,661	27,204	41	32	18	Varies	160.00
Touro Infirmary*	New Orleans.	M. E. St. Martin.	2,691	.....	212	41	2	7/1	150.00
Shreveport Charity Hospital*	Shreveport, La.	S. B. Nadler.	2,316	6,837	145	63	5	.....	17.50
†Maine General Hospital*	Portland, Me.	M. D. Hargrove.	2,712	13,129	239	104	5	7/1	60.00
Baltimore City Hospitals* ¹	Baltimore.	E. R. Blaisdell.	1,234	1,507	135	42	4	.....	50.00
Church Home and Hospital* ¹	Baltimore.	C. H. Boyd.	1,706	.....	821	176	13	7/1	15.00
Franklin Square Hospital* ¹	Baltimore.	Z. R. Morgan.	990	783	68	28	2	7/1	35.00
Hospital for Women* ¹	Baltimore.	W. H. Smith.	558	1,277	55	26	2	7/1	85.00
Johns Hopkins Hospital*	Baltimore.	W. Fort.	4,001	29,203	313	211	10	7/1	85.00
Maryland General Hospital* ¹	Baltimore.	A. M. Harvey.	864	590	144	40	3	7/1	41.66
Mercy Hospital*	Baltimore.	J. E. Legge.	1,250	5,637	135	59	4	7/1	60.00
Provident Hospital and Free Dispensary* ¹	Baltimore.	H. R. Peters.	1,251	.....	108	33	2	.....	.....
St. Agnes' Hospital*	Baltimore.	E. B. Jarrett.	1,251	.....	162	115	48	.....	.....
St. Joseph's Hospital*	Baltimore.	L. P. Gundry.	1,101	1,091	141	41	3	7/1	60.00
Sinal Hospital* ¹	Baltimore.	F. J. Geraghty.	1,703	.....	165	89	6	7/1	25.00
South Baltimore General Hospital* ¹	Baltimore.	M. Sherry.	760	2,062	95	34	3	7/1	75.00
Union Memorial Hospital*	Baltimore.	G. McLean.	1,462	2,129	156	90	6	.....	.....
University Hospital* ¹	Baltimore.	R. G. Hills.	1,906	7,815	234	108	7	7/1	.....
West Baltimore General Hospital* ¹	Baltimore.	T. N. Carey.	1,151	486	.....	.....	2	.....	.....
†Beverly Hospital*	Beverly, Mass.	L. A. M. Krause.	1,565	723	98	61	1	7/1	50.00
Beth Israel Hospital*	Boston.	A. E. Parkhurst.	1,705	13,630	140	99	5	4/1	79.16
Boston City Hospital*	Boston.	H. L. Blumgart.	12,334	43,974	1,852	556	8	.....	.....
Carney Hospital*	Boston.	J. M. Lynch.	683	3,456	88	30	1	.....	.....
†Faulkner Hospital*	Boston.	.....	876	.....	.....	.....	3	1, 7	.....
Lahey Clinic*	Boston.	J. A. Halsted.	.....	.....	.....	.....	20	.....	.....
Massachusetts General Hospital* ¹	Boston.	.....	1,825	.....	214	133	47	.....	.....
Massachusetts Memorial Hospital* ¹	Boston.	J. H. Means.	1,515	4,848	94	66	18	7/1	50.00
New England Deaconess Hospital*	Boston.	S. Keefe.	3,900	1,847	38	26	13	7/1	83.33
Peter Bent Brigham Hospital* ¹	Boston.	S. Proger.	.....	.....	.....	.....	4	.....	.....
Cambridge City Hospital*	Boston.	H. F. Root.	2,332	22,157	150	98	6	.....	.....
†Mount Auburn Hospital* ¹	Boston.	G. W. Thorn.	1,433	5,277	245	113	1	7/1	68.33
Truesdale Hospital*	Cambridge, Mass.	J. M. Flynn.	1,004	2,764	27	12	2	7/1	50.00
†Malden Hospital*	Fall River, Mass.	J. H. Townsend.	758	.....	93	41	1	.....	.....
†Cooley Dickinson Hospital*	Malden, Mass.	E. G. Thorp.	1,535	.....	150	72	3	7/1	50.00
Salem Hospital*	Northampton, Mass.	J. E. Hayes.	3,084	.....	179	64	1	7/1	50.00
†Springfield Hospital* ¹	Salem, Mass.	S. N. Gardner.	1,331	342	171	53	1	.....	50.00
Memorial Hospital* ¹	Springfield, Mass.	O. J. Menard.	1,200	1,904	140	48	3	7/1	60.00
St. Vincent Hospital*	Worcester, Mass.	O. H. Stansfield.	1,539	1,200	119	48	1	7/1	100.00
Worcester City Hospital*	Worcester, Mass.	J. J. Dumphy.	2,060	.....	190	83	3	7/1	41.67
St. Joseph's Mercy Hospital* ¹	Worcester, Mass.	G. W. Ballantyne.	.....	.....	.....	.....	4	7/1	50.00
University Hospital* ¹	Ann Arbor, Mich.	M. Marshall.	1,505	.....	145	58	3	7/1	125.00
Alexander Blain Hospital.	Ann Arbor, Mich.	C. C. Sturgis.	3,470	40,129	208	143	29	7/1	111.80
Charles Godwin Jennings Hospital*	Detroit.	L. E. Heavner.	636	10,751	27	13	2	7	100.00
City of Detroit Receiving Hospital*	Detroit.	J. B. Hartzell.	860	.....	4	1	2	7/1	250.00
Grace Hospital*	Detroit.	G. B. Myers.	2,780	99,052	678	281	16	7/1	188.00
Harper Hospital*	Detroit.	L. T. Colvin.	9,862	17,726	322	141	7	7/1	75.00
Henry Ford Hospital*	Detroit.	R. C. Moehlig.	2,419	18,401	200	76	12	7/1	.....
Mount Carmel Mercy Hospital* ¹	Detroit.	F. J. Sladen.	4,618	124,555	213	94	47	7/1	200.00
Providence Hospital*	Detroit.	H. L. Smith.	2,942	.....	285	68	5	7/1	150.00
St. Mary's Hospital*	Detroit.	N. E. Clarke.	1,387	.....	184	94	4	7/1	140.00
Woman's Hospital*	Detroit.	W. J. Wilson, Jr.	1,749	.....	192	71	1	7/1	125.00
Wayne County General Hosp. and Infirmary* ¹	Detroit.	B. I. Johnstone.	965	.....	54	21	1	7/1	125.00
Hurley Hospital*	Eloise, Mich.	M. R. McQuiggan.	9,446	52,454	663	215	13	7/1	235.00
Biodgett Memorial Hospital* ¹	Flint, Mich.	M. S. Chambers.	2,899	.....	251	77	5	7/1	135.00
Butterworth Hospital* ¹	Grand Rapids, Mich.	N. L. Avery.	785	.....	93	47	3	7	100.00
Highland Park General Hospital* ¹	Grand Rapids, Mich.	L. P. Ralph.	1,427	798	159	76	2	7/1	160.00
†Pontiac General Hospital* ¹	Highland Park, Mich.	.....	1,634	.....	96	43	3	.....	.....
	Pontiac, Mich.	D. Smith.	.....	.....	.....	.....	3	7/1	75.00

8. INTERNAL MEDICINE—Continued

Name of Hospital	Location	Chief of Service	Inpatients Treated	Outpatient Visits	Deaths	Autopsies	Asst. Res. and Residencies Offered	Beginning of Service (1949)	Beginning Stipend (Month)
†Saginaw General Hospital*1.....	Saginaw, Mich.....	B. M. Bullington.....	2,229	337	127	79	1	7/1	\$ 75.00
St. Mary's Hospital*.....	Duluth, Minn.....	P. J. Boman.....	1,182	.....	112	67	1	.....	.....
Asbury Hospital*1.....	Minneapolis.....	C. A. McKimlay.....	5,885	1,921	109	41	1	10/1	150.00
Minneapolis General Hospital*1.....	Minneapolis.....	G. E. Fahr.....	2,311	12,183	370	178	7	1/1, 7/1	115.00
†Northwestern Hospital*1.....	Minneapolis.....	C. A. McKimlay.....	2,118	.....	111	65	2	7/1	150.00
St. Barnabas Hospital*1.....	Minneapolis.....	.....	1,721	.....	169	119	1	.....	.....
University of Minnesota Hospitals*1.....	Minneapolis.....	C. J. Watson.....	1,162	25,435	115	82	18	.....	.....
Mayo Foundation.....	Rochester, Minn.....	R. M. Wilder.....	.....	.....	.....	.....	103	.....	92.50
Ancker Hospital*.....	St. Paul.....	C. B. Drake.....	1,553	11,022	290	178	7	4, 7, 10	91.50
Charles T. Miller Hospital*1.....	St. Paul.....	E. T. R. Richards and C. N. Henschel.....	2,091	9,081	119	55	3	.....	.....
St. Joseph's Hospital*.....	St. Paul.....	H. Richardson.....	2,113	.....	127	60	1	.....	115.00
St. Louis County Hospital*.....	Clayton, Mo.....	R. J. Muether.....	1,928	17,171	165	95	5	.....	80.00
Kansas City General Hospital No. 1*.....	Kansas City, Mo.....	D. A. Williams.....	2,592	20,020	467	296	11	7	50.00
Menorah Hospital*1.....	Kansas City, Mo.....	A. Saphian.....	1,583	.....	81	52	2	7/1	125.00
Research Hospital*1.....	Kansas City, Mo.....	R. C. Davis.....	1,765	2,732	119	85	1	7/1	.....
St. Joseph's Hospital*.....	Kansas City, Mo.....	.....	2,769	.....	162	83	1	.....	.....
St. Luke's Hospital*1.....	Kansas City, Mo.....	.....	3,513	.....	82	.....	.....	.....	.....
St. Mary's Hospital*1.....	Kansas City, Mo.....	H. M. Parker.....	1,072	.....	105	62	1	7/1	125.00
Barnes Hospital*1.....	St. Louis.....	W. Barry Wood.....	4,191	24,423	182	147	29	7/1	25.00
De Paul Hospital*.....	St. Louis.....	E. P. Buddy.....	1,483	1,011	172	46	3	7/1	69.00
Homer G. Phillips Hospital*1.....	St. Louis.....	T. Hunter.....	2,327	15,581	359	77	7	7/1	95.00
Jewish Hospital*1.....	St. Louis.....	.....	3,605	.....	250	89	5	7	50.00
Missouri Baptist Hospital*1.....	St. Louis.....	T. G. Drake.....	2,127	.....	.....	.....	3	7/1	70.00
Missouri Pacific Hospital.....	St. Louis.....	L. B. Harrison.....	.....	.....	.....	.....	3	.....	.....
St. Anthony's Hospital*.....	St. Louis.....	R. V. Powell.....	1,392	.....	19	49	1	6	125.00
St. John's Hospital*.....	St. Louis.....	C. H. Nelson.....	1,913	1,703	191	71	3	7/1	85.00
St. Louis City Hospital*1.....	St. Louis.....	Tausig, Sexton, Murphy	3,710	6,787	651	235	13	7/1	95.00
St. Luke's Hospital*1.....	St. Louis.....	W. G. Becke.....	1,199	.....	.....	.....	2	7/1	.....
St. Mary's Group of Hospitals*.....	St. Louis.....	R. A. Kinsella.....	3,009	33,901	229	181	11	7/1	35.00
Montana Deaconess Hospital*.....	Great Falls, Mont.....	F. R. Schenck.....	1,311	780	111	61	3	.....	200.00
Creighton Memorial St. Joseph's Hospital*1.....	Omaha.....	A. Sachs.....	2,905	.....	188	53	2	7/1	100.00
†Nebraska Methodist Hospital*1.....	Omaha.....	J. E. Kirk.....	1,422	.....	80	51	2	.....	100.00
†University of Nebraska Hospital*1.....	Omaha.....	H. C. Lueth.....	518	1,842	32	29	0	7/1	75.00
Mary Hitchcock Memorial Hospital*1.....	Hanover, N. H.....	N. T. Milliken.....	1,355	9,592	62	61	3	7/1	174.00
Atlantic City Hospital*.....	Atlantic City, N. J.....	D. W. Scanlan.....	1,196	3,340	127	45	2	7/1	50.00
Englewood Hospital*1.....	Englewood, N. J.....	W. W. Semidt.....	795	1,611	111	49	1	7	107.00
†Hackensack Hospital*1.....	Hackensack, N. J.....	L. W. Black.....	1,534	5,235	299	.....	4	7/1	162.00
Jersey City Hospital*1.....	Jersey City, N. J.....	T. J. White.....	6,756	26,755	1,646	201	5	.....	.....
Burlington County Hospital.....	Mount Holly, N. J.....	P. S. MacNeal.....	550	415	78	43	1	7/1	190.00
†Newark Beth Israel Hospital*.....	Newark, N. J.....	A. Parsonnet.....	1,417	7,189	213	62	2	7/1	25.00
†Orange Memorial Hospital*.....	Orange, N. J.....	.....	.....	.....	.....	.....	.....	.....	.....
†Paterson General Hospital*.....	Paterson, N. J.....	A. G. Markel and J. E. Lench.....	1,445	639	265	59	.....	.....	.....
†St. Francis Hospital*.....	Trenton, N. J.....	.....	1,952	507	253	62	2	11/1, 7/1	100.00
Albany Hospital*1.....	Albany, N. Y.....	R. T. Beebe.....	1,971	7,516	231	114	4	7/1	41.67
Binghamton City Hospital*.....	Binghamton, N. Y.....	R. C. Bates.....	3,075	.....	299	95	7	7/1	60.00
†Beth-El Hospital*1.....	Brooklyn.....	I. Feder.....	126	11,118	113	32	2	1, 7	100.00
Brooklyn Hospital*1.....	Brooklyn.....	E. P. Maynard, Jr.....	2,222	16,278	.....	.....	4	7/1	25.00
Coney Island Hospital*1.....	Brooklyn.....	T. J. Longo.....	1,127	20,279	229	62	3	7/1	80.00
Cumberland Hospital*1.....	Brooklyn.....	J. J. Guttman.....	1,576	20,755	220	57	2	7/1	70.00
Greenpoint Hospital*1.....	Brooklyn.....	A. Klein.....	1,158	16,161	229	31	2	7/1	80.00
Jewish Hospital*1.....	Brooklyn.....	.....	1,815	26,920	290	56	3	.....	55.00
Kings County Hospital*1.....	Brooklyn.....	W. Dock and H. Feinblatt.....	13,674	31,492	2,518	389	13	7/1	80.00
Long Island College Hospital*1.....	Brooklyn.....	J. H. Crawford.....	2,065	5,231	176	46	5	7/1	25.00
†Maimonides Hospital, Israel Zion Division*1.....	Brooklyn.....	D. Segal.....	1,110	6,077	155	31	7	7/1	75.00
Methodist Hospital*1.....	Brooklyn.....	I. L. Cabot and A. T. Mays.....	1,169	6,363	126	63	5	7/1	25.00
Norwegian Lutheran Deaconesses' Home and Hospital*1.....	Brooklyn.....	.....	.....	561	111	.....	2	7/1	25.00
St. Catherine's Hospital*1.....	Brooklyn.....	V. Anello and M. A. Murphy.....	976	2,933	161	39	2	7/1	75.00
†St. John's Hospital*1.....	Brooklyn.....	L. B. Eckerson.....	1,231	.....	101	24	1	7/1	95.00
St. Mary's Hospital*.....	Brooklyn.....	H. P. Beakey.....	742	911	94	20	1	7/1	60.00
Buffalo General Hospital*1.....	Buffalo.....	J. H. Talbott.....	2,196	14,382	253	115	13	7/1	25.00
†Deaconess Hospital*.....	Buffalo.....	.....	1,928	1,092	212	78	2	7/1	60.00
Edward J. Meyer Memorial Hospital*1.....	Buffalo.....	D. K. Miller.....	3,370	9,021	394	165	18	7/1	100.00
Emergency Hospital of the Sisters of Charity*.....	Buffalo.....	D. Brumberg.....	1,070	3,527	172	39	1	7/1	150.00
Millard Fillmore Hospital*.....	Buffalo.....	J. F. Palinton.....	1,961	.....	196	91	6	7/1	50.00
†Clifton Springs Sanitarium and Clinic.....	Clifton Springs, N. Y.....	B. A. Watson.....	2,411	4,165	47	19	2	.....	.....
†Morton Imogene Bassett Hospital*1.....	Cooperstown, N. Y.....	J. Bordley.....	797	4,412	54	37	3	7/1	83.33
†Flushing Hospital and Disp.*1.....	Flushing, N. Y.....	D. J. Swan.....	.....	.....	.....	.....	1	7/1	150.00
†Mendowbrook Hospital*1.....	Hempstead, N. Y.....	E. C. Jessup and B. R. Allison.....	1,129	5,510	143	62	2	7/1	115.00
†Cornell University Infirmary*1.....	Ithaca.....	N. S. Moore.....	1,886	1,136	1	1	2	7/1	208.33
Queens General Hospital*1.....	Jamaica, N. Y.....	J. R. Reulink.....	5,093	46,534	1,015	417	12	7/1	80.00
Charles S. Wilson Memorial Hospital*1.....	Johnson City, N. Y.....	J. C. Zillhardt.....	2,508	.....	216	78	3	7/1	.....
†Mount Vernon Hospital*.....	Mount Vernon, N. Y.....	P. Reznikoff.....	1,812	623	199	66	2	7/1	125.00
New Rochelle Hospital*.....	New Rochelle, N. Y.....	C. A. Read.....	1,978	1,540	212	55	3	.....	.....
Bellevue Hospital, Div. I—Columbia Univ.*1.....	New York City.....	J. W. Richards, Jr.....	2,719	16,500	284	90	6	7/1	70.00
Bellevue Hospital, Div. II—Cornell Univ.*1.....	New York City.....	D. E. Dietrick.....	2,352	25,114	176	44	7	7/1	70.00
Bellevue Hospital, Div. III—N. Y. Univ.*1.....	New York City.....	W. Thell.....	.....	.....	.....	.....	11	1, 7	60.00
Bellevue Hospital, Div. IV—Open Div.*1.....	New York City.....	C. Nammack.....	.....	.....	.....	.....	4	1, 7	60.00
Beth Israel Hospital*1.....	New York City.....	A. M. Fishberg.....	1,161	12,413	131	43	6	7/1	50.00
Bronx Hospital*1.....	New York City.....	H. Wessler.....	2,018	30,650	171	30	4	7/1	75.00
†Doctors Hospital*1.....	New York City.....	.....	1,698	.....	101	41	3	7/1	200.00
Flower and Fifth Avenue Hospitals*1.....	New York City.....	L. J. Boyd.....	1,062	4,473	112	33	4	7/1	.....
Fordham Hospital*1.....	New York City.....	W. Walker and J. S. Kenney.....	3,051	10,265	993	171	4	7/1	80.00
Goldwater Memorial Hospital*1.....	New York City.....	M. Rosenbluth and R. D. Beck.....	1,781	1,181	326	128	31	7/1	70.00
Gouverneur Hospital*1.....	New York City.....	S. N. Weber.....	1,151	29,323	369	49	6	7/1	80.00
Harlem Hospital*1.....	New York City.....	B. P. Stielman.....	7,448	51,987	1,391	4	8	7, 1	80.00
†Hospital for Joint Diseases*1.....	New York City.....	.....	.....	.....	.....	.....	.....	.....	.....

8. INTERNAL MEDICINE—Continued

Name of Hospital	Location	Chief of Service	Inpatients Treated	Outpatient Visits	Deaths	Autopsies	Asst. Res. and Residencies Offered	Beginning of Service (1919)	Beginning Stipend (Month)
†Jewish Memorial Hospital* ¹	New York City	.....	.....	.....	...	...	1	.....	.....
†Knickerbocker Hospital* ¹	New York City	J. R. Murphy	.....	.....	...	...	1	7/1	.....
Lenox Hill Hospital* ¹	New York City	A. Garbat and C. de la Chapelle	1,172	19,974	100	44	2	7/1	\$ 50.00
Lincoln Hospital* ¹	New York City	K. S. Taylor	3,837	19,974	665	107	10	.....	.....
Memorial Hospital ¹	New York City	.....	.....	.....	...	...	1	.....	.....
Metropolitan Hospital* ¹	New York City	L. J. Boyd	3,600	40,360	545	110	6	7/1	130.00
Montefiore Hospital for Chronic Diseases* ¹	New York City	L. Letter	1,188	.....	197	93	7	7/1	50.00
Morrisania City Hospital* ¹	New York City	E. Flood and S. Biloon	3,607	9,542	841	100	11	7/1	80.00
Mount Sinai Hospital* ¹	New York City	G. Baehr and I. Snapper	.....	.....	...	...	26	.....	50.00
New York City Hospital* ¹	New York City	B. Donaldson and H. Marks	3,384	29,697	423	135	8	7/1	80.00
New York Hospital* ¹	New York City	D. P. Barr	3,575	27,011	131	109	20	7/1	25.00
New York Infirmary* ¹	New York City	M. E. Manter	620	2,376	15	8	1	7	75.00
New York Polyclinic Medical School and Hospital* ¹	New York City	.....	1,638	5,844	100	15	2	7/1	50.00
Presbyterian Hospital* ¹	New York City	R. F. Loeb	5,693	36,179	239	...	28	.....	41.66
Roosevelt Hospital* ¹	New York City	H. F. Shattuck and J. M. Freson	2,573	10,130	242	102	8	7/1	70.00
†St. Barnabas Hospital for Chronic Diseases ¹	New York City	A. J. Patek, Jr.	459	3,069	53	25	1	7	75.00
†St. Clare's Hospital* ¹	New York City	J. P. Croce	2,312	9,363	103	58	3	7/1	25.00
St. Luke's Hospital* ¹	New York City	J. H. Keating	2,495	12,033	221	99	10	7/1	50.00
St. Vincent's Hospital* ¹	New York City	F. W. Baldwin	2,930	59,938	450	163	12	7/1	50.00
†Sydenham Hospital* ¹	New York City	E. Appelbaum	857	3,037	96	29	2	7	25.00
University Hospital* ¹	New York City	W. G. Lough	1,613	17,714	98	52	3	7/1	50.00
Genesee Hospital* ¹	Rochester, N. Y.	C. Boller	1,167	2,791	160	99	4	7	41.66
†Highland Hospital* ¹	Rochester, N. Y.	E. B. Soble	.....	.....	.....	.....	1	.....	100.00
Rochester General Hospital* ¹	Rochester, N. Y.	L. F. Allen	1,577	5,157	200	129	3	7/1	70.00
St. Mary's Hospital* ¹	Rochester, N. Y.	J. R. Mayer	3,669	5,510	247	90	5	7/1	125.00
Strong Memorial-Rochester Municipal Hosps.* ¹	Rochester, N. Y.	W. S. McCann	4,024	19,463	356	252	19	.....	45.00
Ellis Hospital* ¹	Schenectady, N. Y.	H. E. Reynolds	2,956	.....	288	101	2	.....	100.00
†St. Vincent's Hospital* ¹	Staten Island, N. Y.	.....	.....	.....	.....	.....	.....	.....	.....
†Staten Island Hospital* ¹	Staten Island, N. Y.	.....	.....	.....	.....	.....	.....	.....	.....
Hospital of the Good Shepherd* ¹	Syracuse, N. Y.	R. Lyons	1,236	.....	151	80	5	7/1	125.00
Grasslands Hospital* ¹	Valhalla, N. Y.	R. R. Heffner	933	6,683	176	118	4	7	75.00
†White Plains Hospital* ¹	White Plains, N. Y.	E. W. Weber	.....	.....	.....	.....	2	7/1	75.00
Charlotte Memorial Hospital* ¹	Charlotte, N. C.	T. W. Baker	1,989	2,922	126	63	2	7/1	60.00
Duke Hospital* ¹	Durham, N. C.	E. A. Stead	2,804	21,034	129	81	25	7/1	83.33
Watts Hospital* ¹	Durham, N. C.	.....	2,892	8,061	122	46	2	7/1	50.00
James Walker Memorial Hospital* ¹	Wilmington, N. C.	.....	2,163	5,441	135	20	1	.....	.....
City Memorial Hospital* ¹	Winston-Salem, N. C.	.....	4,644	1,012	131	54	2	.....	.....
†Kate Bitting Memorial Hospital* ¹	Winston-Salem, N. C.	S. F. Pfohl	1,376	3,474	180	45	1	7	75.00
North Carolina Baptist Hospital* ¹	Winston-Salem, N. C.	.....	1,996	9,755	96	58	22	7/1	.....
Bismarek Evangelical Hospital	Bismarek, N. D.	.....	1,188	115,000	88	48	1	.....	115.00
†St. Luke's Hospital* ¹	Fargo, N. D.	W. A. Stafne	.....	.....	.....	.....	1	.....	100.00
Trinity Hospital* ¹	Minot, N. D.	.....	549	14,642	.....	.....	1	.....	.....
City Hospital* ¹	Akron, Ohio	R. F. Jukes	3,432	4,361	328	171	3	7/1	100.00
Peoples Hospital* ¹	Akron, Ohio	P. R. Adams	1,587	2,950	111	65	4	7/1	100.00
St. Thomas Hospital* ¹	Akron, Ohio	.....	.....	.....	.....	.....	2	7	125.00
†Aultman Hospital* ¹	Canton, Ohio	H. W. Beck	3,934	141	212	111	2	7/1	75.00
Mercy Hospital* ¹	Canton, Ohio	I. B. Hamilton	1,758	110	147	45	2	7/1	100.00
Christ Hospital* ¹	Cincinnati	D. A. Tucker	1,411	7,428	180	83	4	7/1	75.00
Cincinnati General Hospital* ¹	Cincinnati	M. A. Blankenhorn	2,241	33,261	641	282	32	7/1	.....
Deaconess Hospital* ¹	Cincinnati	L. B. Owens	3,121	.....	143	28	1	7/1	125.00
Good Samaritan Hospital* ¹	Cincinnati	J. N. Ganin	4,303	995	203	80	6	7/1	75.00
Jewish Hospital* ¹	Cincinnati	R. Rothenberg	2,402	.....	250	123	7	7/1	60.00
City Hospital* ¹	Cleveland	R. W. Scott	2,194	23,211	549	291	18	7/1	60.00
Cleveland Clinic Hospital ¹	Cleveland	R. L. Haden	883	45,513	50	21	21	7/1	100.00
Mount Sinai Hospital* ¹	Cleveland	H. S. Appelbaum	1,184	9,385	109	37	3	7/1	65.00
St. Alexis Hospital* ¹	Cleveland	H. V. Parzyck	2,390	3,081	179	46	2	7/1	90.00
St. John's Hospital* ¹	Cleveland	W. M. Gill	1,511	531	150	42	3	7/1	.....
St. Luke's Hospital* ¹	Cleveland	L. Taylor	2,985	18,694	217	94	5	6/25	60.00
St. Vincent Charity Hospital* ¹	Cleveland	C. S. Stone	1,646	22,700	37	28	3	7/1	75.00
University Hospitals* ¹	Cleveland	J. T. Wearn	3,900	24,563	382	.....	17	7/1	25.00
†Mount Carmel Hospital* ¹	Columbus, Ohio	P. T. Knies	1,315	50	137	45	2	7/1	110.00
Ohio State University Hospital* ¹	Columbus, Ohio	B. K. Wiseman	1,049	19,254	117	71	13	7/1	50.00
St. Francis Hospital* ¹	Columbus, Ohio	L. H. Van Buskirk	1,133	.....	153	62	2	.....	.....
White Cross Hospital* ¹	Columbus, Ohio	R. W. Kissane	2,028	.....	113	67	3	7	100.00
Miami Valley Hospital* ¹	Dayton, Ohio	H. Koppe	2,347	.....	253	114	3	7/1	75.00
Huron Road Hospital* ¹	East Cleveland, Ohio	E. A. Marshall	1,223	3,032	140	70	2	7/1	80.00
†Lakewood Hospital* ¹	Lakewood, Ohio	J. T. Ledman	881	1,420	98	51	2	7/1	100.00
Maumee Valley Hospital* ¹	Toledo, Ohio	.....	2,556	9,284	267	138	3	.....	125.00
†Mercy Hospital* ¹	Toledo, Ohio	N. Morris and G. W. Bascom	3,400	187	251	103	1	10/15	.....
St. Vincent's Hospital* ¹	Toledo, Ohio	C. J. Czarnecki	2,299	1,963	206	57	1	7	100.00
Toledo Hospital* ¹	Toledo, Ohio	J. L. Stifel	2,724	813	144	71	3	.....	.....
St. Elizabeth's Hospital* ¹	Youngstown, Ohio	M. W. Neidus	2,783	1,331	238	48	2	7/1	125.00
Youngstown Hospital* ¹	Youngstown, Ohio	W. H. Bunn	3,451	339	245	114	6	7/1	100.00
St. Anthony Hospital* ¹	Oklahoma City	P. M. McNeill	1,763	1,160	175	49	1	7/1	75.00
University Hospitals* ¹	Oklahoma City	R. Q. Goodwin	768	7,144	100	34	8	7/1	35.00
†Hillcrest Memorial Hospital* ¹	Tulsa, Okla.	O. L. Hill	2,681	.....	144	34	3	.....	.....
†St. John's Hospital* ¹	Tulsa, Okla.	E. R. Denny	2,326	.....	154	52	1	.....	150.00
Emanuel Hospital* ¹	Portland, Ore.	J. E. Field	1,712	.....	134	55	2	7/1	75.00
Good Samaritan Hospital* ¹	Portland, Ore.	W. C. Pantan	2,716	.....	192	78	1	7/1	75.00
Providence Hospital* ¹	Portland, Ore.	H. Haney	2,241	1,432	171	83	2	7/1	75.00
St. Vincent's Hospital* ¹	Portland, Ore.	.....	.....	.....	.....	.....	3	.....	.....
University of Oregon Medical School Hospitals and Clinics* ¹	Portland, Ore.	H. P. Lewis	1,454	21,837	291	200	7	7/1	75.00
Abington Memorial Hospital* ¹	Abington, Pa.	J. T. Beardwood	1,670	2,515	144	58	2	7/1	50.00
Sacred Heart Hospital* ¹	Allentown, Pa.	A. W. Dubbs	1,844	4,165	224	79	1	7/1	150.00
†Bradford Hospital	Bradford, Pa.	O. Barnes	.....	.....	.....	.....	.....	.....	.....
Bryn Mawr Hospital* ¹	Bryn Mawr, Pa.	W. W. Dyer	405	.....	51	25	2	7/1, 10/1	75.00
George F. Geisinger Memorial Hospital* ¹	Danville, Pa.	W. J. Stainsby	2,555	14,717	125	55	3	.....	75.00
Hamot Hospital* ¹	Erie, Pa.	T. P. Tredway	993	1,775	102	47	1	7/1	150.00
†Westmoreland Hospital* ¹	Greensburg, Pa.	.....	.....	.....	.....	.....	.....	.....	.....
†Harrisburg Hospital* ¹	Harrisburg, Pa.	F. F. D. Reckord	1,398	6,060	151	47	.....	7/1	100.00

8. INTERNAL MEDICINE—Continued

Name of Hospital	Location	Chief of Service	Inpatients Treated	Outpatients Visits	Deaths	Autopsies	Asst. Res. and Residents On duty	Beginning of Service (year)	Beginning Salary (month)
Harrisburg Polyclinic Hospital*	Harrisburg, Pa.	J. H. Arnett and G. E. Farrar	912	1,478	153	42	1	10/1	\$150.00
Episcopal Hospital*	Philadelphia		1,323	5,306	200	86	3	7/1	50.00
Germantown Dispensary and Hospital*	Philadelphia		1,380	6,117	164	79	1	7	50.00
Graduate Hosp. of the Univ. of Pennsylvania*	Philadelphia		1,353	11,115	102	36	4	7/1	.....
Hahnemann Hospital*	Philadelphia	C. L. Brown	2,671	10,391	275	124	4	.....	25.00
Hospital of the Univ. of Pennsylvania*	Philadelphia	F. Wood	3,317	10,676	269	151	20	7/1	25.00
Hospital of the Woman's Medical College of Pennsylvania*	Philadelphia	W. G. Leuman	576	5,216	31	20	3	7/1	60.00
Jefferson Medical College Hospital	Philadelphia	H. A. Reimann	2,930	12,222	210	121	14	7/1	.....
Jewish Hospital*	Philadelphia		1,864	2,833	244	105	6	7	50.00
Lankenau Hospital*	Philadelphia	E. L. Bortz and F. L. Hartmann	1,339	.....	169	92	4	7/1	50.00
Mount Sinai Hospital*	Philadelphia		1,634	13,223	193	137	4	6/21	50.00
Pennsylvania Hospital*	Philadelphia	G. G. Duncan	1,932	6,515	210	88	6	1/1, 7/1	20.00
Philadelphia General Hospital*	Philadelphia		5,125	.....	1,115	.....	20	7/1	70.00
Presbyterian Hospital*	Philadelphia	J. P. Scott	.....	.....	.....	.....	2	.....	25.00
Temple University Hospital*	Philadelphia	R. A. Kern	2,161	5,856	175	69	11	7/1	.....
Woman's Hospital*	Philadelphia		482	5,182	19	11	1	7/1	50.00
Allegheny General Hospital*	Pittsburgh	W. T. Mitchell, Jr.	414	4,595	62	14	2	7/1	100.00
Elizabeth Steel Magee Hospital*	Pittsburgh	J. D. Heard	1,259	377	88	33	3	7/1	41.67
Mersey Hospital*	Pittsburgh	W. W. G. MacLachlan	2,624	5,100	119	40	3	9/1	100.00
Montefiore Hospital*	Pittsburgh	L. Wechsler and L. H. Crippe	1,528	3,181	228	97	4	7/1	50.00
Presbyterian Hospital*	Pittsburgh	A. H. Cowell	1,714	.....	142	45	7	.....	41.67
St. Francis Hospital*	Pittsburgh		1,518	1,017	193	40	3	7/1	100.00
Western Pennsylvania Hospital*	Pittsburgh		3,509	5,162	318	69	3	10/1	75.00
Reading Hospital*	Reading, Pa.	R. M. Alexander	1,068	970	203	91	1	7/1	100.00
St. Joseph's Hospital*	Reading, Pa.	M. Wassersweig	1,777	.....	.....	.....	.....	.....	.....
Robert Packer Hospital*	Sayre, Pa.	S. D. Conklin	2,801	6,562	122	75	6	7/1	150.00
Seranton State Hospital*	Seranton, Pa.	P. J. McDonnell	1,295	3,125	157	55	1	9/1	250.00
Wilkes-Barre General Hospital*	Wilkes-Barre, Pa.	G. E. Baker	3,079	5,305	178	41	1	1/1	100.00
York Hospital*	York, Pa.	H. B. Thomas	1,511	1,035	213	83	1	7/1	100.00
Rhode Island Hospital*	Providence, R. I.	H. A. Lawson	2,261	10,110	235	150	5	1/1, 7/1	50.00
Roper Hospital*	Charleston, S. C.	J. A. Boone	1,677	6,009	173	68	6	7/1	25.00
Columbia Hospital*	Columbia, S. C.	A. I. Joyce	2,229	5,170	299	74	2	7/1	75.00
Greenville General Hospital*	Greenville, S. C.	G. R. Wilkinson	2,712	9,529	79	27	2	7/1	100.00
Baroness Erlanger Hospital*	Chattanooga, Tenn.		3,270	4,329	253	69	3	.....	.....
Knoxville General Hospital*	Knoxville, Tenn.	R. B. Wood	1,298	3,774	169	31	1	7/1	70.00
Baptist Memorial Hospital*	Memphis, Tenn.	C. H. Sanford	2,110	1,021	138	21	2	7/1	75.00
John Gaston Hospital*	Memphis, Tenn.	C. H. Sanford	2,467	22,247	414	283	11	.....	.....
St. Joseph Hospital*	Memphis, Tenn.	S. Blackwell	2,297	210	250	89	1	.....	.....
George W. Hubbard Hospital of Meharry Medical College*	Nashville, Tenn.	W. H. Grant	784	5,193	79	27	3	7/1	75.00
Nashville General Hospital*	Nashville, Tenn.	T. F. Felt	.....	.....	.....	.....	5	.....	.....
St. Thomas Hospital*	Nashville, Tenn.	W. R. Cate	1,700	.....	120	51	2	7/1	75.00
Vanderbilt University Hospital*	Nashville, Tenn.	H. J. Morgan	2,195	23,915	120	75	6	7/1	25.41
Baylor University Hospital*	Dallas, Texas	H. M. Winans	1,885	3,611	177	70	4	7/1	50.00
Methodist Hospital*	Dallas, Texas		1,596	433	146	35	4	7/1	75.00
Parkland Hospital*	Dallas, Texas	T. Harrison	1,196	5,112	197	121	7	7/1	50.00
St. Paul's Hospital*	Dallas, Texas	T. M. Kirksey	66	2,883	45	8	3	7/1	100.00
Harris Hospital*	Fort Worth, Texas	W. S. Horn	2,258	1,397	162	53	3	7/1	100.00
University of Texas Medical Branch Hosps.*	Galveston, Texas	C. T. Stone	1,522	13,223	217	125	15	7	50.00
Hermann Hospital*	Houston, Texas	J. A. Greene	1,632	4,374	120	52	7	.....	70.00
Jefferson Davis Hospital*	Houston, Texas	S. McDaniel	1,286	17,867	593	97	4	7/1	60.00
Memorial Hospital*	Houston, Texas	T. W. Burke	2,519	.....	171	35	3	.....	.....
Methodist Hospital*	Houston, Texas	H. W. Cunningham	1,268	256	166	48	4	7/1	75.00
Southern Pacific Hospital*	Houston, Texas	M. D. Levy	812	10,456	22	13	3	.....	125.00
Scott and White Hospital*	Temple, Texas	V. M. Longmire	1,07	.....	53	23	20	.....	150.00
Wichita Falls Clinic Hospital*	Wichita Falls, Texas	O. B. Kell	1,774	28,501	20	10	1	7/1	200.00
Thomas D. Dee Memorial Hospital*	Ogden, Utah		.....	.....	.....	.....	.....	.....	.....
Dr. W. H. Groves Latter-Day Saints Hospital*	Salt Lake City	T. A. Clawson	2,637	1,154	289	112	2	7/1	75.00
Holy Cross Hospital*	Salt Lake City	F. B. Bailey	973	.....	86	29	1	7/1	50.00
Salt Lake County General Hospital*	Salt Lake City	M. T. Wintrobe	1,151	12,411	137	116	0	7/1	50.00
Bishop DeGoesbriand Hospital*	Burlington, Vt.	C. M. Terrien	870	1,200	67	28	1	7/1	100.00
Mary Fletcher Hospital*	Burlington, Vt.	E. L. Ambion	1,183	256	72	44	7	7/1	110.00
Alexandria Hospital*	Alexandria, Va.	H. A. Lantane	88	.....	83	31	2	7/1	100.00
Arlington Hospital*	Arlington, Va.	R. Schwartz	889	.....	90	46	2	.....	100.00
University of Virginia Hospital*	Charlottesville, Va.	H. B. Mulholland	2,614	10,634	153	69	12	7/1	62.00
Chesapeake and Ohio Hospital	Clifton Forge, Va.	J. R. Beckwith and A. E. LeHew	3,159	4,773	162	44	3	7/1	60.00
Do Paul Hospital*	Norfolk, Va.	W. B. Martin	2,872	1,588	157	65	3	7/1	75.00
Norfolk General Hospital*	Norfolk, Va.	A. B. Hodges	2,235	.....	.....	.....	6	7/1	75.00
Johnston-Willis Hospital*	Richmond, Va.	J. M. Hutcheson	1,537	.....	100	48	2	7/1	50.00
Medical College of Virginia Hosp. Div.*	Richmond, Va.	W. B. Porter	2,537	6,663	261	103	14	7/1	46.50
Lewis-Gale Hospital*	Roanoke, Va.	C. D. Solsinger	1,195	14,551	72	21	2	8/1, 7/1	150.00
Doctors Hospital*	Seattle	C. I. Krantz	2,479	.....	154	89	2	7/1	100.00
King County Hospital*	Seattle	R. H. Williams	1,412	12,395	270	93	8	7/1	90.00
Providence Hospital*	Seattle	R. F. Foster	2,628	758	118	55	2	7/1	75.00
Swedish Hospital*	Seattle		.....	.....	.....	.....	1	.....	.....
Virginia Mason Hospital*	Seattle	L. J. Palmer	2,851	.....	158	93	6	7/1	75.00
Deaconess Hospital*	Spokane	R. B. Hanford	1,575	.....	150	75	1	7/1	150.00
Northern Permanente Hospital*	Vancouver, Wash.	E. W. Saward	1,565	17,776	23	16	1	.....	.....
Beckley Hospital	Beckley, W. Va.	D. C. Ashton	1,548	9,662	80	61	1	.....	.....
Charleston General Hospital*	Charleston, W. Va.	W. A. Thornhill	1,916	1,512	99	34	6	7/1	100.00
Chesapeake and Ohio Hospital*	Huntington, W. Va.	J. P. Webb	.....	.....	.....	.....	4	.....	.....
St. Mary's Hospital*	Huntington, W. Va.	L. H. Gage	3,568	.....	183	44	1	7/1	100.00
La Crosse Lutheran Hospital*	La Crosse, Wis.	T. Gunderson	1,160	.....	102	48	2	7/1	50.00
Madison General Hospital*	Madison, Wis.	M. A. Foster	1,793	.....	117	53	.....	9/1	75.00
St. Mary's Hospital*	Madison, Wis.	R. S. Allen	3,218	8,475	131	99	11	7/1	25.00
State of Wisconsin General Hospital*	Madison, Wis.	O. O. Meyer	1,405	.....	83	29	2	7/1	250.00
St. Joseph's Hospital*	Marshfield, Wis.	K. H. Doege	1,031	.....	101	38	4	.....	75.00
Columbia Hospital*	Milwaukee	E. W. Mason	7,651	14,617	1,068	332	22	Varies	158.00
Milwaukee County Hospital*	Milwaukee	J. Shafken	1,730	.....	96	51	3	7	75.00
Milwaukee Hospital*	Milwaukee	J. Huston	1,298	3,873	39	27	3	7/1	75.00
Mount Sinai Hospital*	Milwaukee	R. A. Frisch	2,975	.....	267	70	3	7	75.00
St. Joseph's Hospital*	Milwaukee	J. K. Karr	2,918	.....	205	122	5	7	75.00
Queen's Hospital*	Honolulu, Hawaii	H. Arnold	.....	.....	.....	.....	.....	.....	.....

9. MALIGNANT DISEASES

Hospitals, 22; Assistant Residencies and Residencies, 110

Name of Hospital	Location	Chief of Service	Inpatients Treated	Outpatient Visits	Deaths	Autopsies	Asst. Res. and Residencies Offered *	Beginning of Service (1949)	Beginning Stipend (Month)
Veterans Administration									
Veterans Admin. Hospital.....	Hines, Ill.....	T. H. Clarke.....	1,454	.....	221	109	1	.....	\$200.00
Nonfederal									
Collis P. and Howard Huntington Memorial Hospital*	Pasadena, Calif.....	.....	529	.....	77	50	1	.....	.....
Grady Memorial Hospital*1.....	Atlanta, Ga.....	J. E. Scarborough and C. Stewart.....	345	20,247	17	5	12	7/1	.....
Michael Reese Hospital*1.....	Chicago.....	E. H. Uhlmann.....	.....	.....	.....	.....	1	1/1, 7	25.00
Massachusetts General Hospital*	Boston.....	.....	.....	.....	.....	.....	1	.....	.....
New England Deaconess Hospital 1.....	Boston.....	S. L. McKittrick.....	.....	.....	.....	.....	2	.....	.....
Pondville Hospital.....	Walpole, Mass.....	.....	838	8,395	53	43	8	.....	300.00
Westfield State Sanatorium 1.....	Westfield, Mass.....	F. Hopkins.....	.....	8,076	32	25	3	7/1	270.00
Wayne County General Hosp. and Infirmary*1	Eloise, Mich.....	.....	827	440	267	48	1	.....	235.00
University of Minnesota Hospitals*1.....	Minneapolis.....	O. L. Wangenstein.....	312	4,001	1	1	3	.....	.....
Ellis Fischel State Cancer Hospital 1.....	Columbia, Mo.....	J. J. Modlin.....	1,470	6,477	37	33	11	7/1	100.00
Barnard Free Skin and Cancer Hospital.....	St. Louis.....	C. F. Sherwin and A. N. Arneson.....	973	11,852	7	3	4	7/1	110.00
Jersey City Hospital*1.....	Jersey City, N. J.....	J. B. Faison.....	340	2,652	63	29	1	.....	.....
Brooklyn Cancer Institute 1.....	Brooklyn.....	W. E. Howes.....	854	10,677	262	46	6	1/1	.....
Rosewell Park Memorial Institute 1.....	Buffalo.....	G. L. Sheehan.....	164	1,763	18	18	5	7/1	.....
Mendowbrook Hospital*.....	Hempstead, N. Y.....	J. W. McChesney.....	623	.....	110	47	1	7/1	115.00
Memorial Hospital 1.....	New York City.....	.....	.....	.....	.....	.....	32	.....	.....
Montefiore Hospital for Chronic Diseases*1.....	New York City.....	.....	768	.....	386	203	4	7/1	50.00
New York City Cancer Institute Hospital 1.....	New York City.....	.....	959	5,045	562	199	7	1, 7	150.00
Duko Hospital*1.....	Durham, N. C.....	.....	(Included in Medicine)		.....	.....	.....	.....	.....
American Oncologic Hospital 1.....	Philadelphia.....	G. M. Dorrance.....	823	9,021	48	23	4	7/1	150.00
Jeunes Hospital 1.....	Philadelphia.....	.....	1,864	8,210	96	42	2	7/1	100.00

10. NEUROLOGICAL SURGERY

The following services are approved by the Council and the American Board of Neurological Surgery
Hospitals, 70; Assistant Residencies and Residencies, 183

Name of Hospital	Location	Chief of Service	Inpatients Treated	Outpatient Visits	Deaths	Autopsies	Asst. Res. and Residencies Offered *	Beginning of Service (1949)	Length of Approved Pro- gram (Years)	Beginning Stipend (Month)
United States Navy										
U. S. Naval Hospital*.....	Long Beach, Calif.....	A. L. Schultz.....	529	.....	22	22	2	.....	1	n
Veterans Administration										
Veterans Admin. Hospital 1.....	San Francisco.....	O. W. Jones, Jr. and F. W. Lusignan.....	316	566	10	9	3	7/1	3	\$275.00
Veterans Admin. Hospital 1.....	Van Nuys, Calif.....	J. D. French.....	196	410	8	7	2	1/1, 7/1	3	140.00
Veterans Admin. Hospital.....	Chamblee, Ga.....	G. Perret.....	219	60	18	14	3	7/1	1	200.00
Veterans Admin. Hospital.....	Hines, Ill.....	L. Davis.....	628	.....	40	48	5	1/2, 7/1	3	200.00
†Veterans Admin. Center.....	Wadsworth, Kan.....	F. A. Carmichael.....	479	3	13	12	1	1, 7	1	n
Veterans Admin. Hospital.....	Minneapolis, Minn.....	.....	129	.....	16	13	2	.....	3	.....
Veterans Admin. Hospital.....	New York City.....	P. E. Sauer.....	342	169	22	11	4	7/1	2	.....
†Veterans Admin. Hospital.....	Memphis, Tenn.....	A. M. Melrowsky.....	485	.....	20	19	2	.....	1	.....
†Veterans Admin. Center 1, 46.....	White River Jet. Vt.....	H. L. Heyl.....	186	.....	.....	.....	1	8/25	2	.....
†Veterans Admin. Hospital 1.....	Richmond, Va.....	J. L. Ulmer.....	426	.....	16	13	2	7/1	1	n
Nonfederal										
Jefferson-Hillman Hospital*1.....	Birmingham, Ala.....	G. Galbraith.....	799	417	72	26	1	.....	3	.....
Los Angeles County Hospital*1.....	Los Angeles.....	C. W. Rand.....	2,640	1,332	224	19	4	Varies	1	165.00
†White Memorial Hospital*.....	Los Angeles.....	C. B. Courville.....	36	.....	25	16	1	7/1	1	140.20
Franklin Hospital*1.....	San Francisco.....	H. A. Brown.....	651	.....	25	17	2	7/1	1	100.00
University of California Hospital*1.....	San Francisco.....	H. C. Naffziger.....	512	1,427	17	13	2	7/1, 8/1, 9/1	3	50.00
Hartford Hospital*1.....	Hartford, Conn.....	J. C. Fox, Jr.....	879	533	66	52	2	7/1	3	50.00
Grace-New Haven Community Hospital, New Haven Unit (University Service)*1, 23.....	New Haven, Conn.....	W. German.....	420	804	55	30	3	7/1	3	40.00
St. Vincent's Hospital*.....	Jacksonville, Fla.....	J. Lyerly.....	271	.....	16	.....	1	7/1	1	100.00
Emory University Hospital*.....	Emory University, Ga.....	E. F. Fincher.....	455	.....	21	15	1	7/1	1	75.00
Chicago Memorial Hospital*1.....	Chicago.....	P. C. Bucy.....	441	826	21	18	2	1/1	2	260.00
†Cook County Hospital*1.....	Chicago.....	H. C. Voris.....	2,272	29	196	.....	1	1, 7	1	32.00
Illinois Neuropsychiatric Institute.....	Chicago.....	E. Oldberg.....	665	9,293	38	34	3	.....	3	.....
Mercy Hospital-Loyola University Clinics*.....	Chicago.....	H. C. Voris.....	292	200	16	11	1	.....	1	25.00
Passavant Memorial Hospital*1, 27.....	Chicago.....	.....	(Included in Neurology)		.....	.....	2	.....	3	.....
Presbyterian Hospital*.....	Chicago.....	A. Verbrugghen.....	224	312	17	14	1	.....	2	25.00
St. Luke's Hospital*7.....	Chicago.....	E. Oldberg.....	611	.....	24	17	1	7/1	3	25.00
University of Chicago Clinics*1.....	Chicago.....	T. B. Rasmussen.....	168	961	18	17	2	7/1	2	25.00
Wesley Memorial Hospital*1.....	Chicago.....	.....	(Included in Surgery)		.....	.....	1	.....	3	.....
†University of Kansas Medical Center*.....	Kansas City, Kan.....	F. R. Teachenor.....	247	250	25	18	1	7	2	.....
†Louisville General Hospital*17.....	Louisville, Ky.....	G. Spurling.....	194	.....	46	10	2	.....	2	.....
†Ochsner Foundation Hospital 1, 41.....	New Orleans.....	D. H. Echols.....	278	1,447	23	11	2	.....	1	150.00
Johns Hopkins Hospital*.....	Baltimore.....	A. E. Walker.....	650	185	35	24	4	7/1	3	41.00
†University Hospital*1.....	Baltimore.....	C. Bagley, Jr.....	455	670	42	25	.....	7/1	3	.....
Boston City Hospital*1.....	Boston.....	D. Munro.....	324	.....	69	17	.....	.....	2	.....
Lahey Clinic.....	Boston.....	.....	.....	.....	.....	.....	5	.....	2	.....
Massachusetts General Hospital*.....	Boston.....	J. C. White.....	237	.....	32	16	5	.....	3	.....
University Hospital*1.....	Ann Arbor, Mich.....	M. Peet.....	883	2,036	93	62	1	7/1	3	111.50
Grace Hospital*.....	Detroit.....	E. S. Gundjian.....	657	220	42	21	2	7/1	1	75.00
Henry Ford Hospital*1.....	Detroit.....	A. S. Gundford.....	436	2,384	28	8	3	7/1	2	200.00
University of Minnesota Hospitals*1.....	Minneapolis.....	W. T. Peyton.....	274	524	24	14	2	.....	3	.....
Mayo Foundation.....	Rochester, Minn.....	W. McK. Craig.....	.....	.....	.....	.....	15	.....	3	82.50
Barnes Hospital*.....	St. Louis.....	H. Schwartz.....	503	37	33	2	2	7/1	2	25.00
University of Nebraska Hospital*1.....	Omaha.....	J. J. Keegan.....	28	0	2	2	1	.....	2	.....

Numerical and other references will be found on page 225.

10. NEUROLOGICAL SURGERY—Continued

Name of Hospital	Location	Chief of Service	Inpatients Treated	Outpatient Visits	Deaths	Autopsies	Asst. Res. and Residencies Offered	Beginning of Service (1949)	Length of Approved Program (Years)	Beginning Salary (Month)
Albany Hospital ^{1,1}	Albany, N. Y.	E. H. Campbell	731	137	43	33	3	7/1	3	\$ 41.67
Kings County Hospital ^{1,1}	Brooklyn	E. J. Browder	3,230	1,747	303	181	3	7/1	3	80.00
Buffalo General Hospital ¹	Buffalo	W. B. Hamby	527	91	37	27	2	7/1	3	25.00
Mount Sinai Hospital ^{1,1}	New York City	I. Cohen	674	1,103	65	6	1	7/1	3	50.00
Presbyterian Hospital ¹ (Neurological Institute)	New York City	J. E. Scarff	674	1,103	65	6	1	7/1	3	41.66
St. Vincent's Hospital ^{1,1}	New York City	J. E. Scarff	674	1,103	65	6	1	7/1	3	41.66
Strong Memorial and Rochester Municipal Hospitals ^{1,1}	Rochester, N. Y.	W. P. Van Wagenen	390	189	...	...	1	7/1	3	45.00
Duke Hospital ^{1,1}	Durham, N. C.	B. Woodhall	829	1,522	49	25	1	7/1	3	83.33
Christ Hospital ¹	Cincinnati	F. H. Mayfield	218	(Included in Surgery)	...	...	1	8/1	1	75.00
Cincinnati General Hospital ^{1,1}	Cincinnati	F. H. Mayfield	218	(Included in Surgery)	...	...	1	8/1	1	75.00
Cleveland Clinic Hospital ¹	Cleveland	W. J. Gardner	687	7,091	47	23	7	7/1	3	100.00
St. Vincent's Hospital ^{1,1}	Toledo, Ohio	M. T. Schmittner	237	236	23	18	1	7/1	1	100.00
University Hospitals ¹	Oklahoma City	H. Wilkins	133	493	26	12	2	7/1	1	25.00
University of Oregon Medical School Hospital and Clinics ^{1,1,20}	Portland, Ore.	...	31	...	2	...	2	7/1	3	75.00
Graduate Hospital of the University of Pennsylvania ¹	Philadelphia	...	254	109	43	26	2	7/1	3	...
Hospital of the University of Pennsylvania ^{1,1}	Philadelphia	F. G. Grant	830	253	59	51	5	7/1	3	50.00
Jefferson Medical College Hospital ¹	Philadelphia	...	...	...	...	...	...	7/1	3	...
Temple University Hospital ^{1,1}	Philadelphia	M. Scott	619	1,307	45	16	1	7/1	1	...
Mersey Hospital ^{1,1}	Pittsburgh, Pa.	F. H. Bragdon	388	123	11	1	1	9/1	1	100.00
Western Pennsylvania Hospital ^{1,1,16}	Pittsburgh	...	...	...	...	...	...	...	...	...
Baptist Memorial Hospital ¹	Memphis, Tenn.	R. E. Semmes	991	512	40	20	1	7/1	3	75.00
Vanderbilt University Hospital ^{1,1}	Nashville, Tenn.	...	187	...	19	11	...	...	...	35.41
University of Texas Medical Branch Hosps. ^{1,1}	Galveston, Texas	S. R. Snodgrass	187	...	19	11	...	...	...	...
Methodist Hospital ^{1,1}	Houston, Texas	J. Greenwood	316	...	9	7	1	11/1	1	75.00
University of Virginia Hospital ^{1,1}	Charlottesville, Va.	W. G. Crutchfield	713	594	45	28	2	7/1	3	...
Medical College of Virginia, Hosp. Div. ^{1,1}	Richmond, Va.	C. C. Coleman	1,662	521	67	32	3	7/1	3	46.50

11. NEUROLOGY

The following services are approved by the Council and the American Board of Psychiatry and Neurology Hospitals, 68; Assistant Residencies and Residencies, 170

Name of Hospital	Location	Chief of Service	Inpatients Treated	Outpatient Visits	Deaths	Autopsies	Asst. Res. and Residencies Offered	Beginning of Service (1949)	Length of Approved Program (Years)	Beginning Salary (Month)
United States Army										
Hatterman General Hospital ¹	San Francisco	E. B. Litteral	719	357	...	...	...	...	3	n
Pittsmons General Hospital ¹	Denver, Colo.	D. H. Peterson	331	123	3	3	1	...	12	n
Walter Reed General Hospital ¹	Washington, D. C.	J. Kemble	1,619	297	1	1	1	1,7	1	n
United States Navy										
U. S. Naval Hospital ¹	Bethesda, Md.	W. H. Hoswell	1,321	379	10	8	1	Varies	3	n
U. S. Naval Hospital ^{1,5}	Philadelphia	E. L. Caveny	1,087	5,763	...	...	4	...	2	n
Federal Security Agency										
Freedmen's Hospital ¹	Washington, D. C.	E. Y. Williams	153	1,263	4	1	1	7/1	2	n
Veterans Administration										
Veterans Admin. Hospital ¹	Los Angeles, Calif.	...	217	312	12	6	...	...	2	n
Veterans Admin. Hospital ¹	Van Nuys, Calif.	H. H. De Jong	328	345	11	9	2	1/1, 7/1	3	n
Veterans Admin. Hospital ¹	Hines, Ill.	L. J. Pollock	566	...	63	7	11	Varies	3	n
Veterans Admin. Hospital ¹	Topeka, Kans.	L. Berlin	396	...	12	10	...	1/1	2	n
Veterans Admin. Hospital ¹	Louisville, Ky.	E. Roseman	994	9	...	...	2	...	1	n
Veterans Admin. Hospital ¹	Framingham, Mass.	E. Roseman	439	...	4	3	7	...	1	n
Veterans Admin. Hospital ¹	Minneapolis	...	621	...	25	18	9	...	3	n
Veterans Admin. Hospital ¹	New York City	H. Flowers	796	202	31	11	7	1,7	3	n
Veterans Admin. Hospital ¹	Cleveland	L. Halle	399	300	15	5	1	7/1	2	n
Veterans Admin. Hospital ¹	Coatesville, Pa.	...	...	...	...	...	...	7/1	3	n
Nonfederal										
Los Angeles County Hospital ^{1,1}	Los Angeles	S. D. Ingham	2,372	3,173	626	196	3	Varies	3	\$165.00
University of California Hospital ^{1,1}	San Francisco	R. B. Aird	189	2,040	1	1	3	7/1, 8/1, 9/1	1	50.00
Gallinger Municipal Hospital ^{1,1}	Washington, D. C.	...	759	...	73	25	2	7/1	2	...
George Washington University Hospital ^{1,1}	Washington, D. C.	W. Freeman	101	219	...	...	...	...	2	50.00
Cook County Hospital ^{1,1}	Chicago	J. A. Luban	513	1,919	73	...	2	1,7	1	32.00
Illinois Neuropsychiatric Institute ¹	Chicago	E. Oldberg	...	...	...	...	...	...	1	...
St. Luke's Hospital ¹	Chicago	R. P. Mackay	...	170	...	...	2	7/1	2	25.00
University of Chicago Clinics ¹	Chicago	R. B. Richter	116	2,295	7	1	...	7/1	2	25.00
Methodist Hospital ¹	Indianapolis	P. B. Beech	698	...	22	11	2	7/1	1	200.00
University Hospitals ¹	Iowa City	A. L. Sals	1,215	676	21	11	3	7/1	3	50.00
Charity Hospital of Louisiana ¹	New Orleans	...	792	...	21	0	1	7/1	3	25.00
Ochsner Foundation Hospital ^{1,1,11}	New Orleans, La.	J. L. L. Soulat	...	...	...	...	1	7/1	1	215.00
Baltimore City Hospital ^{1,1}	Baltimore	J. W. Magladery	...	...	...	...	1	7/1	3	35.00
Boston City Hospital ^{1,1}	Boston	D. E. Donney-Brown	174	3,957	12	4	...	...	3	...
Massachusetts General Hospital ¹	Boston	J. B. Ayer	269	...	29	21	...	...	3	...
New England Center Hospital ¹	Boston	R. D. Adams	881	461	...	...	2	7/1	2	83.33
University Hospital ¹	Ann Arbor	C. Camp	582	3,823	26	18	1	7/1	3	111.80
Henry Ford Hospital ^{1,1}	Detroit	G. O. Grain	...	...	...	...	...	7/1	1	200.00
Wayne County General Hosp. and Infirmary ¹	Eloise, Mich.	R. T. Costello	1,685	757	60	14	1	7/1	1	235.00
University of Minnesota Hospitals ^{1,1}	Minneapolis	A. B. Baker	180	2,608	29	22	5	...	3	...
Mayo Foundation	Rochester, Minn.	H. W. Woltman	...	...	...	...	15	...	3	92.50
Barnes Hospital ¹	St. Louis, Mo.	Wood and Olden	362	...	7	6	2	7/1	3	25.00
Homer G. Phillips Hospital ^{1,1,5}	St. Louis, Mo.	J. O'Leary	918	1,502	61	12	2	7/1	3	85.00
St. Louis City Hospital ^{1,1}	St. Louis, Mo.	J. O'Leary	382	1,110	...	...	...	7/1	2	65.00
Albany Hospital ^{1,1,5}	Albany, N. Y.	S. E. Barrera	1,311	332	39	21	4	7/1	1	41.67

11. NEUROLOGY—Continued

Name of Hospital	Location	Chief of Service	Inpatients Treated	Outpatient Visits	Deaths	Autopsies	Asst. Res. and Residencies Offered	Beginning of Service (1919)	Length of Approved Pro- gram (Years)	Beginning Stipend (Month)
Brooklyn Hospital* ¹	Brooklyn.....	E. J. Browder.....	299	.....	...	...	2	7/1	2	\$ 25.00
†Jewish Sanitarium and Hospital for Chronic Diseases ¹	Brooklyn.....	A. M. Rabiner.....	371	.....	46	11	..	.....	1	150.00
Kings County Hospital* ¹	Brooklyn.....	H. Merwath.....	2,026	2,617	704	65	..	7/1	3	80.00
†Buffalo General Hospital* ¹	Buffalo.....	W. B. Hamby.....	.....	622	...	...	1	7/1	2	25.00
Bellevue Hospital, Div. II—Cornell Univ. * ¹	New York City.....	F. Kennedy.....	470	3,716	36	28	4	7/1	1	70.00
Bellevue Hospital, Div. III—N. Y. Univ.* ^{1, 42}	New York City.....	.....	.....	.....	...	...	..	.....	1	.....
†Fordham Hospital* ¹	New York City.....	.....	.....	.....	...	...	..	.....	1	.....
Goldwater Memorial Hospital* ¹	New York City.....	B. Dattner and E. G. Zabriskie.....	573	332	73	15	6	7/1	2	70.00
Lenox Hill Hospital* ¹	New York City.....	T. K. Davis.....	347	.....	14	4	1	1/1	2	50.00
Metropolitan Hospital* ¹	New York City.....	S. F. Jewett.....	133	1,306	17	3	1	7/1	2	130.00
Montefiore Hospital for Chronic Diseases* ¹	New York City.....	.....	520	.....	28	13	6	7/1	2	50.00
Morrisania City Hospital* ¹	New York City.....	N. Savitsky.....	.....	.....	...	...	2	7/1	2	80.00
Mount Sinai Hospital* ¹	New York City.....	I. S. Wechsler.....	.....	.....	...	...	5	.....	2	50.00
New York City Hospital* ¹	New York City.....	L. V. Lyons.....	408	1,027	133	29	..	7/1	2	80.00
Presbyterian Hospital* ¹	New York City.....	H. H. Merritt.....	2,040	13,220	67	...	11	.....	3	41.66
†St. Vincent's Hospital* ¹	New York City.....	O. G. de Gutierrez- Mahoney.....	637	1,027	53	17	3	7/1	1	50.00
†Rochester General Hospital* ¹	Rochester, N. Y.....	.....	.....	.....	...	...	..	.....	1	.....
Duke Hospital* ¹	Durham, N. C.....	F. Kunkle.....	207	765	...	...	3	7/1	3	83.33
Cincinnati General Hospital* ¹	Cincinnati.....	C. Aring.....	351	1,608	132	55	5	7/1	3	50.00
†Cleveland Clinic Hospital ¹	Cleveland.....	L. J. Karnosh.....	118	7,437	...	...	5	7/1	2	100.00
†Graduate Hosp. of the Univ. of Pennsylvania* ¹	Philadelphia.....	.....	591	1,392	26	12	2	7/1	1	.....
Hospital of the University of Pennsylvania* ¹	Philadelphia.....	G. D. Gammon.....	834	2,833	15	10	4	7/1	3	50.00
Jefferson Medical College Hospital* ¹	Philadelphia.....	B. J. Alpers.....	636	3,001	16	7	4	7/1	3	.....
†Philadelphia General Hospital* ¹	Philadelphia.....	.....	1,921	.....	615	...	4	7/1	2	70.00
Temple University Hospital* ¹	Philadelphia.....	S. F. Gilpin.....	154	.....	6	1	..	.....	3	.....
†St. Francis Hospital* ¹	Pittsburgh.....	.....	.....	.....	...	...	..	.....	1	.....
†Galveston State Psychopathic Hospital (Uni- versity of Texas Medical Branch).....	Galveston, Texas.....	.....	.....	.....	...	...	..	.....	1	.....

12. OBSTETRICS AND GYNECOLOGY

The following services are approved by the Council and the American Board of Obstetrics and Gynecology
Hospitals, 356; Assistant Residencies and Residencies, 1,355

Name of Hospital	Location	Chief of Service	Residencies Approved	Inpatients Treated	Outpatient Visits	Asst. Res. and Residencies Offered	Beginning of Service (1919)	Length of Approved Pro- gram (Years)	Beginning Stipend (Month)
United States Army									
Letterman General Hospital*.....	San Francisco.....	H. O. Boyd.....	OBG	809	392	10,536	1,130	2	.....
Fitzsimons General Hospital*.....	Denver.....	J. H. Forsee.....	OBG	1,702	.....	12,736	2,480	2	.....
Walter Reed General Hospital*.....	Washington, D. C.....	H. L. Riva and H. E. Harrison.....	OBG	1,275	578	8,554	9,032	6	1, 7
Brooke General Hospital*.....	San Antonio, Texas.....	J. W. Simpson.....	OBG	1,817	783	12,030	10,049	7	.....
United States Navy									
U. S. Naval Hospital*.....	Long Beach, Calif.....	R. E. Crowder.....	OBG	1,579	750	13,142	7,282	5	Varies
U. S. Naval Hospital*.....	Oakland, Calif.....	H. Hirschland.....	OBG	.....	.....	.....	.....	3	7
U. S. Naval Hospital*.....	San Diego, Calif.....	H. H. Hill.....	OBG	1,932	.....	15,072	10,046	5	.....
U. S. Naval Hospital*.....	Great Lakes, Ill.....	L. M. Harris.....	OBG	637	320	5,933	3,822	4	Varies
U. S. Naval Hospital ¹	Annapolis, Md.....	J. W. Miller.....	OBG	473	38	2,820	1,144	2	.....
U. S. Naval Hospital*.....	Bethesda, Md.....	D. A. Callagan.....	OBG†	1,639	428	1,524	3,026	18	.....
U. S. Naval Hospital*.....	Chelsea, Mass.....	F. B. Smith.....	OBG	.....	.....	.....	.....	1	.....
U. S. Naval Hospital.....	Brooklyn.....	.....	OBG	.....	.....	.....	.....	1	.....
U. S. Naval Hospital*.....	Philadelphia.....	F. B. Smith.....	OBG	1,342	.....	11,403	.....	4	.....
U. S. Naval Hospital*.....	Portsmouth, Va.....	.....	OBG	4,382	.....	53,663	.....	4	.....
Federal Security Agency									
Freedmen's Hospital* ¹	Washington, D. C.....	J. W. Ross.....	OBG	1,509	1,221	6,255	2,946	3	7/1
Nonfederal									
Carraway Methodist Hospital.....	Birmingham, Ala.....	T. M. Boolware.....	OB	1,558	.....	8,645	.....	1	7
Jefferson-Hillman Hospital* ¹	Birmingham, Ala.....	W. N. Jones and J. R. Garber.....	OBG	3,753	1,631	10,189	5,491	6	.....
Employees' Hospital of the Tennessee Coal, Iron and Railroad Company*.....	Fairfield, Ala.....	O. T. West.....	OB	2,173	.....	13,457	.....	3	7/1
St. Vincent Infirmary ¹	Little Rock, Ark.....	C. P. Wickard and J. H. Sanderlin.....	OB† Gyn†	2,109	.....	.....	.....	2	7/1
University Hospital* ¹	Little Rock, Ark.....	E. Dodge.....	OBG	1,587	595	10,978	6,313	9	7/1
Herrick Memorial Hospital* ¹	Berkeley, Calif.....	T. R. Hofmann.....	OBG	1,985	746	1,392	184	1	7/1
San Joaquin General Hospital* ¹	French Camp, Calif.....	D. G. Harrington.....	OBG	1,629	298	.....	.....	1	1/1
California Hospital* ¹	Los Angeles.....	G. W. Hewitt.....	OB	.....	3,590	859	.....	5	7/1
Los Angeles County Hospital* ¹	Los Angeles.....	B. J. Hanley.....	OBG	9,351	2,156	5,042	7,580	11	Varies
Queen of the Angels Hospital*.....	Los Angeles.....	.....	OBG	5,323	1,780	348	343	5	7/1
White Memorial Hospital* ¹	Los Angeles.....	R. J. Thompson.....	OBG	1,857	763	10,260	8,632	6	7/1
Highland-Alameda County Hospital* ¹	Oakland, Calif.....	T. F. Bell.....	OBG	1,957	624	.....	.....	1	.....
Permanent Foundation Hospital* ¹	Oakland, Calif.....	R. W. King.....	OBG	2,036	2,036	20,635	.....	3	.....
Samuel Merritt Hospital.....	Oakland, Calif.....	C. C. Hall.....	OBG†	2,326	735	.....	.....	3	1/18
Collis P. and Howard Huntington Memorial Hospital*.....	Pasadena, Calif.....	.....	OB	808	.....	.....	.....	1	7/1
Mercy Hospital*.....	San Diego, Calif.....	C. E. Kennedy.....	OB†	4,904	.....	.....	.....	2	7/1
San Diego County General Hospital*.....	San Diego, Calif.....	W. B. McGee.....	OBG†	726	469	2,896	1,358	2	7/1
Children's Hospital* ¹	San Francisco.....	H. A. Stephenson.....	OBG	2,689	657	2,504	979	4	7/1
Mary's Help Hospital* ¹	San Francisco.....	C. L. Cooley.....	OBG	1,856	542	2,887	1,066	2	.....
St. Mary's Hospital*.....	San Francisco.....	P. H. Arnot.....	OB	.....	.....	.....	.....	1	7/1
San Francisco Hospital* ¹	San Francisco.....	.....	OBG	2,197	710	.....	.....	4	.....

12. OBSTETRICS AND GYNECOLOGY—Continued

Name of Hospital	Location	Chief of Service	Residencies Approved	Inpatients Treated		Outpatient Visits		Asst. Res. and Residencies Offered	Beginning of Service (1916)	Length of Approved Pro- gram (Years)	Beginning Stipend (Months)
				OB	Gyn	OB	Gyn				
Stanford University Hospitals*	San Francisco	C. E. McLennan	OBG	2,670	911	16,491		6	7/1	3	\$ 50.00
University of California Hospital*	San Francisco	H. F. Traut	OBG	1,131	810	6,823	7,012	6	7/1, 8/1, 9/1	3	50.00
Santa Clara County Hospital*	San Jose, Calif.	A. Shufelt	OBG	892	472	2,537	3,641	2	7/1	2	25.00
St. John's Hospital*	Santa Monica, Calif.	B. Watson	OBG					2	7	2	150.00
St. Joseph's Hospital*	Denver		OBG	2,621	8-6			1	7/1	2	85.00
University of Colorado Medical Center, Colorado General Hospital*	Denver	E. S. Taylor	OBG	887	469	4,629	3,102	0	7/1	3	75.00
Denver General Hospital*	Denver	E. S. Taylor	OBG	898	477	2,850	721	0	7	1	75.00
Bridgeport Hospital*	Bridgeport, Conn.	C. Griswold	OB	3,002		917		2	7/1	1	100.00
Hartford Hospital*	Hartford, Conn.	G. E. Howe	OBG	5,974	2,277	5,190	675	4	7/1	3	60.00
New Britain General Hospital*	New Britain, Conn.	D. A. Bristol	OBG	1,939	463			1	7/1	1	75.00
Grace-New Haven Community Hospital Grace Unit*	New Haven, Conn.	H. Perrins	OBG	2,187	692			3	7/1	3	52.00
New Haven Unit (University Service)*	New Haven, Conn.	H. Thoms	OBG	2,918	9-1		9,503	8	7/1	3	40.00
Hospital of St. Raphael*	New Haven, Conn.	C. E. Johnson	OB					3	7/1	1	75.00
Lawrence and Memorial Assoc. Hospitals*	New London, Conn.	E. H. Blank	OBG	2,270	423			1	7/1	1	75.00
Columbia Hospital for Women and Lying-in Asylum*	Washington, D. C.		OBG	4,187	1,624	9,850	4,849	8	7/1	3	...
Doctors Hospital*	Washington, D. C.	J. D. Wynkoop	OBG	2,019	1,196			2	7/1	3	...
Gallinger Municipal Hospital*	Washington, D. C.		OBG	6,055	6-9	5,604	2,822	6	7/1	3	100.00
Garfield Memorial Hospital*	Washington, D. C.	R. J. Jansen and R. O'Donnell	OBG	3,101	1,551	5,281	1,919	6	7/1	3	...
Georgetown University Hospital*	Washington, D. C.	A. A. Marchant	OBG	1,731	612			4	7	3	25.00
George Washington University Hospital*	Washington, D. C.	J. L. Parks	OBG	1,551	516	213	220	3	7/1	3	50.00
Providence Hospital*	Washington, D. C.	G. J. Ellis	OB(OB)	3,342	1,6-7	2,670	1,147	4	7/1	2	75.00
Sibley Memorial Hospital*	Washington, D. C.	J. Katz	OB	4,412		49		6	7/1	2	75.00
St. Luke's Hospital*	Jacksonville, Fla.	S. R. Norris	OB	1,760		6,230		2	1/1, 7/1	1	125.00
Crawford W. Long Memorial Hospital*	Atlanta, Ga.	E. L. Griffin	OBG	5,841	1,229	2,919	142	11	7/1	2	75.00
Grady Memorial Hospital*	Atlanta, Ga.	J. B. Cross	OB	6,6-6	810	23,437	10,520	11	7/1	3	...
St. Joseph's Infirmary*	Atlanta, Ga.	H. Boyd	OB	1,533		2,712		3	7/1	1	100.00
University Hospital*	Augusta, Ga.	R. Torpin	OBG	2,774	1,296			5	7/1	3	40.00
Augustana Hospital*	Chicago	W. H. Browne and N. P. Percy	OBG	1,121	1,015	1,520	1,217	2	7/1	1	50.00
Chicago Maternity Center	Chicago		OB					35	7/1	1	...
Cook County Hospital*	Chicago	J. E. Fitzgerald	OB	11,829		11,529		12	1/1, 7/1	3	32.00
Frank Cuneo Memorial Hospital	Chicago		OBG						7/1	1	...
Grant Hospital*	Chicago	M. H. Boley	OBG	1,792	785		1,975	2	7/1	1	145.00
Henrotin Hospital*	Chicago	E. L. Cornell	OB	707		6-0		1	7/1	1	100.00
Hospital of St. Anthony de Padua*	Chicago		OB					1	7/1	1	...
Illinois Masonic Hospital*	Chicago	Roos	OBG	1,351	633			1	7/1	1	75.00
Lewis Memorial Maternity Hospital*	Chicago	H. E. Schmitz	OBG	1,616	709			8	1/1, 7/1	3	50.00
Lutheran Deaconess Home and Hospital*	Chicago		OB	1,621				1	7/1	1	100.00
Mercy Hospital-Loyola University Clinics*	Chicago	H. E. Schmitz	OBG	1,353	1,071	559	2,991	2	7/1	3	25.00
Michael Reese Hospital*	Chicago	R. Reis	OBG	2,778	1,461	1,481	2,625	5	1/1, 7/1	3	25.00
Mount Sinai Hospital*	Chicago	A. F. Lash and A. H. C. Goldfarb	OBG	1,919	751	1,510	1,285	2	7/1	1	50.00
Passavant Memorial Hospital*	Chicago	J. I. Brewer	Gyn		658		1,851	2	7/1	3	...
Presbyterian Hospital*	Chicago	E. D. Allen	OBG	3,317			2,597	7	7/1	3	25.00
Provident Hospital*	Chicago	T. C. Reines and P. M. Santo	OBG	1,858	809	3,131	2,853	5	7/1	3	50.00
Ravenswood Hospital*	Chicago	W. G. Burck	OBG	1,758	587	646	351	3	Varies	2	60.00
Research and Educational Hospitals*	Chicago	F. H. Fall	OB	9-3		10,518		5	7/1	3	55.00
St. Anne's Hospital*	Chicago	R. J. Hawkins	OB	5,646				3	1/1, 7/1	3	125.00
St. Elizabeth Hospital*	Chicago	J. B. Laverly	OBG	3,119	721			4	7/1	1	60.00
St. Joseph Hospital*	Chicago	C. Geiger	OBG	1,328	742	966	610	2	5/1, 6/1	1	75.00
St. Luke's Hospital*	Chicago	E. A. Edwards and J. A. Gough	OBG	1,746	711	4,800	1,727	5	7/1	3	25.00
St. Mary of Nazareth Hospital*	Chicago	F. Mackowiak and M. E. Czarnacki	OBG	2,637	471	8,045	1,377	1	7/1	1	100.00
St. Vincent's Infant and Maternity Hospital*	Chicago	H. E. Schmitz	OB	451		2,511		1	7/1	1	75.00
Swedish Covenant Hospital*	Chicago	R. A. Lefvendahl and G. L. Rosene	OBG	1,895	531			2	1/1, 7/1	1	125.00
University of Chicago Clinics*	Chicago	W. J. Diekmann	OBG	5,016	103	28,553	11,465	9	7/1	3	25.00
Wesley Memorial Hospital*	Chicago	G. Gardner	OBG	1,338	1,173			4	7/1	3	25.00
Women and Children's Hospital*	Chicago	M. A. Phillips	OB	1,351		957		4	7/1	2	...
Evanston Hospital*	Evanston, Ill.	D. N. Danforth	OBG	1,581	912	1,639	751	4	7/1	3	50.00
St. Francis Hospital*	Evanston, Ill.	J. N. Bremner	OB	2,618	807			1	7/1	3	75.00
Little Company of Mary Hospital*	Evergreen Park, Ill.	P. Lawler	OB	3,200				3	7/1	2	100.00
West Suburban Hospital*	Oak Park, Ill.		OBG	3,713	1,126	12	291	3	7	2	150.00
St. Francis Hospital*	Peoria, Ill.	W. A. Michael	OBG	3,151	788	303	313	2	1, 9	2	150.00
Indianapolis General Hospital*	Indianapolis	J. W. Hoffmann and F. J. Hudson	OBG	1,523	970	8,636	3,741	3	7/1	3	80.00
Indiana University Medical Center*	Indianapolis	C. Huber	OB	1,882		3,777		3	7/1	3	65.33
Methodist Hospital*	Indianapolis	L. J. Clark	OB	5,218				3	7/1	2	200.00
St. Vincent's Hospital*	Indianapolis	C. Hablech	OBG	3,322	1,299	402	150	2	7/1	2	200.00
St. Elizabeth Hospital*	La Fayette, Ind.	F. W. Peyton	OBG	1,632	501			4	7/1	2	100.00
University Hospitals*	Iowa City	E. D. Plass	OBG	1,307	1,080	1,525	2,243	9	7/1	3	100.00
University of Kansas Medical Center*	Kansas City, Kan.	L. A. Calkins	OBG	1,106	589	5,757	3,782	6	7/1	3	...
St. Francis Hospital*	Wichita, Kan.	R. A. West	OBG	2,152	1,105			2	7/1	3	125.00
St. Joseph's Hospital*	Lexington, Ky.	A. B. Barrett	OBG	4,492				1	7/1	1	90.00
Louisville General Hospital*	Louisville, Ky.	W. O. Johnson and S. H. Starr	OBG	2,009	421	10,888	6,256	8	7/1	3	45.00
St. Joseph Infirmary*	Louisville, Ky.	E. R. Cadden	OBG	2,527	1,238		819	3	7/1	2	75.00
Charity Hospital of Louisiana*	New Orleans		OBG	11,650	3,570	53,778	29,317	26	7/1	3	25.00
Hotel Dieu, Sisters' Hospital*	New Orleans	W. D. Beauchamp	OBG	2,731	853			2	7/1	1	100.00
Southern Baptist Hospital*	New Orleans	T. B. Sellers	OBG	3,269	1,850			2	7/1	1	150.00
Touro Infirmary*	New Orleans	W. E. Levy	OB	2,409		5,181		2	7/1	1	...
Shreveport Charity Hospital*	Shreveport, La.	C. R. Mays	Gyn		1,518		2,097	5	7/1	3	17.50
Baltimore City Hospitals*	Baltimore	L. H. Douglass	OB	3,663				3	7/1	1	...
Bon Secours Hospital*	Baltimore	E. Novak and H. B. McNally	OBG	1,135	812	530	550	3	7/1	1	75.00
Franklin Square Hospital*	Baltimore	W. J. Ryneck, Jr. and I. A. Siegel	OB(OB)	1,701	235	1,321	611	4	7/1	1	85.00
Hospital for Women*	Baltimore	J. Bergland	OB	1,855		3,420		3	7/1	1	75.00

12. OBSTETRICS AND GYNECOLOGY—Continued

Name of Hospital	Location	Chief of Service	Residencies Approved	Inpatients Treated		Outpatient Visits		Asst. Res. and Residencies Offered	Beginning of Service (1940)	Length of Approved Pro- gram (Years)	Beginning Stipend (Month)
				OB	Gyn	OB	Gyn				
Johns Hopkins Hospital*.....	Baltimore.....	N. J. Eastman.....	OB	3,158	.....	14,755	.....	8	.....	.....	.....
Maryland General Hospital*1.....	Baltimore.....	R. W. Te Linde.....	Gyn	.....	2,403	.....	12,871	7	7/1	3	\$ 41.66
Mercy Hospital*.....	Baltimore.....	E. H. Kroman and K. B. Boyd.....	OBG	1,197	447	531	71	3	7/1	2	50.00
Provident Hospital and Free Dispensary*1.....	Baltimore.....	T. K. Galvin and E. P. Smith.....	OBG	1,607	963	2,981	829	4	7/1	3	50.00
St. Agnes Hospital*.....	Baltimore.....	L. H. Douglas.....	OB	.....	.....	.....	.....	1	.....	1	.....
St. Joseph's Hospital*.....	Baltimore.....	H. B. McNally and E. Novack.....	OBG†	1,392	803	406	117	4	.....	1	.....
Sinal Hospital*1.....	Baltimore.....	T. K. Galvin and H. B. McNally.....	OBG	1,651	968	3,034	1,149	3	7/1	3	50.00
South Baltimore General Hospital*1.....	Baltimore.....	A. F. Guttmacher.....	OB	2,718	.....	.....	.....	4	.....	2	.....
Union Memorial Hospital*.....	Baltimore.....	D. Silverman.....	Gyn	.....	999	.....	.....	4	7/1	1	25.00
University of Maryland Hospital*1.....	Baltimore.....	F. Kaltreider.....	OB†	1,108	.....	1,603	.....	2	6/1	1	75.00
.....more General Hospital*1.....	Baltimore.....	J. M. Haws.....	OB	2,563	.....	2,793	.....	3	.....	1	.....
.....ton City Hospital*1.....	Boston.....	L. H. Douglass.....	OB	2,765	.....	17,949	.....	6	7/1	3	.....
Boston Lying-In Hospital*1.....	Boston.....	J. M. Hundley, Jr.....	Gyn	.....	963	7,555	.....	4	7/1	.....	.....
Carney Hospital*.....	Boston.....	D. McC. Dixon and W. K. Diehl.....	OBG†	2,128	671	2,542	227	2	.....	1	.....
Massachusetts Memorial Hospitals*1.....	Boston.....	F. J. Lynch and F. L. Good.....	OBG	3,044	2,166	11,040	7,093	2	.....	3	.....
New England Hosp. for Women and Children*1.....	Boston.....	D. E. Reid.....	OB	3,512	.....	29,432	.....	10	1/1	3	.....
Booth Memorial Hospital.....	Boston.....	A. F. Guttmacher.....	OBG	1,164	819	2,713	859	3	7	.....	.....
Free Hospital for Women.....	Brookline, Mass.....	C. W. Sewall.....	OB	1,030	.....	3,346	.....	2	1/1	2	75.00
Cambridge City Hospital*.....	Brookline, Mass.....	M. Woodman.....	OB†	2,186	.....	6,161	.....	1	1/1	1	62.50
Quincy City Hospital*.....	Quincy, Mass.....	H. S. Finkel.....	OB	1,162	.....	3,844	.....	2	4/1, 7/1	1	.....
St. Joseph's Mercy Hospital*.....	Ann Arbor, Mich.....	G. Van S. Smith.....	Gyn	.....	8,993	12,555	.....	6	1/1	3	.....
University Hospital*1.....	Ann Arbor, Mich.....	F. J. Lynch.....	OBG	1,525	587	2,195	369	1	7/1	2	53.33
City of Detroit Receiving Hospital*1.....	Detroit.....	L. H. VanRaalte.....	OBG†	1,864	792	.....	.....	2	.....	1	100.00
Evangelical Deaconess Hospital*.....	Detroit.....	H. H. Cummings.....	OBG†	.....	2,458	.....	.....	2	7/1	1	125.00
Florence Crittenton Hospital*1.....	Detroit.....	N. M. Miller.....	OBG	1,065	842	5,779	6,726	7	7/1	3	111.90
Grace Hospital*1.....	Detroit.....	O. S. Stevenson.....	OBG	.....	183	5,819	.....	2	7/15	3	188.10
Harper Hospital*1.....	Detroit.....	H. A. Pearce.....	OBG	2,174	808	4,033	704	7	7/1	3	.....
Henry Ford Hospital*1.....	Detroit.....	O. W. Pickard.....	OBG	.....	8,829	2,121	.....	8	7/1	3	75.00
Herman Kiefer Hospital*1.....	Detroit.....	A. E. Catherswood.....	OBG	2,986	1,534	461	2,295	5	7/1	3	.....
Mt. Carmel Mercy Hospital*1.....	Detroit.....	J. P. Pratt.....	OBG	2,208	1,026	10,546	24,957	4	7/1	3	200.00
Providence Hospital*.....	Detroit.....	C. S. Stevenson.....	OBG	3,388	.....	.....	.....	2	7/15	3	209.00
St. Joseph's Mercy Hospital*1.....	Detroit.....	C. N. Swanson.....	OBG	4,781	.....	.....	.....	6	7/1	2	150.00
St. Mary's Hospital*.....	Detroit.....	H. Henderson.....	OBG	4,632	1,464	.....	.....	7	7/1	3	140.00
Woman's Hospital*1.....	Detroit.....	R. B. Kennedy.....	OB	1,950	.....	336	.....	2	.....	2	150.00
Hurley Hospital*.....	Flint, Mich.....	R. B. Kennedy.....	Gyn	.....	1,207	146	.....	1	.....	2	150.00
Blodgett Memorial Hospital*1.....	Grand Rapids, Mich.....	V. J. Turcotte.....	OBG	1,994	956	.....	.....	5	7/1	3	125.00
Butterworth Hospital*1.....	Grand Rapids, Mich.....	H. E. Daniels and M. M. Nelson.....	OBG	4,461	1,477	.....	.....	5	7/1	3	125.00
Pontiac General Hospital*1.....	Grand Rapids, Mich.....	H. Burnell.....	OBG†	.....	2,381	.....	.....	1	7/1	1	135.00
Saginaw General Hospital*1.....	Grand Rapids, Mich.....	P. W. Willis.....	OB†	1,722	.....	.....	.....	1	.....	1	160.00
St. Luke's Hospital*.....	Grand Rapids, Mich.....	L. C. Bosch.....	OBG†	2,870	1,852	521	312	4	7/1	2	160.00
St. Mary's Hospital*1.....	Grand Rapids, Mich.....	J. H. Beaton.....	OBG	2,956	580	22	22	2	4/1	1	125.00
St. Mary's Hospital*1.....	Duluth, Minn.....	H. Furlong.....	OB	.....	.....	.....	.....	3	7/1	1	75.00
St. Mary's Hospital*1.....	Duluth, Minn.....	C. E. Toshach.....	OBG	1,862	.....	416	.....	3	7/1	3	75.00
Abbott Hospital*.....	Minneapolis.....	A. O. Swenson.....	OB	1,425	.....	.....	.....	1	.....	1	.....
Maternity Hospital*1.....	Minneapolis.....	A. Arnold.....	OB	2,649	.....	3,125	.....	2	.....	1	.....
Minneapolis General Hospital*1.....	Minneapolis.....	L. A. Lang.....	OBG	729	479	2,283	2,232	2	1/1, 7/1	3	115.00
Northwestern Hospital*1.....	Minneapolis.....	B. Dornbalser.....	OBG†	2,043	867	.....	.....	2	7/1	1	150.00
St. Barnabas Hospital*1.....	Minneapolis.....	L. A. Lang.....	OBG†	2,175	588	.....	.....	1	7/1, 1/1	1	.....
St. Mary's Hospital*1.....	Minneapolis.....	Maland.....	OB	2,830	.....	.....	.....	1	.....	1	.....
Swedish Hospital*.....	Minneapolis.....	J. McKelvey.....	OBG	408	353	1,099	2,018	7	.....	3	.....
University of Minnesota Hospitals*1.....	Minneapolis.....	L. M. Randall.....	OBG	.....	.....	.....	.....	12	.....	3	62.50
Mayo Foundation.....	Rochester, Minn.....	A. G. Schulze.....	OBG	321	215	802	1,346	1	1	3	91.50
Ancker Hospital*.....	St. Paul.....	E. S. Countryman and E. C. Hartley.....	OBG	2,166	714	1,948	978	1	.....	3	115.00
Charles T. Miller Hospital*1, 54.....	St. Paul.....	E. L. Dorsst.....	OBG	555	310	3,399	2,553	2	7/1	3	80.00
St. Louis County Hospital*.....	Clayton, Mo.....	G. F. Pendleton.....	OBG	923	739	3,601	3,497	4	7	3	50.00
Kansas City General Hospital No. 1*.....	Kansas City, Mo.....	L. M. Riordan.....	OBG†	1,955	1,338	.....	.....	2	.....	1	.....
St. Joseph Hospital*.....	Kansas City, Mo.....	K. O. Morrin.....	OBG	2,562	412	276	.....	3	7/1	2	90.00
DePaul Hospital*.....	St. Louis.....	L. M. Riordan.....	OBG	2,439	1,378	7,419	.....	8	.....	3	95.00
Home G. Phillips Hospital*1.....	St. Louis.....	J. B. O'Neill.....	OBG†	1,430	895	.....	.....	2	7	3	50.00
Jewish Hospital*1.....	St. Louis.....	O. Schwarz, J. Hardy and T. R. Ayars.....	OBG	1,243	540	.....	.....	2	7/1	1	70.00
Missouri Baptist Hospital*.....	St. Louis.....	W. Allen.....	OBG	3,748	1,195	9,550	7,742	15	7/1	3	95.00
St. Louis City Hospital*1.....	St. Louis.....	R. Paddock.....	OBG	1,166	613	.....	.....	2	7/1	2	50.00
St. Louis Maternity Hospital*1.....	St. Louis.....	A. A. Hardy, Jr.....	OBG	4,452	1,631	6,507	3,722	8	7/1	3	35.00
St. Mary's Group of Hospitals*.....	St. Louis.....	F. L. McPhail.....	OBG†	940	224	.....	.....	1	7/1	1	200.00
Montana Deaconess Hospital.....	Great Falls, Mont.....	M. E. Grier.....	OBG	2,230	1,550	.....	.....	3	1/1	3	100.00
Lincoln General Hospital*1.....	Lincoln, Nebr.....	E. C. Sage.....	OBG	267	568	478	2,313	2	7/1	3	75.00
Creighton Memorial St. Joseph's Hospital*1.....	Omaha.....	G. B. Davis and A. B. German.....	OBG†	3,553	.....	10,070	.....	3	11/1	2	83.31
University of Nebraska Hospital*1.....	Omaha.....	E. W. Bookrajian.....	Gyn	.....	856	5,710	.....	2	.....	3	.....
Cooper Hospital*.....	Camden, N. J.....	S. A. Cosgrove.....	OB	10,921	.....	20,431	.....	16	.....	3	66.66
Jersey City Hospital*1.....	Jersey City, N. J.....	R. A. McKenzie.....	OB	1,936	.....	764	.....	2	.....	2	150.00
Margaret Hague Maternity Hospital*1.....	Jersey City, N. J.....	L. E. Thron.....	OB	2,585	.....	874	.....	1	.....	1	.....
Monmouth Memorial Hospital*1.....	Long Branch, N. J.....	A. J. Wallingford.....	Gyn	.....	2,745	672	.....	3	7/1	2	41.67
Paterson General Hospital*1.....	Paterson, N. J.....	.....	OB	.....	.....	.....	.....	1	7/1	2	40.00
Albany Hospital*1.....	Albany, N. Y.....	A. Koplowitz.....	OBG	3,530	.....	2,724	.....	3	1, 7	2	100.00
Albany N. Brady Maternity Home.....	Albany, N. Y.....	J. T. Wallace.....	OBG	2,162	597	4,056	1,788	2	7/1	3	25.00
Beth-El Hospital*.....	Brooklyn.....	A. Koplowitz.....	OBG†	.....	1,027	2,997	.....	3	8/1	1	75.00
Brooklyn Women's Hospital.....	Brooklyn.....	S. Lubin.....	OBG	1,672	499	6,899	2,235	4	7/1	3	70.00
Brooklyn General Hospital*1.....	Brooklyn.....	W. C. Meagher.....	OBG	1,215	847	5,271	5,714	2	7/1	2	130.00
Cumberland Hospital*1.....	Brooklyn.....	.....	OBG	.....	1,673	.....	2,815	6	7	3	30.00
Greenpoint Hospital*1.....	Brooklyn.....	R. Garlick and O. Gorden.....	OBG	4,825	3,583	19,871	5,686	5	7/1	3	130.00
Jewish Hospital*1.....	Brooklyn.....	F. P. Light.....	OBG	2,096	1,089	3,957	2,006	3	7/1	3	25.00
Kings County Hospital*1.....	Brooklyn.....	.....	OBG	.....	.....	.....	.....	.....	.....	.....	.....

Numerical and other references will be found on page 225.

12. OBSTETRICS AND GYNECOLOGY—Continued

Name of Hospital	Location	Chief of Service	Residencies Approved	Inpatients Treated		Outpatient Visits		Asst. Res. and Residencies Offered	Beginning of Service (Year)	Length of Approved Program (Years)	Beginning of Service (Month)
				OB	Gyn	OB	Gyn				
Methodist Hospital ¹	Brooklyn.....	Acken and S. C. Hall	OBG	2,703	790	8,205	831	8	7/1	2	25.00
Norwegian Lutheran Deaconesses' Home and Hospital ¹	Brooklyn.....	R. Harris.....	OB	1,730	.....	3,051	.....	2	7/1	1	35.00
St. Catherine's Hospital ¹	Brooklyn.....	C. A. Gordon.....	OBG	2,012	712	2,038	497	2	7/1	1	75.00
St. John's Hospital ¹	Brooklyn.....	C. W. Mueller.....	OBG	911	338	.....	.....	2	7/1	2	55.00
St. Mary's Hospital ¹	Brooklyn.....	H. J. Goubeaud, Jr.....	OBG	1,091	611	4,519	1,225	2	7/1	2	50.00
Unity Hospital ¹	Brooklyn.....	S. L. Siepler.....	OBG	.....	.....	968	.....	4	7/1	2	100.00
Buffalo General Hospital ¹	Buffalo.....	C. L. Randall.....	OBG	1,537	1,095	3,121	1,821	2	7/1	2	25.00
Children's Hospital	Buffalo.....	E. G. Winkler.....	OB	2,627	.....	.....	.....	2	7/1	2	.....
Edward J. Meyer Memorial Hospital ¹	Buffalo.....	E. G. Winkler.....	OBG	191	622	3,051	2,074	4	7/1	3	100.00
Millard Fillmore Hospital ¹	Buffalo.....	L. F. McLenn.....	OB	3,095	.....	.....	.....	4	7/1	3	50.00
Sisters of Charity Hospital ¹	Buffalo.....	L. F. McLenn.....	Gyn	.....	1,761	.....	.....	.....	.....	.....	.....
Queens General Hospital ¹	Jamaica, N. Y.....	E. G. Winkler.....	OB	3,078	.....	.....	.....	.....	7/1	2	150.00
Nassau Hospital	Jamaica, N. Y.....	E. A. Flemming.....	OBG	1,978	1,057	6,078	2,056	3	7/1	2	80.00
Bellevue Hospital, Div. III—N. Y. Univ. ¹	New York City.....	W. Studdiford.....	OBG	2,872	2,231	15,337	7,029	5	.....	3	00.00
Beth Israel Hospital ¹	New York City.....	H. C. Falk.....	OB	2,926	.....	4,316	.....	.....	7/1	1	50.00
Bronx Hospital ¹	New York City.....	H. C. Falk.....	Gyn	.....	1,017	.....	3,527	.....	7/1	1	50.00
Flower and Fifth Avenue Hospitals ¹	New York City.....	M. Rosenbaum.....	OB	3,020	3,790	.....	.....	.....	7/1	1	75.00
Fordham Hospital ¹	New York City.....	L. S. Loebman.....	OBG	2,929	1,389	4,705	1,418	.....	7/1	2	130.00
French Hospital ¹	New York City.....	M. L. Brandt.....	OBG	1,161	593	5,065	1,533	.....	1/1, 7/1	2	80.00
Hurlem Hospital ¹	New York City.....	.....	OB	1,574	.....	712	.....	.....	7/1	2	80.00
Hospital for Joint Diseases ¹	New York City.....	F. A. Kassebohm.....	OB	5,076	.....	25,329	.....	.....	7/1	1	80.00
Lenox Hill Hospital ¹	New York City.....	H. C. Falk.....	Gyn	.....	2,029	.....	10,713	.....	7/1	1	40.00
Lincoln Hospital ¹	New York City.....	H. Davidon.....	Gyn	.....	485	.....	2,785	1	7/1	1	40.00
Metropolitan Hospital ¹	New York City.....	J. Kilroe and R. C. Van Etten.....	OB(G)	1,775	853	.....	.....	3	7/1	2	50.00
Misericordia Hospital ¹	New York City.....	H. C. Ingraham.....	OBG	2,118	1,235	12,185	4,693	6	.....	12	.....
Morrisania City Hospital ¹	New York City.....	H. B. Safford.....	OBG	1,982	1,182	9,947	4,567	2	7/1	1	80.00
Mount Sinai Hospital ¹	New York City.....	A. H. Schnitz.....	OB	.....	.....	.....	.....	.....	2/1	1	.....
New York City Hospital ¹	New York City.....	M. Goodfriend.....	OB	2,600	.....	8,416	.....	.....	7/1	1	80.00
New York Hospital ¹	New York City.....	M. A. Goldberger.....	Gyn	.....	.....	.....	.....	4	.....	12	50.00
New York Infirmary ¹	New York City.....	R. J. Lowrie and J. V. Riehl.....	OBG	1,790	1,056	10,097	3,756	3	7/1	2	80.00
New York Polyclinic Medical School and Hosp. ¹	New York City.....	G. Douglas.....	OBG	7,339	.....	27,021	14,074	14	7/1	1	25.00
Presbyterian Hospital ¹	New York City.....	W. Regland.....	OB	1,251	.....	4,041	.....	2	.....	10	75.00
Roosevelt Hospital ¹	New York City.....	.....	OB	1,285	.....	3,787	.....	.....	.....	.....	50.00
St. Clare's Hospital ¹	New York City.....	.....	Gyn	.....	1,131	.....	.....	2	7/1	2	41.00
St. Francis Hospital ¹	New York City.....	H. C. Taylor, Jr.....	OBG	4,220	1,535	19,067	12,783	17	.....	3	.....
St. Vincent's Hospital ¹	New York City.....	T. C. Peightal.....	Gyn	.....	1,020	.....	2,694	1	.....	.....	25.00
University Hospital ¹	New York City.....	M. Jordan.....	OBG	1,734	458	3,411	983	6	7/1	1	75.00
Woman's Hospital ¹	New York City.....	J. Labate.....	OBG	2,685	.....	4,492	.....	5	.....	.....	50.00
Genesee Hospital ¹	New York City.....	J. F. McGrath.....	OBG	2,000	990	4,856	3,031	3	7/1	2	30.00
Highland Hospital ¹	New York City.....	W. T. Dannerth.....	Gyn	.....	882	.....	11,783	2	10/1	2	10.00
Rochester General Hospital ¹	Rochester, N. Y.....	A. H. Aldrich.....	OBG	3,227	2,491	11,420	10,617	11	.....	3	41.00
Strong Memorial and Rochester Municipal Hospitals ¹	Rochester, N. Y.....	S. R. Snow, Jr.....	OB	1,537	.....	855	.....	3	7/1	1	100.00
Ellis Hospital ¹	Rochester, N. Y.....	J. B. Lader.....	OB	2,734	.....	2,955	.....	1	7/1	3	70.00
General Hospital ¹	Rochester, N. Y.....	M. Wilkinson.....	OB	2,154	1,317	3,177	3,281	6	7/1	3	100.00
Syracuse Memorial Hospital ¹	Syracuse, N. Y.....	K. M. Wilson.....	OBG	1,925	.....	1,532	.....	1	.....	1	45.00
Charlotte Memorial Hospital ¹	Charlotte, N. C.....	R. J. Pierl.....	OB	1,733	398	.....	166	.....	7/1	1	35.00
Duke Hospital ¹	Durham, N. C.....	R. J. Pierl.....	Gyn	2,560	.....	1,533	.....	.....	.....	.....	125.00
Watts Hospital ¹	Durham, N. C.....	C. E. Clark.....	Gyn	.....	1,182	.....	1,718	5	7/1	2	80.00
James Walker Memorial Hospital ¹	Wilmington, N. C.....	J. A. Crowell.....	OBG	1,181	822	777	610	1	7/1	1	75.00
North Carolina Baptist Hospital ¹	Winston-Salem, N. C.....	B. Carter.....	OBG	1,735	1,131	7,418	8,170	12	7/1	2	.....
City Hospital ¹	Akron, Ohio.....	.....	OBG	1,935	710	712	3,865	1	7/1	1	.....
Peoples Hospital ¹	Akron, Ohio.....	F. Lork.....	OBG	1,129	578	1,531	1,765	4	7/1	2	100.00
St. Thomas Hospital ¹	Akron, Ohio.....	.....	OB	5,180	.....	1,939	.....	1	7/1	1	100.00
Aultman Hospital ¹	Canton, Ohio.....	L. Pasch.....	OB	2,967	.....	567	.....	5	7/1	2	125.00
Mercy Hospital ¹	Canton, Ohio.....	H. H. Kiehl.....	OBG	3,268	590	.....	6	5	7/1	1	75.00
Bethesda Hospital ¹	Cincinnati.....	R. K. Ramseyer and L. E. Leavenworth.....	OBG	2,792	910	12	.....	4	7/1	1	100.00
Cincinnati General Hospital ¹	Cincinnati.....	R. D. Bryant and G. B. Haydon.....	OBG	2,888	879	890	23	5	7/1	2	150.00
City Hospital ¹	Cincinnati.....	S. Garber.....	OB	3,021	.....	7,121	.....	5	7/1	2	60.00
Fairview Park Hospital ¹	Cleveland.....	M. Black.....	OB	1,579	.....	2,600	.....	4	7/1	1	75.00
Lutheran Hospital ¹	Cleveland.....	C. D. Saunders.....	OB	2,005	.....	40	.....	2	7/1	1	75.00
Mount Sinai Hospital ¹	Cleveland.....	R. S. Dial.....	OB	1,690	.....	.....	.....	.....	.....	.....	.....
St. Ann's Maternity Hospital	Cleveland.....	J. L. Bubs.....	OB	2,524	.....	855	.....	.....	.....	.....	.....
St. John's Hospital ¹	Cleveland.....	J. L. Bubs.....	Gyn	.....	1,161	.....	520	3	7/1	3	100.00
St. Luke's Hospital ¹	Cleveland.....	H. C. Wise.....	OB	2,140	.....	648	.....	2	.....	1	.....
University Hospitals ¹	Cleveland.....	J. V. Helmann.....	OBG	2,239	.....	68	.....	3	7/1	2	60.00
Mount Carmel Hospital ¹	Columbus, Ohio.....	C. T. Hemmings.....	OBG	3,662	880	2,622	1,195	4	6/25	3	.....
Ohio State University Hospital ¹	Columbus, Ohio.....	M. E. Black.....	OB	4,995	.....	20,850	.....	7	.....	.....	25.00
St. Ann's Maternity Hospital	Columbus, Ohio.....	R. L. Faulkner.....	Gyn	.....	2,070	.....	6,133	7	7/1	3	50.00
White Cross Hospital ¹	Columbus, Ohio.....	A. C. Barnes.....	OBG	1,829	938	8,619	3,881	6	7/1	2	100.00
Miami Valley Hospital ¹	Dayton, Ohio.....	R. E. Krigbaum.....	OB	4,391	.....	.....	.....	2	.....	7	75.00
Lakewood Hospital ¹	Lakewood, Ohio.....	W. Silbernagel.....	OB	4,391	.....	.....	.....	.....	7/1	1	100.00
Maurice Valley Hospital ¹	Toledo, Ohio.....	J. K. Hoerner.....	OB	4,391	.....	18	.....	1	7/1	1	100.00
Mercy Hospital ¹	Toledo, Ohio.....	B. Wyble.....	OBG	.....	412	225	417	2	7/1	2	110.00
St. Vincent's Hospital ¹	Toledo, Ohio.....	R. C. King.....	OBG	2,931	1,076	256	160	4	7/1	1	100.00
Toledo Hospital ¹	Toledo, Ohio.....	M. W. Dietrich.....	OB	1,873	.....	79	.....	1	7/1	2	.....
St. Elizabeth's Hospital ¹	Youngstown, Ohio.....	M. D. Haas.....	OBG	2,510	739	1,008	147	3	.....	3	.....
University Hospitals ¹	Oklahoma City.....	A. J. Brandt.....	OBG	2,868	1,041	73	216	2	7/1	2	125.00
Wesley Hospital ¹	Oklahoma City.....	J. B. Eskridge, Jr. and G. Penick.....	OBG	1,316	457	5,685	3,907	3	7/1	3	35.00
St. John's Hospital ¹	Portland, Ore.....	J. W. Records.....	OBG	2,737	1,310	.....	.....	1	7/1	1	150.00
Emmanuel Hospital ¹	Portland, Ore.....	C. Simpson.....	OB	4,567	1,859	.....	.....	3	7/1	3	75.00
Good Samaritan Hospital ¹	Portland, Ore.....	C. Pearl.....	OB	3,229	.....	.....	.....	1	7/1	1	75.00

12. OBSTETRICS AND GYNECOLOGY—Continued

Name of Hospital	Location	Chief of Service	Residencies Approved	Inpatients Treated		Outpatient Visits		Asst. Res. and Fellows On duty	Beginning of Service (Year)	Length of Approved Pro- gram (Years)	Beginning Stipend (Month)
				OB	Gyn	OB	Gyn				
St. Vincent's Hospital*	Portland, Ore.		OB					1			
University of Oregon Medical School Hospitals and Clinics* ¹	Portland, Ore.	H. C. Stearns.....	OBG	1,706	495	1,858	2,159	5	7/1	3	\$ 75.00
Ablington Memorial Hospital*	Abington, Pa.		OBG	1,706	682	1,858	669	1	7/1	2	50.00
St. Luke's Hospital* ¹	Bethlehem, Pa.	T. E. Schadt.....	OBG†	1,800	289	289		2	7/1	1	100.00
Bryn Mawr Hospital*	Bryn Mawr, Pa.	C. A. Behney.....	OBG	242	118			1	7/1	1	75.00
George F. Geisinger Memorial Hospital*	Danville, Pa.	R. E. Nicodemus....	OB	1,303		9,828		2	7/1	1	75.00
Harrisburg Hospital* ¹	Harrisburg, Pa.	W. P. Dailey.....	OB	2,239		2,295		2	7/1	1	100.00
Episcopal Hospital* ¹	Philadelphia	J. H. Dugger.....	OBG	2,934	975	6,569	1,159	4	7/1	3	50.00
Germantown Dispensary and Hospital*	Philadelphia	Z. B. Newton.....	OB†	2,129		3,451		1	7	1	50.00
Graduate Hosp. of the Univ. of Pennsylvania*	Philadelphia		Gyn		708		1,602	2	7/1	3	
Hahnemann Hospital* ¹	Philadelphia	N. F. Paxson and B. V. MacFayden.	OBG	3,379	1,417	9,887	3,176	5		2	25.00
Hospital of the University of Pennsylvania* ¹ .	Philadelphia	C. Bachman and F. W. Payne.....	OBG	1,833	1,874	8,290	4,297	7	7, 3, 9	3	50.00
Hospital of the Women's Medical College of Pennsylvania*	Philadelphia	A. G. Taylor.....	OB	1,676		7,153		2	7/1	3	
Jefferson Medical College Hospital*	Philadelphia	M. DeW. Pettit.....	Gyn		755		3,510	3	7/1	2	60.00
Jewish Hospital* ¹	Philadelphia	L. C. Shetty.....	OBG	2,722	2,273	11,472	6,375	8	7/1	3	
Lankenau Hospital*	Philadelphia	R. B. Wilson.....	OB†	1,750	1,276	714	400	1	7	1	
Mount Sinai Hospital* ¹ .	Philadelphia		OBG	1,136				2	7/1	2	50.00
Pennsylvania Hospital*	Philadelphia	C. B. Lull.....	OBG	1,432	596	1,440	949	2	6/21	2	50.00
Philadelphia General Hospital* ¹ .	Philadelphia		OBG	3,402	1,823	3,622	14,114	6	1/1	3	20.00
Temple University Hospital* ¹ .	Philadelphia	J. R. Wilson.....	OBG		1,871			6	7/1	3	70.00
Woman's Hospital* ¹	Philadelphia		OB	2,471	1,109	4,570	2,684	7	7/1	3	
			Gyn	2,069		6,068		2	7/1		50.00
					667		1,496	1	7/1	1	50.00
Elizabeth Steel Magee Hospital ¹	Pittsburgh	C. J. Barone and B. Z. Cashman....	OBG	5,005	2,262	3,710	1,261	10	7/1	3	41.67
Mercy Hospital* ¹	Pittsburgh	R. A. D. Gillis and R. J. Frodey.....	OBG†	2,399	839	635	814	2	9/1	2	100.00
Montefiore Hospital*	Pittsburgh	H. Cohen and S. Goldstein.....	OBG	1,273	686	1,355	1,318	2	7/1	1	50.00
Pittsburgh Hospital* ¹	Pittsburgh	E. A. Conti and T. Evans, Jr.....	OBG†	1,300	760	538	237	1	1/1	1	100.00
St. Francis Hospital* ¹	Pittsburgh		OB								
			Gyn	1,940	895	597	485	3	7/1	3	100.00
St. Margaret Memorial Hospital* ¹	Pittsburgh	P. Titus.....	OBG†	633	479	260	177	1	7/1	1	100.00
Wilkes-Barre General Hospital*	Wilkes-Barre, Pa.	G. E. Baker.....	OB	3,079		5,305		1	9/1	1	100.00
Providence Lying-In Hospital.....	Providence, R. I.	A. L. Potter.....	OB†	7,117		11,105		2	7/1, 12/1	1	110.00
Roper Hospital* ¹	Charleston, S. C.	L. A. Wilson and F. G. Cain.....	OBG	1,808	636	5,679	2,948	3	7/1	3	25.00
Columbia Hospital* ¹	Columbia, S. C.	M. E. Hutchinson..	OBG	1,885	1,016	1,695	883	2	7/1	1	75.00
Greenville General Hospital* ¹	Greenville, S. C.	J. D. Guess.....	OBG	3,842		2,325		2	7/1	1	160.00
Baroness Erlanger Hospital* ¹	Chattanooga, Tenn.		OB	3,545		6,127		3		1	
Baptist Memorial Hospital*	Memphis, Tenn.	W. A. Ruch.....	OBG†	2,682	2,213	1,572	1,847	2	7/1	1	75.00
John Gaston Hospital*	Memphis, Tenn.	F. E. Whitacre.....	OB	4,764		9,533		5			
		F. E. Whitacre.....	Gyn		873		7,547	5		3	
Methodist Hospital* ¹	Memphis, Tenn.	C. G. Bringle.....	OB	2,929				1	7/1	1	75.00
St. Joseph Hospital* ¹	Memphis, Tenn.	M. J. Roach and G. Burkle.....	OBG	2,061	1,373	583	489	4		2	
George W. Hubbard Hospital of Meharry Medical College*	Nashville, Tenn.	W. F. B. James and M. Walker.....	OBG	700	296	2,318	506	3	7/1	2	75.00
Nashville General Hospital*	Nashville, Tenn.	M. S. Lewis and R. S. Duke.....	OBG					4		1	
Vanderbilt University Hospital* ¹	Nashville, Tenn.	J. C. Burch.....	OBG	2,155	679	6,332	5,262	9	7/1	3	35.41
Baylor University Hospital* ¹	Dallas, Texas.	W. K. Strother.....	OBG	5,894	1,075	4,157	1,370		7/1	3	50.00
Methodist Hospital*	Dallas, Texas.		OBG	2,616	424	1,737	559	3	7/1	1	75.00
Parkland Hospital	Dallas, Texas.		OBG					8		3	
Hotel Dieu, Sisters Hospital (St. Joseph's Maternity Hospital)	El Paso, Texas.	E. C. Bernell.....	OBG†					1	1/1	1	150.00
Harris Hospital* ¹	Fort Worth, Texas.	C. Hielt.....	OBG†	3,547	1,358	1,322	538	3	7/1	1	100.00
University of Texas Medical Branch Hosps.* ¹	Galveston, Texas.	W. R. Cooke.....	OBG	1,272	615	4,067	5,376	7	7	3	
Hermann Hospital*	Houston, Texas.	A. L. Dippel and C. Gugsley.....	OBG	1,533	1,368	5,933	2,452	6		3	50.00
Jefferson Davis Hospital* ¹	Houston, Texas.	C. Q. Davis and C. Hamilton.....	OBG†	2,976	1,202	16,718	6,992	8	7/1	2	50.00
Memorial Hospital	Houston, Texas.	J. A. Clapp and F. Harris.....	OBG	2,848				2		3	
Methodist Hospital* ¹	Houston, Texas.	D. Wachsmann and J. Hall.....	OBG	976	588	2,755	229	2	7/1	2	75.00
St. Joseph's Infirmary*	Houston, Texas.	J. P. Salerno.....	OB	6,760	1,200			4		2	150.00
Thomas D. Dee Memorial Hospital* ¹	Ogden, Utah.	V. L. Ward.....	OBG	2,019	562		193	2	7/1	3	100.00
Dr. W. H. Groves Latter-Day Saints Hospital* ¹	Salt Lake City	W. M. Nebeker.....	OBG	3,988	1,076		40	4	7/1	3	75.00
Holy Cross Hospital* ¹	Salt Lake City	R. Wherritt.....	OB	2,625				2	7/1	2	50.00
Salt Lake County General Hospital* ¹	Salt Lake City	E. G. Holmstrom....	OBG	576	319	1,317	1,066	2	7/1	1	50.00
Mary Fletcher Hospital*	Burlington, Vt.	H. A. Durfee.....	OBG†	1,085	403		15	2	1/1	1	110.00
Alexandria Hospital* ¹	Alexandria, Va.	H. Picot.....	OBG†	2,637	609			2	7/1		100.00
Arlington Hospital* ¹	Arlington, Va.	J. B. Jacobs.....	OB	1,446				1	7/1	1	100.00
University of Virginia Hospital* ¹	Charlottesville, Va.	J. M. Nokes.....	OBG	1,779	854	6,992		4	7/1	3	62.00
DePaul Hospital* ¹	Norfolk, Va.	J. R. Kight.....	OBG	2,425	720	498	325	4	7/1	1	75.00
Norfolk General Hospital*	Norfolk, Va.	C. J. Andrews.....	OB†	1,868				2	7/1	2	75.00
Medical College of Virginia, Hospital Div.* ¹	Richmond, Va.	H. H. Ware, Jr....	OB	5,018		9,759		8	7/1	3	46.50
King County Hospital*	Seattle	R. R. de Alvarez...	OBG	1,104	641	4,959	2,267	2	7/1	3	90.00
Providence Hospital* ¹	Seattle	J. Clancy.....	OB	2,564		582		1	7/1	1	100.00
Swedish Hospital*	Seattle	W. W. Bell.....	OBG	3,408	684			1	2/1	2	100.00
Virginia Mason Hospital*	Seattle	C. D. Kimball.....	OB	1,787				1	7/1	1	75.00
St. Luke's Hospital* ¹	Spokane	R. E. Gillett.....	OBG					1		1	
St. Mary's Hospital*	Huntington, W. Va.	C. H. Boso.....	OB	1,949		748		1	7/1	1	100.00
State of Wisconsin General Hospital* ¹	Madison, Wis.	J. W. Harris.....	OBG		980		7,452	3	9	3	25.00
Milwaukee County Hospital* ¹	Milwaukee	R. S. Cron.....	OBG	695	759	1,798	1,655	3		3	158.02
Milwaukee Hospital*	Milwaukee	R. S. Cron.....	OBG	5,656	123						
St. Joseph's Hospital*	Milwaukee	H. Olson.....	OBG	4,288	856			3	7	3	75.00
St. Mary's Hospital*	Milwaukee	J. D. Owen.....	OBG†	2,076	530			2	7	3	75.00
Kapiolani Maternity and Gynecological Hosp.* ¹	Honolulu, Hawaii.	H. E. Bowles.....	OBG	3,926		936		3	11	2	150.00
Queen's Hospital* ¹	Honolulu, Hawaii.	F. Spencer.....	OBG	2,617	562	1,267	402	2	7	1	75.00

Numerical and other references will be found on page 225.

13. OCCUPATIONAL MEDICINE

Approval of residencies in Occupational Medicine has been authorized by the American Medical Association. Institutions desiring residency approval in this field should make application to the Council on Medical Education and Hospitals, 535 N. Dearborn Street, Chicago 10, Illinois.

14. OPHTHALMOLOGY AND OTOLARYNGOLOGY

The following services approved by the Council are acceptable to the American Board of Ophthalmology and the American Board of Otolaryngology respectively.

Hospitals, 180; Assistant Residencies and Residencies, 820

Name of Hospital United States Army	Location	Chief of Service	Residencies Approved	Inpatients Treated		Outpatient Visits		Asst. Res. and Residencies Offered	Beginning of Service (1919)	Beginning Subsequent (Month)
				Oph	Otol	Oph	Otol			
Letterman General Hospital*	San Francisco	E. Maxwell	Oph	431	.....	6,092	.....	2	.....	n
		W. A. Weller	Otol	.....	443	.....	7,431	2	.....	n
Fitzsimons General Hospital*	Denver	A. J. Vaughn	Oph	399	.....	5,512	.....	3	.....	n
		M. E. Ringer	Otol	.....	691	.....	17,300	2	.....	n
Walter Reed General Hospital*	Washington, D. C.	A. Lowrey, Jr.	Oph	369	.....	36,443	.....	4	1, 7	n
		M. E. Ringer	Otol	.....	779	.....	15,791	6	1, 7	n
Oliver General Hospital*	Augusta, Ga.	W. C. Royals	Oph	250	.....	5,527	.....	1	1/1	n
		W. C. Royals	Otol	.....	671	.....	8,152	2	1/1	n
Brooke General Hospital*	San Antonio, Texas	H. G. House	Oph	516	.....	11,133	.....	2	.....	n
		H. S. Murphey	Otol	.....	912	.....	11,579	3	.....	n
Gorgas Hospital*	Ancon, C. Z.	H. S. Murphey	Oph	210	.....	9,100	.....	2	7/1	n
United States Navy										
U. S. Naval Hospital*	Long Beach, Calif.	R. C. Boyden	Oph	240	.....	.....	.....	1	Varies	n
U. S. Naval Hospital*	Oakland, Calif.	A. C. Hohn	Oph	.....	.....	.....	.....	2	.....	n
		P. O. Northington	Otol	.....	.....	.....	.....	2	.....	n
U. S. Naval Hospital*	San Diego, Calif.	O. W. Chenuault	Oph	463	.....	9,261	.....	2	.....	n
		O. W. Chenuault	Otol	.....	1,863	.....	4,151	2	.....	n
U. S. Naval Hospital*	Bethesda, Md.	A. J. Delaney	Oph	293	.....	3,525	.....	2	.....	n
		A. J. Delaney	Otol	.....	1,326	.....	5,256	1	.....	n
U. S. Naval Hospital*	St. Albans, N. Y.	W. L. Berkeley	Oph	312	.....	3,559	.....	2	.....	n
U. S. Naval Hospital*	Philadelphia	F. Harbert	Oph	1,410	.....	12,666	.....	2	.....	n
		F. Harbert	Otol	.....	2,531	.....	11,569	4	.....	n
United States Public Health Service										
U. S. Marine Hospital* ¹	New Orleans	L. M. Smith	Oph	106	.....	3,565	.....	1	7/1	n
U. S. Marine Hospital*	Seattle	H. U. Minness	Otol	750	.....	4,010	.....	3	7/1	n
Veterans Administration										
Veterans Admin. Center ¹	Los Angeles	.....	Oph	.....	.....	.....	.....	2	.....	n
		.....	Otol	.....	.....	.....	.....	6	.....	n
Veterans Admin. Hospital	San Francisco	.....	Oph	148	.....	2,309	.....	3	7/1	n
		.....	Otol	.....	591	.....	4,591	3	7/1	n
Veterans Admin. Hospital ¹	Van Nuys, Calif.	G. C. Struble	Oph	105	.....	1,838	.....	1	.....	n
		S. Kaplan	Otol	.....	690	.....	1,963	3	7/1, 1/1	n
Veterans Admin. Hospital ¹	Ft. Logan, Colo.	.....	Otol	.....	.....	.....	.....	2	.....	n
Veterans Admin. Hospital	Chamblee, Ga.	F. P. Calhoun, Jr.	Oph	183	.....	1,006	.....	2	7/1	n
		L. A. Brown	Otol	.....	139	.....	1,141	1	7/1	n
Veterans Admin. Hospital	Hines, Ill.	W. A. Mann	Oph	479	.....	.....	.....	4	1/2, 7/1	n
		F. L. Lederer	Otol	.....	1,070	.....	.....	7	1/2, 7/1	n
Veterans Admin. Center ¹	Wadsworth, Kan.	F. T. Jones	Oph	414	.....	.....	.....	2	1, 7	n
Veterans Admin. Hospital ¹	Louisville, Ky.	G. Uhde	Otol	.....	316	.....	88	2	.....	n
Veterans Admin. Hospital ¹	New Orleans	G. M. Halk	Oph	139	.....	579	.....	1	7/1	n
		E. G. Walls	Otol	.....	333	.....	876	2	7/1	n
Veterans Admin. Hospital ¹	Frammingham, Mass.	.....	Otol	.....	.....	.....	.....	2	.....	n
Veterans Admin. Hospital	Minneapolis	.....	Oph	114	.....	.....	.....	3	.....	n
		.....	Otol	.....	675	.....	.....	6	.....	n
Veterans Admin. Hospital ¹	Jefferson Bks., Mo.	.....	Otol	.....	561	.....	.....	3	.....	n
Veterans Admin. Hospital	New York City	P. K. Sauer	Oph	579	.....	2,242	.....	6	7	n
		P. K. Sauer	Otol	.....	767	.....	3,319	6	1, 7	n
Veterans Admin. Hospital ¹	Cleveland, Ohio	P. J. Parlel	Oph	223	.....	4	.....	2	7/1	n
		E. J. Baxter	Otol	.....	853	.....	25	2	7/1	n
Veterans Admin. Hospital ¹	Oklahoma City, Okla.	L. K. J. J. J.	Oph	180	.....	.....	.....	1	7	n
Veterans Admin. Hospital	Portland, Ore.	A. B. Dykman	Oph	106	.....	.....	.....	1	1/1, 7/1	n
		R. A. Penton	Otol	.....	174	.....	.....	1	1/1, 7/1	n
Veterans Admin. Hospital	Aspenwall, Pa.	D. P. Cordray	Oph	725	.....	.....	.....	3	7/1	n
		D. P. Cordray	Otol	.....	751	.....	.....	3	7/1	n
Veterans Admin. Hospital	Memphis, Tenn.	S. D. Malden	Otol	.....	749	.....	1,537	3	7/1	n
Veterans Admin. Hospital ¹	Dallas, Texas	.....	Oph	102	.....	.....	.....	1	1/1, 7/1	n
		.....	Otol	.....	179	.....	.....	1	1/1, 7/1	n
Veterans Admin. Hospital ¹	McKinney, Texas	M. Thomas	Oph	.....	.....	.....	.....	1	.....	n
Veterans Admin. Center ¹	Milwaukee	.....	Oph	168	.....	2,371	.....	3	7/1	n
		.....	Otol	.....	344	.....	3,751	4	7/1	n
Nonfederal										
Jefferson-Hillman Hospital* ¹	Birmingham, Ala.	A. Calahan	Oph	822	.....	6,814	.....	3	.....	.....
		G. E. Fisher	Otol	.....	782	.....	5,367	4	.....	.....
Arkansas Baptist Hospital* ¹	Little Rock, Ark.	K. W. Cosgrove	Otol	.....	518	.....	.....	1	7/1	\$231.00
Fresno County General Hospital*	Fresno, Calif.	H. Awtry	Oph	534	.....	1,019	.....	1	.....	119.00
Childrens Hospital* ¹	Los Angeles	A. Miller	Otol	1,189	2,610	.....	.....	1	.....	161.00
Los Angeles County Hospital* ¹	Los Angeles	W. J. Endres	Oph	962	.....	12,961	.....	4	Varies	165.00
		J. M. Brown	Otol	.....	1,816	.....	10,408	4	Varies	165.00
Santa Fe Coast Lines Hospital*	Los Angeles	.....	Oph	.....	.....	.....	.....	2	.....	148.50
White Memorial Hospital*	Los Angeles	.....	Oph	140	.....	6,812	.....	2	7/1	140.50
		.....	Otol	.....	1,982	.....	8,653	2	7/1	140.50
San Diego County General Hospital*	San Diego, Calif.	G. Kilgore and J. W. Hendrickson	OpOtol	539	455	3,247	3,636	2	7/1	125.00
Children's Hospital* ¹	San Francisco	O. Dickey	Otol	.....	1,319	2,415	.....	1	.....	60.00
Greens' Eye Hospital	San Francisco	V. V. Sullivan	Oph	731	.....	45,445	.....	3	7/1	175.00
San Francisco Hospital* ¹	San Francisco	.....	Oph	219	.....	.....	.....	1	.....	175.00
		.....	Otol	.....	626	.....	.....	4	7/1	50.00
Stanford University Hospital* ¹	San Francisco	A. E. Maumenee	Oph	730	.....	8,054	.....	2	7/1	50.00
		R. O. McNaught	Otol	.....	803	.....	9,347	2	7/1	50.00

14. OPHTHALMOLOGY AND OTOLARYNGOLOGY—Continued

Name of Hospital	Location	Chief of Service	Residencies Approved	Inpatients Treated		Outpatient Visits		Asst. Res. and Residencies Offered	Beginning of Service (1940)	Beginning Salary (Month)
				Oph	Otol	Oph	Otol			
University of California Hospital* ¹	San Francisco.....	F. C. Cordes.....	Oph	312	.....	13,387	.....	3	7/1, 8/1, 9/1	\$50.00
		F. L. Morrison.....	Otol	.....	675	.....	6,971	2	7/1, 8/1, 9/1	50.00
University of Colorado Medical Center, Colorado General Hospital* ¹	Denver.....	R. W. Danielson.....	Oph	143	.....	7,196	.....	2	7/1	75.00
		H. L. Hickey.....	Otol	.....	323	.....	4,402	1	7/1	75.00
Denver General Hospital* ¹	Denver.....		Otol	.....	.....	.....	.....	..	.....	.....
Grace-New Haven Community Hospital, New Haven Unit (University Service)* ¹	New Haven, Conn.....	E. Blake.....	Oph†	347	.....	5,568	.....	1	7/1	40.00
		N. Canfield.....	Otol	.....	652	.....	4,618	3	7/1	40.00
Episcopal Eye, Ear and Throat Hospital ¹	Washington, D. C.....	G. V. Simpson.....	Oph	.....	.....	.....	.....	5	1/1	25.00
		W. H. Jenkins.....	Otol	.....	.....	.....	.....	4	1/1	25.00
Gallinger Municipal Hospital* ¹	Washington, D. C.....		OpOt	92	703	4,493	6,535	3	7/1	100.00
Grady Memorial Hospital* ¹	Atlanta, Ga.....	A. V. Hallum and W. C. Warren.....	OpOt	383	748	10,389	8,300	6	7/1	.....
Cook County Hospital* ¹	Chicago.....	D. T. Vail.....	Oph	555	.....	16,063	.....	6	7/1, 8/1	32.00
		S. J. Pearlman.....	Otol	.....	2,594	.....	21,514	5	7/1, 8/1	32.00
Illinois Eye and Ear Infirmary ¹	Chicago.....		Oph	2,413	.....	57,179	.....	18	7/1	.....
			Otol	.....	1,899	.....	30,560	13	7/1	.....
Mercy Hospital-Loyola University Clinics*.....	Chicago.....	L. G. Hoffman and R. W. Kerwin.....	OpOt	135	828	2,039	1,441	1	.....	25.00
Michael Reese Hospital* ¹	Chicago.....	T. Shapira.....	Oph	538	.....	4,049	.....	2	1/1, 7	25.00
		N. Lesbin.....	Otol	.....	2,692	.....	1,948	..	1/1, 7	.....
Passavant Memorial Hospital*.....	Chicago.....	D. Vail.....	Oph	203	.....	523	.....	2	1/1, 7/1	.....
		J. F. Delph.....	Otol	.....	220	.....	1,865	1	7/1	.....
Presbyterian Hospital*.....	Chicago.....	J. M. Donegan.....	Oph	325	.....	5,537	.....	2	.....	25.00
		S. A. Friedberg.....	Otol	.....	813	.....	3,199	2	.....	25.00
Provident Hospital* ¹	Chicago.....	W. M. Jones and D. Mazique.....	OpOt	546	.....	5,571	1,842	2	7/1	50.00
Research and Educational Hospitals* ¹	Chicago.....	W. F. Hughes.....	Oph	230	.....	9,187	.....	2	7/1	55.00
		F. E. Lederer.....	Otol	.....	712	.....	10,299	2	7/1	55.00
St. Joseph Hospital*.....	Chicago.....	J. M. Donegan.....	Oph	38	.....	958	.....	1	7	.....
St. Luke's Hospital*.....	Chicago.....	R. C. Gamble.....	Oph	.....	.....	.....	.....	1	7/1	25.00
		R. J. Coombs.....	Otol	390	1,359	1,090	.....	..	7/1	25.00
University of Chicago Clinics* ¹	Chicago.....	A. Krause.....	Oph	154	.....	11,515	.....	3	7/1	25.00
		J. R. Lindsay.....	Otol	.....	443	.....	9,350	5	7/1	25.00
Wesley Memorial Hospital* ¹	Chicago.....	W. A. Mann.....	Oph	338	.....	.....	.....	2	.....	25.00
		G. Shanmough.....	Otol	.....	1,098	.....	.....	1	.....	25.00
Woodlawn Hospital* ¹	Chicago.....		Oph	186	.....	.....	.....	1	.....	.....
Indianapolis General Hospital*.....	Indianapolis.....	J. M. Masters.....	Oph	207	.....	6,357	.....	2	7/1	60.00
		R. Dearman.....	Otol	.....	812	.....	5,567	2	7/1	60.00
Indiana University Medical Center* ¹	Indianapolis.....	R. Masters.....	Oph	253	.....	3,277	.....	4	7/1	63.33
		C. McCaskey.....	Otol	.....	450	.....	2,418	3	7/1	63.33
University Hospitals* ¹	Iowa City.....	C. S. O'Brien.....	Oph	1,241	.....	5,373	.....	10	7/1	60.00
		D. M. Lierle.....	Otol	.....	2,310	.....	7,455	14	7/1	50.00
University of Kansas Medical Center*.....	Kansas City, Kan.....	S. E. Roberts.....	Otol	.....	778	.....	2,975	1	.....	.....
Louisville General Hospital*.....	Louisville, Ky.....	D. Townes and J. S. Bumgardner.....	OpOt	137	114	5,661	3,440	2	7/1	.....
Charity Hospital of Louisiana* ¹	New Orleans.....		OpOt	1,236	1,762	20,325	19,817	13	7/1	25.00
Eye, Ear, Nose and Throat Hospital ¹	New Orleans.....	W. R. Buflington.....	Oph	1,142	.....	20,492	.....	6	7/1	.....
		P. E. LeJune.....	Otol	.....	2,748	.....	31,242	6	7/1	.....
Touro Infirmary*.....	New Orleans.....	E. E. Allgeyer and S. Cohen.....	OpOt	99	1,255	2,496	2,578	1	.....	25.00
Baltimore Eye, Ear and Throat Charity Hosp. ¹	Baltimore.....	J. E. Brumback and R. G. Reeves.....	OpOt	917	3,085	12,721	7,550	5	.....	10.00
Johns Hopkins Hospital*.....	Baltimore.....	A. C. Woods.....	Oph	1,592	.....	20,259	.....	7	7/1	41.63
		S. J. Crowe.....	Otol	.....	1,223	.....	11,516	4	7/1	41.66
†South Baltimore General Hospital* ¹	Baltimore.....	S. Fox.....	Otol	.....	661	.....	1,375	2	6/1	75.00
University Hospital* ¹	Baltimore.....	F. E. Knowles, Jr. and E. A. Looper.....	OpOt	11	583	3,896	3,356	1	7/1	.....
Beth Israel Hospital*.....	Boston.....	G. B. Fred.....	Otol	.....	1,024	.....	2,455	1	10/2	41.66
Boston City Hospital* ¹	Boston.....	J. J. Regan.....	Oph	554	.....	15,617	.....	..	.....	.....
		E. J. Monahan.....	Otol	.....	2,553	.....	15,941	2	.....	.....
Lahey Clinic.....	Boston.....		Otol	.....	.....	.....	.....	2	.....	.....
†Massachusetts Eye and Ear Infirmary.....	Boston.....	E. B. Dunphy.....	Oph	1,877	.....	44,553	.....	10	.....	.....
		L. A. Schan.....	Otol	.....	2,047	.....	28,392	9	.....	.....
†Massachusetts Memorial Hospitals* ¹	Boston.....	L. F. Johnson.....	Otol	.....	1,723	.....	.....	1	6/1	50.00
Memorial Hospital* ¹	Worcester, Mass.....	A. L. Caron.....	Otol	.....	1,905	.....	.....	1	.....	100.00
University Hospital* ¹	Ann Arbor, Mich.....	F. B. Fralick.....	Oph	670	.....	13,855	.....	4	7/1	111.80
		A. O. Furstenberg.....	Otol	.....	829	.....	10,932	5	7/1	111.80
City of Detroit Receiving Hospital* ¹	Detroit.....	R. D. Ruedemann and J. M. Robb.....	OpOt	264	398	11,918	5,087	6	7/1	168.00
Grace Hospital* ¹	Detroit.....	R. S. Goux.....	OpOt	.....	2,143	.....	2,503	8	7/1	75.00
Harper Hospital* ¹	Detroit.....	R. H. Pino and W. Warren.....	OpOt	1,212	2,889	6,531	1,774	8	7/1	.....
Henry Ford Hospital* ¹	Detroit.....	E. L. Whitney.....	Oph	292	.....	17,235	.....	8	7/1	200.00
		J. L. Dill.....	Otol	.....	1,704	.....	18,942	3	7/1	200.00
Wayne County General Hosp. and Infirmary* ¹	Eloise, Mich.....	F. T. May.....	OpOt	.....	460	.....	5,392	2	7/1	235.00
Minneapolis General Hospital* ¹	Minneapolis.....	W. K. Haven and R. E. Priest.....	OpOt	150	136	3,404	2,152	3	7/1, 1/1	115.00
University of Minnesota Hospitals* ¹	Minneapolis.....	E. Hanson.....	Oph	.....	.....	.....	.....	12	.....	.....
		L. R. Boies.....	Otol	.....	.....	.....	.....	8	.....	.....
Mayo Foundation.....	Rochester, Minn.....	W. L. Benedict.....	Oph	.....	.....	.....	.....	12	.....	92.50
		H. L. Lillie.....	Otol	.....	.....	.....	.....	12	.....	92.50
Ancker Hospital*.....	St. Paul.....	J. Hilger.....	OpOt	93	233	2,665	1,813	2	.....	.....
Charles T. Miller Hospital* ¹ , ³⁴	St. Paul.....	E. Burch.....	Oph	689	.....	2,327	.....	2	.....	115.00
St. Louis County Hospital*.....	Clayton, Mo.....	J. Green.....	Oph	107	.....	3,547	.....	2	7/1	80.00
Children's Mercy Hospital.....	Kansas City, Mo.....	W. R. Eubank and R. Parker.....	OpOt	62	407	1,055	1,282	1	.....	.....
Kansas City General Hospital No. 1*.....	Kansas City, Mo.....	A. J. Baer.....	Oph	218	.....	4,024	.....	2	7	.....
		J. S. Knight.....	Otol	.....	709	.....	3,744	1	7	50.00
Barnes Hospital* ¹	St. Louis.....	L. T. Post.....	Oph	1,433	.....	1,931	.....	6	7/1	10.00
		T. E. Walsh.....	Otol	.....	3,227	.....	830	9	7/1	10.00
Homer G. Phillips Hospital* ¹	St. Louis.....	L. T. Post and L. W. Dean.....	OpOt	156	465	2,717	2,878	2	7/1	95.00
Jewish Hospital* ¹	St. Louis.....		Otol	.....	388	.....	.....	1	.....	50.00
St. Louis City Hospital* ¹	St. Louis.....	Bisno and Eber.....	Oph	132	.....	3,717	.....	2	7/1	95.00
		T. Walsh.....	Otol	.....	415	.....	3,752	1	7/1	95.00

13. OCCUPATIONAL MEDICINE

Approval of residencies in Occupational Medicine has been authorized by the American Medical Association. Institutions desiring residency approval in this field should make application to the Council on Medical Education and Hospitals, 535 N. Dearborn Street, Chicago 10, Illinois.

14. OPHTHALMOLOGY AND OTOLARYNGOLOGY

The following services approved by the Council are acceptable to the American Board of Ophthalmology and the American Board of Otolaryngology respectively.

Hospitals, 180; Assistant Residencies and Residencies, 820

Name of Hospital	Location	Chief of Service	Residencies Approved	Inpatients Treated		Outpatient Visits		Asst. Res. and Residencies Offered	Beginning of Service (1949)	Beginning Stipend (Month)
				Oph	Otol	Oph	Otol			
United States Army										
Letterman General Hospital*	San Francisco	E. Maxwell	Oph	431	.....	6,002	.....	2	.....	n
Fitzsimons General Hospital*	Denver	W. A. Weller	Otol	.....	448	.....	7,434	2	.....	n
		A. J. Vucina	Oph	300	.....	5,812	.....	3	.....	n
Walter Reed General Hospital*	Washington, D. C.	M. E. Ringer	Otol	.....	691	.....	17,360	2	.....	n
		A. Lowrey, Jr.	Oph	369	.....	36,443	.....	4	1/7	n
Oliver General Hospital*	Augusta, Ga.	M. E. Ringer	Otol	.....	779	.....	15,701	6	1/7	n
		W. C. Royals	Oph	250	.....	5,527	.....	1	1/1	n
		W. C. Royals	Otol	.....	674	.....	8,152	2	1/1	n
Brooke General Hospital*	San Antonio, Texas	K. G. House	Oph	616	.....	11,138	.....	2	.....	n
		H. S. Murphey	Otol	.....	912	.....	11,579	3	.....	n
Gorgas Hospital*	Ancon, C. Z.	H. S. Murphey	Oph	240	.....	9,400	.....	2	7/1	n
United States Navy										
U. S. Naval Hospital*	Long Beach, Calif.	R. O. Boyden	Oph	240	.....	.....	.....	1	Varies	n
U. S. Naval Hospital*	Oakland, Calif.	A. C. Hohn	Oph	.....	.....	.....	.....	2	.....	n
		P. O. Northington	Otol	.....	.....	.....	.....	2	.....	n
U. S. Naval Hospital*	San Diego, Calif.	O. W. Chenuault	Oph	408	.....	9,261	.....	2	.....	n
		O. W. Chenuault	Otol	.....	1,869	.....	4,181	2	.....	n
U. S. Naval Hospital*	Bethesda, Md.	A. J. Delaney	Oph	293	.....	3,325	.....	2	.....	n
		A. J. Delaney	Otol	.....	1,356	.....	5,286	1	.....	n
U. S. Naval Hospital*	St. Albans, N. Y.	W. L. Berkley	Oph	112	.....	3,680	.....	2	.....	n
U. S. Naval Hospital*	Philadelphia	F. Harbert	Oph	1,410	.....	12,666	.....	3	.....	n
		F. Harbert	Otol	.....	2,651	.....	11,569	4	.....	n
United States Public Health Service										
U. S. Marine Hospital*	New Orleans	L. M. Smith	Oph	106	.....	3,565	.....	1	7/1	n
U. S. Marine Hospital*	Seattle	H. U. Muness	Oph	750	.....	4,010	.....	3	7/1	n
Veterans Administration										
Veterans Admin. Center	Los Angeles	.....	Oph	.....	.....	.....	.....	2	.....	n
		.....	Otol	.....	.....	.....	.....	6	.....	n
Veterans Admin. Hospital	San Francisco	.....	Oph	148	.....	2,359	.....	3	7/1	n
		.....	Otol	.....	391	.....	4,594	3	7/1	n
Veterans Admin. Hospital	Van Nuys, Calif.	G. C. Struble	Oph	195	.....	1,833	.....	1	.....	n
		S. Kaplan	Otol	.....	600	.....	1,968	3	7/1, 1/1	n
Veterans Admin. Hospital	Ft. Logan, Colo.	.....	Otol	.....	.....	.....	.....	.....	.....	n
Veterans Admin. Hospital	Chamblee, Ga.	F. P. Calhoun, Jr.	Oph	183	.....	1,000	.....	2	7/1	n
		L. A. Brown	Otol	.....	139	.....	1,144	1	7/1	n
Veterans Admin. Hospital	Hines, Ill.	W. A. Mann	Oph	479	.....	.....	.....	4	1/2, 7/1	n
		F. L. Lederer	Otol	.....	1,076	.....	.....	7	1/2, 7/1	n
Veterans Admin. Center	Wadsworth, Kan.	E. T. Jones	Oph	414	.....	.....	.....	2	1/7	n
Veterans Admin. Hospital	Louisville, Ky.	G. Uhde	Otol	.....	346	.....	88	2	.....	n
Veterans Admin. Hospital	New Orleans	G. M. Haik	Oph	139	.....	679	.....	1	7/1	n
		E. G. Walls	Otol	.....	333	.....	816	2	7/1	n
Veterans Admin. Hospital	Framingham, Mass.	.....	Otol	.....	.....	.....	.....	.....	.....	n
Veterans Admin. Hospital	Minneapolis	.....	Oph	214	.....	.....	.....	3	.....	n
		.....	Otol	.....	673	.....	.....	6	.....	n
Veterans Admin. Hospital	Jefferson Bks., Mo.	.....	Otol	.....	564	.....	.....	3	.....	n
Veterans Admin. Hospital	New York City	P. K. Sauer	Oph	370	.....	2,242	.....	5	7	n
		P. K. Sauer	Otol	.....	767	.....	3,319	6	1/7	n
Veterans Admin. Hospital	Cleveland, Ohio	P. J. Parisi	Oph	323	.....	4	.....	2	7/1	n
		E. J. Baxter	Otol	.....	983	.....	25	2	7/1	n
Veterans Admin. Hospital	Oklahoma City, Okla.	L. K. J. J. J.	Oph	180	.....	.....	.....	1	7	n
Veterans Admin. Hospital	Portland, Ore.	A. B. Dykman	Oph	108	.....	.....	.....	1	1/1, 7/1	n
		R. A. Fenton	Otol	.....	174	.....	.....	1	1/1, 7/1	n
Veterans Admin. Hospital	Aspinwall, Pa.	D. P. Cordray	Oph	725	.....	.....	.....	3	7/1	n
		D. P. Cordray	Otol	.....	751	.....	.....	3	7/1	n
Veterans Admin. Hospital	Memphis, Tenn.	S. D. Malden	Otol	.....	749	.....	1,537	3	7/1	n
Veterans Admin. Hospital	Dallas, Texas	.....	Oph	392	.....	.....	.....	1	1/1, 7/1	n
		.....	Otol	.....	179	.....	.....	1	1/1, 7/1	n
Veterans Admin. Hospital	McKinney, Texas	M. Thomas	Oph	.....	.....	.....	.....	1	.....	n
Veterans Admin. Center	Milwaukee	.....	Oph	168	.....	2,271	.....	3	7/1	n
		.....	Otol	.....	344	.....	3,781	4	7/1	n
Nonfederal										
Jefferson-Hillman Hospital*	Birmingham, Ala.	A. Calahan	Oph	822	.....	6,814	.....	3	.....	.....
		G. E. Fisher	Otol	.....	782	.....	5,367	4	.....	.....
Arkansas Baptist Hospital*	Little Rock, Ark.	K. W. Cosgrove	Otol	.....	818	.....	.....	.....	.....	.....
Fresno County General Hospital*	Fresno, Calif.	H. Awtrye	Oph	554	.....	1,019	.....	1	7/1	\$231.00
Childrens Hospital*	Los Angeles	A. Miller	Otol	1,169	2,610	2	1	1	.....	119.00
Los Angeles County Hospital*	Los Angeles	W. J. Endres	Oph	962	.....	12,961	.....	4	Varies	165.00
		J. M. Brown	Otol	.....	1,816	.....	10,403	4	Varies	165.00
Santa Fe Coast Lines Hospital*	Los Angeles	.....	Oph	.....	.....	.....	.....	.....	.....	.....
White Memorial Hospital*	Los Angeles	M. W. Nugent	Oph	140	.....	6,812	.....	2	7/1	149.20
		B. N. Colver	Otol	.....	1,082	.....	8,655	2	7/1	140.20
San Diego County General Hospital*	San Diego, Calif.	G. Kilgore and J. W. Hendrickson	OpOt	639	455	3,247	3,056	2	7/1	125.00
Childrens Hospital*	San Francisco	C. Diekey	Otol	.....	1,319	2,415	.....	1	.....	.....
Greens' Eye	San Francisco	V. V. Sugillan	Oph	731	.....	48,448	.....	2	7/1	50.00
San Francisco	San Francisco	.....	Oph	249	.....	.....	.....	2	.....	175.00
		.....	Otol	.....	626	.....	.....	1	.....	175.00
Stanford University Hospital*	San Francisco	A. E. Maumence	Oph	730	.....	8,054	.....	4	7/1	50.00
		R. C. McNaught	Otol	.....	803	.....	9,347	2	7/1	50.00

14. OPHTHALMOLOGY AND OTOLARYNGOLOGY—Continued

Name of Hospital	Location	Chief of Service	Residencies Approved	Inpatients Treated		Outpatient Visits		Asst. Res. and Residencies Offered	Beginning of Service (1949)	Beginning Stipend (Month)
				Oph	Otol	Oph	Otol			
University of California Hospital* ¹	San Francisco.....	F. C. Cordes.....	Oph	312	.....	13,387	.....	3	7/1, 8/1, 9/1	\$50.00
		F. L. Morrison.....	Otol	.....	675	.....	6,971	2	7/1, 8/1, 9/1	50.00
University of Colorado Medical Center, Colorado General Hospital* ¹	Denver.....	R. W. Danielson.....	Oph	143	.....	7,196	.....	2	7/1	75.00
		H. L. Hickey.....	Otol	.....	323	.....	4,402	1	7/1	75.00
Denver General Hospital* ¹	Denver.....		Otol	.....	.....	.....	.....	..	.....	.....
Grace-New Haven Community Hospital, New Haven Unit (University Service)* ¹	New Haven, Conn.....	E. Blake.....	Oph	347	.....	5,568	.....	1	7/1	40.00
		N. Canfield.....	Otol	.....	652	.....	4,618	3	7/1	40.00
Episcopal Eye, Ear and Throat Hospital ¹	Washington, D. C.....	G. V. Simpson.....	Oph	.....	.....	.....	.....	5	1/1	25.00
		W. H. Jenkins.....	Otol	.....	.....	.....	.....	4	1/1	25.00
Gallinger Municipal Hospital* ¹	Washington, D. C.....		OpOt	92	705	4,493	6,535	3	7/1	100.00
Grady Memorial Hospital* ¹	Atlanta, Ga.....	A. V. Hallum and W. C. Warren.....	OpOt	383	748	10,359	8,300	6	7/1	.....
Cook County Hospital* ¹	Chicago.....	D. T. Vail.....	Oph	555	.....	16,063	.....	6	7/1, 8/1	32.00
		S. J. Pearlman.....	Oph	.....	2,594	.....	21,514	5	7/1, 8/1	32.00
Illinois Eye and Ear Infirmary ¹	Chicago.....		Oph	2,413	.....	57,179	.....	18	7/1	.....
			Otol	.....	1,899	.....	30,560	13	7/1	.....
Mercy Hospital-Loyola University Clinics*.....	Chicago.....	L. G. Hoffman and R. W. Kervin.....	OpOt	135	828	2,039	1,441	1	.....	25.00
Michael Reese Hospital* ¹	Chicago.....	T. Shapira.....	Oph	538	.....	4,049	.....	2	1/1, 7	25.00
		N. Leshin.....	Otol	.....	2,692	.....	1,948	..	1/1, 7	.....
Passavant Memorial Hospital*.....	Chicago.....	D. Vail.....	Oph	208	.....	523	.....	2	1/1, 7/1	.....
		J. F. Delph.....	Otol	.....	220	.....	1,365	1	7/1	.....
Presbyterian Hospital*.....	Chicago.....	J. M. Donegan.....	Oph	325	.....	5,537	.....	2	.....	25.00
		S. A. Friedberg.....	Otol	.....	813	.....	3,199	2	.....	25.00
Provident Hospital* ¹	Chicago.....	W. M. Jones and D. Mazique.....	OpOt	546	.....	5,571	1,842	2	7/1	50.00
Research and Educational Hospitals* ¹	Chicago.....	W. F. Hughes.....	Oph	230	.....	9,187	.....	2	7/1	55.00
		F. E. Lederer.....	Otol	.....	712	.....	10,299	2	7/1	55.00
St. Joseph Hospital*.....	Chicago.....	J. M. Donegan.....	Oph	38	.....	958	.....	1	7	.....
St. Luke's Hospital*.....	Chicago.....	R. C. Gamore.....	Oph	.....	.....	.....	.....	1	7/1	25.00
		R. J. Coombs.....	Otol	390	1,339	1,090	.....	..	7/1	25.00
University of Chicago Clinics* ¹	Chicago.....	A. Krause.....	Oph	154	.....	11,515	.....	3	7/1	25.00
		J. R. Lindsay.....	Otol	.....	443	.....	9,350	5	7/1	25.00
Wesley Memorial Hospital* ¹	Chicago.....	W. A. Mann.....	Oph	338	.....	.....	.....	2	.....	25.00
		G. Shamaugh.....	Otol	.....	1,098	.....	.....	1	.....	25.00
Woodlawn Hospital* ¹	Chicago.....		Oph	186	.....	.....	.....	1	.....	.....
Indianapolis General Hospital*.....	Indianapolis.....	J. M. Masters.....	Oph	207	.....	6,357	.....	2	7/1	80.00
		R. Dearman.....	Otol	.....	812	.....	5,567	2	7/1	80.00
Indiana University Medical Center* ¹	Indianapolis.....	R. Masters.....	Oph	253	.....	3,277	.....	4	7/1	63.33
		C. McCaskey.....	Otol	.....	450	.....	2,418	3	7/1	63.33
University Hospitals* ¹	Iowa City.....	C. S. O'Brien.....	Oph	1,241	.....	5,373	.....	10	7/1	50.00
		D. M. Lierle.....	Otol	.....	2,310	.....	7,455	14	7/1	50.00
University of Kansas Medical Center*.....	Kansas City, Kan.....	S. E. Roberts.....	Otol	.....	778	.....	2,975	1	.....	.....
Louisville General Hospital*.....	Louisville, Ky.....	D. Townes and J. S. Bumgardner.....	OpOt	137	114	5,661	3,440	2	7/1	.....
Charity Hospital of Louisiana* ¹	New Orleans.....		OpOt	1,236	1,762	20,325	19,817	13	7/1	25.00
Eye, Ear, Nose and Throat Hospital ¹	New Orleans.....	W. R. Buffington.....	Oph	1,142	.....	20,492	.....	6	7/1	.....
		F. E. LeJume.....	Otol	.....	2,748	.....	31,242	6	7/1	.....
Touro Infirmary*.....	New Orleans.....	E. E. Allgeyer and S. Cohen.....	OpOt	99	1,255	2,496	2,578	1	.....	25.00
Baltimore Eye, Ear and Throat Charity Hosp. ¹	Baltimore.....	J. E. Brumback and R. G. Reeves.....	OpOt	917	3,085	12,721	7,550	5	.....	10.00
Johns Hopkins Hospital*.....	Baltimore.....	A. C. Woods.....	Oph	1,592	.....	20,259	.....	7	7/1	41.63
		S. J. Crowe.....	Otol	.....	1,223	.....	11,556	4	7/1	41.66
†South Baltimore General Hospital* ¹	Baltimore.....	S. Fox.....	Otol	.....	661	.....	1,375	2	6/1	75.00
University Hospital* ¹	Baltimore.....	F. E. Knowles, Jr. and E. A. Loofer.....	OpOt	11	583	3,896	3,356	1	7/1	.....
Beth Israel Hospital*.....	Boston.....	G. B. Fred.....	Otol	.....	1,024	.....	2,455	1	10/2	41.66
Boston City Hospital* ¹	Boston.....	J. J. Regan.....	Oph	654	.....	15,617	.....	..	.....	.....
		E. J. Monahan.....	Otol	.....	2,553	.....	15,941	2	.....	.....
Lahey Clinic.....	Boston.....		Otol	.....	.....	.....	.....	2	.....	.....
†Massachusetts Eye and Ear Infirmary.....	Boston.....	E. B. Dunphy.....	Oph	1,877	.....	44,553	.....	10	.....	.....
		L. A. Schau.....	Otol	.....	2,047	.....	28,392	9	.....	.....
†Massachusetts Memorial Hospitals* ¹	Boston.....	L. F. Johnson.....	Otol	.....	1,723	.....	.....	1	6/1	50.00
Memorial Hospital* ¹	Worcester, Mass.....	A. L. Caron.....	Otol	.....	1,905	.....	.....	1	.....	100.00
University Hospital* ¹	Ann Arbor, Mich.....	F. B. Frailek.....	Oph	670	.....	13,655	.....	4	7/1	111.80
		A. O. Furstenberg.....	Otol	.....	829	.....	10,932	5	7/1	111.80
City of Detroit Receiving Hospital* ¹	Detroit.....	R. D. Ruedemann and J. M. Robb.....	OpOt	294	398	11,918	5,087	6	7/1	188.00
Grace Hospital* ¹	Detroit.....	R. S. Goux.....	OpOt	.....	2,143	.....	2,893	3	7/1	75.00
Harper Hospital* ¹	Detroit.....	R. H. Pino and W. Warren.....	OpOt	1,212	2,889	6,531	1,774	8	7/1	.....
Henry Ford Hospital* ¹	Detroit.....	J. L. Whitney.....	Oph	292	.....	17,235	.....	8	7/1	200.00
		J. L. Dill.....	Otol	.....	1,161	.....	18,942	3	7/1	200.00
Wayne County General Hosp. and Infirmary* ¹	Eloise, Mich.....	F. T. May.....	OpOt	460	.....	5,392	.....	2	7/1	235.00
Minneapolis General Hospital* ¹	Minneapolis.....	W. K. Haven and R. E. Priest.....	OpOt	150	136	3,404	2,152	3	7/1, 1/1	115.00
University of Minnesota Hospitals* ¹	Minneapolis.....	E. Hansen.....	Oph	.....	.....	.....	.....	12	.....	.....
		L. R. Boes.....	Otol	.....	.....	.....	.....	8	.....	.....
Mayo Foundation.....	Rochester, Minn.....	W. L. Benedict.....	Oph	.....	.....	.....	.....	12	.....	62.50
		H. I. Lillie.....	Otol	.....	.....	.....	.....	12	.....	92.50
Ancker Hospital*.....	St. Paul.....	J. Hilger.....	OpOt	93	255	2,665	1,813	2	.....	.....
Charles T. Miller Hospital* ¹ , St.....	St. Paul.....	E. Burch.....	Oph	689	.....	2,327	.....	2	.....	115.00
St. Louis County Hospital*.....	Clayton, Mo.....	J. Green.....	Oph	107	.....	3,547	.....	2	7/1	80.00
Children's Mercy Hospital.....	Kansas City, Mo.....	W. R. Eubank and R. Parker.....	OpOt	62	407	1,085	1,282	1	.....	.....
Kansas City General Hospital No. 1*.....	Kansas City, Mo.....	A. J. Baer.....	Oph	218	.....	4,024	.....	2	7	.....
		J. S. Knight.....	Otol	.....	709	.....	3,744	1	7	60.00
Barnes Hospital* ¹	St. Louis.....	L. T. Post.....	Oph	1,433	.....	1,931	.....	6	7/1	10.00
		T. E. Walsh.....	Otol	.....	3,227	.....	830	9	7/1	10.00
Homer G. Phillips Hospital* ¹	St. Louis.....	L. T. Post and L. W. Dean.....	OpOt	156	465	2,717	2,876	2	7/1	95.00
Jewish Hospital* ¹	St. Louis.....		Otol	.....	338	.....	.....	1	.....	50.00
St. Louis City Hospital* ¹	St. Louis.....	Bisno and Eber.....	Oph	132	.....	3,717	.....	2	7/1	95.00
		T. Walsh.....	Otol	.....	415	.....	3,752	1	7/1	95.00

13. OCCUPATIONAL MEDICINE

Approval of residencies in Occupational Medicine has been authorized by the American Medical Association. Institutions desiring residency approval in this field should make application to the Council on Medical Education and Hospitals, 535 N. Dearborn Street, Chicago 10, Illinois.

14. OPHTHALMOLOGY AND OTOLARYNGOLOGY

The following services approved by the Council are acceptable to the American Board of Ophthalmology and the American Board of Otolaryngology respectively.

Hospitals, 180; Assistant Residencies and Residencies, 820

Name of Hospital	Location	Chief of Service	Residencies Approved	Inpatients Treated		Outpatient Visits		Asst. Res. and Residencies Offered	Beginning of Service (1949)	Beginning Stipend (Month)
				Oph	Otol	Oph	Otol			
United States Army										
Letterman General Hospital*	San Francisco	E. Maxwell	Oph	431	.....	6,092	.....	2	.....	n
Fitzsimons General Hospital*	Denver	W. A. Weller	Otol	.....	448	.....	7,434	2	.....	n
Walter Reed General Hospital*	Washington, D. C.	A. J. Vauia	Oph	306	.....	5,812	.....	3	.....	n
Oliver General Hospital*	Augusta, Ga.	M. E. Ringer	Otol	.....	691	.....	17,360	2	.....	n
Brooke General Hospital*	San Antonio, Texas	A. Lowrey, Jr.	Oph	369	.....	36,443	.....	4	1, 7	n
Gorgas Hospital*	Ancon, C. Z.	M. C. Royals	Otol	.....	779	.....	15,701	6	1, 7	n
		W. C. Royals	Oph	250	.....	5,527	.....	1	1/1	n
		W. C. Royals	Otol	.....	674	.....	8,152	2	1/1	n
		R. G. House	Oph	516	.....	11,138	.....	2	.....	n
		H. S. Murphey	Otol	.....	912	.....	11,579	3	.....	n
			Oph	240	.....	9,400	.....	2	7/1	n
United States Navy										
U. S. Naval Hospital*	Long Beach, Calif.	R. C. Boyden	Oph	240	.....	.....	.....	1	Varies	n
U. S. Naval Hospital*	Oakland, Calif.	A. C. Hohn	Oph	.....	.....	.....	.....	2	.....	n
U. S. Naval Hospital*	San Diego, Calif.	P. O. Northington	Otol	.....	.....	.....	.....	2	.....	n
U. S. Naval Hospital*	Bethesda, Md.	O. W. Chenuault	Oph	408	.....	9,261	.....	2	.....	n
U. S. Naval Hospital*	St. Albans, N. Y.	A. J. Delaney	Otol	.....	1,809	.....	4,181	2	.....	n
U. S. Naval Hospital*	Philadelphia	A. J. Delaney	Otol	.....	1,356	.....	5,256	1	.....	n
U. S. Naval Hospital*	Philadelphia	W. L. Berkney	Oph	112	.....	3,880	.....	2	.....	n
U. S. Naval Hospital*	Philadelphia	F. Harbert	Oph	1,410	.....	12,006	.....	3	.....	n
U. S. Naval Hospital*	Philadelphia	F. Harbert	Otol	.....	2,851	.....	11,509	4	.....	n
United States Public Health Service										
U. S. Marine Hospital* ¹	New Orleans	L. M. Smith	Oph	106	.....	3,565	.....	1	7/1	n
U. S. Marine Hospital*	Seattle	H. U. Maues	Oph	750	.....	4,070	.....	3	7/1	n
Veterans Administration										
Veterans Admin. Center ¹	Los Angeles	.....	Oph	.....	.....	.....	.....	2	.....	n
Veterans Admin. Hospital	San Francisco	.....	Otol	.....	.....	.....	.....	5	.....	n
Veterans Admin. Hospital ¹	Van Nuys, Calif.	G. C. Struble	Oph	148	.....	2,339	.....	3	7/1	n
Veterans Admin. Hospital ¹	Ft. Logan, Colo.	S. Kaplan	Otol	.....	391	.....	4,594	3	7/1	n
Veterans Admin. Hospital	Chamblee, Ga.	F. P. Calhoun, Jr.	Oph	195	.....	1,833	.....	1	.....	n
Veterans Admin. Hospital	Hines, Ill.	L. A. Brown	Otol	.....	600	.....	1,968	3	7/1, 1/1	n
Veterans Admin. Center ¹	Wadsworth, Kan.	W. A. Mann	Oph	.....	.....	.....	.....	2	.....	n
Veterans Admin. Hospital ¹	Louisville, Ky.	F. L. Lederer	Otol	.....	1,070	.....	.....	7	1/2, 7/1	n
Veterans Admin. Hospital ¹	New Orleans	E. T. Jones	Oph	414	.....	.....	.....	2	1, 7	n
Veterans Admin. Hospital ¹	New Orleans	G. Uhde	Otol	.....	346	.....	88	2	.....	n
Veterans Admin. Hospital ¹	New Orleans	G. M. Halk	Oph	139	.....	570	.....	1	7/1	n
Veterans Admin. Hospital ¹	New Orleans	E. G. Walls	Otol	.....	333	.....	876	2	7/1	n
Veterans Admin. Hospital	Framingham, Mass.	.....	Otol	.....	.....	.....	.....	.....	.....	n
Veterans Admin. Hospital	Minneapolis	.....	Oph	114	.....	.....	.....	3	.....	n
Veterans Admin. Hospital	Minneapolis	.....	Otol	.....	675	.....	.....	6	.....	n
Veterans Admin. Hospital ¹	Jefferson Bks., Mo.	.....	Otol	.....	564	.....	.....	3	.....	n
Veterans Admin. Hospital	New York City	P. K. Sauer	Oph	870	.....	2,242	.....	5	7	n
Veterans Admin. Hospital ¹	Cleveland, Ohio	P. K. Sauer	Otol	.....	767	.....	3,319	6	1, 7	n
Veterans Admin. Hospital ¹	Cleveland, Ohio	P. J. Parisi	Oph	323	.....	4	.....	2	7/1	n
Veterans Admin. Hospital ¹	Cleveland, Ohio	E. J. Baxter	Otol	.....	953	.....	25	2	7/1	n
Veterans Admin. Hospital ¹	Oklahoma City, Okla.	L. K. Lumblyser	Oph	180	.....	.....	.....	1	7	n
Veterans Admin. Hospital	Portland, Ore.	A. B. Dykman	Oph	106	.....	.....	.....	1	1/1, 7/1	n
Veterans Admin. Hospital	Portland, Ore.	R. A. Fenton	Otol	.....	174	.....	.....	1	1/1, 7/1	n
Veterans Admin. Hospital	Aspinwall, Pa.	D. P. Cordray	Oph	725	.....	.....	.....	3	7/1	n
Veterans Admin. Hospital	Aspinwall, Pa.	D. P. Cordray	Otol	.....	751	.....	.....	3	7/1	n
Veterans Admin. Hospital	Aspinwall, Pa.	S. D. Malden	Otol	.....	749	.....	1,537	3	7/1	n
Veterans Admin. Hospital ¹	Memphis, Tenn.	.....	Oph	.....	.....	.....	.....	1	1/1, 7/1	n
Veterans Admin. Hospital ¹	Dallas, Texas	.....	Oph	102	.....	.....	.....	1	1/1, 7/1	n
Veterans Admin. Hospital ¹	Dallas, Texas	.....	Otol	.....	179	.....	.....	1	1/1, 7/1	n
Veterans Admin. Hospital ¹	McKinney, Texas	M. Thomas	Oph	.....	.....	.....	.....	1	.....	n
Veterans Admin. Center ¹	Milwaukee	.....	Oph	168	.....	2,271	.....	3	7/1	n
Veterans Admin. Center ¹	Milwaukee	.....	Otol	.....	344	.....	3,751	4	7/1	n
Nonfederal										
Jefferson-Hillman Hospital* ¹	Birmingham, Ala.	A. Calahan	Oph	822	.....	8,814	.....	3	.....	.....
Jefferson-Hillman Hospital* ¹	Birmingham, Ala.	G. E. Fisher	Otol	.....	782	.....	5,307	4	.....	.....
Arkansas Baptist Hospital* ¹	Little Rock, Ark.	K. W. Cosgrove	Otol	.....	818	.....	.....	.....	.....	.....
Fresno County General Hospital*	Fresno, Calif.	H. Awtrey	Oph	554	.....	1,049	.....	1	7/1	\$231.00
Childrens Hospital* ¹	Los Angeles	A. Miller	Otol	1,189	2,610	2	1	1	.....	119.00
Los Angeles County Hospital* ¹	Los Angeles	W. J. Endres	Oph	962	.....	12,061	.....	4	Varies	165.00
Los Angeles County Hospital* ¹	Los Angeles	J. M. Brown	Otol	.....	1,810	.....	10,408	4	Varies	165.00
Santa Fe Coast Lines Hospital*	Los Angeles	.....	Oph	.....	.....	.....	.....	.....	.....	.....
White Memorial Hospital*	Los Angeles	M. W. Nugent	Oph	140	.....	6,812	.....	2	7/1	148.20
White Memorial Hospital*	Los Angeles	B. N. Colver	Otol	.....	1,052	.....	8,655	2	7/1	140.20
San Diego County General Hospital*	San Diego, Calif.	G. Kilgore and J. W. Hendrickson	OpOt	539	455	3,247	3,650	2	7/1	125.00
Children's Hospital* ¹	San Francisco	O. Dickey	Otol	.....	1,349	2,415	.....	1	.....	.....
Greens' Eye Hospital	San Francisco	V. V. Suglian	Oph	731	.....	48,448	.....	2	7/1	50.00
San Francisco Hospital* ¹	San Francisco	.....	Oph	249	.....	.....	.....	2	.....	175.00
San Francisco Hospital* ¹	San Francisco	.....	Otol	.....	626	.....	.....	1	.....	175.00
Stanford University Hospital* ¹	San Francisco	A. E. Maumenee	Oph	730	.....	5,054	.....	4	7/1	50.00
Stanford University Hospital* ¹	San Francisco	R. C. McNaught	Otol	.....	803	.....	9,347	2	7/1	50.00

14. OPHTHALMOLOGY AND OTOLARYNGOLOGY—Continued

Name of Hospital	Location	Chief of Service	Residences Approved	Inpatients Treated		Outpatient Visits		Asst. Res. and Residences Offered	Beginning of Service (1910)	Beginning Stipend (Month)
				Oph	Otol	Oph	Otol			
University of California Hospital* ¹	San Francisco.....	F. C. Cordes..... F. L. Morrison.....	Oph Otol	312	675	13,387	6,971	3 1	7/1, 8/1, 9/1 7/1, 8/1, 9/1	\$50.00 50.00
University of Colorado Medical Center, Colorado General Hospital* ¹	Denver.....	R. W. Danielson..... H. L. Hickey.....	Oph Otol	143	323	7,196	4,402	2 1	7/1 7/1	75.00 75.00
Denver General Hospital* ¹	Denver.....	.....	Otol	.....	.....	.....	.....	1	.....	.....
Grace-New Haven Community Hospital, New Haven Unit (University Service)* ¹	New Haven, Conn.....	E. Blake..... N. Canfield.....	Oph† Otol	347	652	5,368	4,618	1 3	7/1 7/1	40.00 40.00
Episcopal Eye, Ear and Throat Hospital ¹	Washington, D. C.....	G. V. Simpson..... W. H. Jenkins.....	Oph Otol	..... .....	..... .....	..... .....	..... .....	5 4	1/1 7/1	25.00 25.00
Gallinger Municipal Hospital* ¹	Washington, D. C.....	.....	OpOt	92	705	4,493	6,535	3	7/1	100.00
Grady Memorial Hospital* ¹	Atlanta, Ga.....	A. V. Hallum and W. C. Warren.....	OpOt Oph	383 555	748	10,389 16,063	8,300	6 6	7/1, 8/1 7/1, 8/1	 32.00
Cook County Hospital* ¹	Chicago.....	S. J. Pearlman.....	Otol	.....	2,594	.....	21,514	5	7/1, 8/1	32.00
Illinois Eye and Ear Infirmary ¹	Chicago.....	.....	Oph	2,413	.....	57,179	.....	18	7/1	.....
Illinois Eye and Ear Infirmary ¹	Chicago.....	.....	Otol	.....	1,899	.....	30,560	13	7/1	.....
Mercy Hospital-Loyola University Clinics*.....	Chicago.....	L. G. Hoffman and R. W. Kerwin.....	OpOt	135	828	2,039	1,441	1	.....	25.00
Michael Reese Hospital* ¹	Chicago.....	T. Shapira..... N. Leshin.....	Oph Otol	533 .....	.....	4,049 2,692	.....	2	7/1, 7 1/1, 7	25.00
Passavant Memorial Hospital*.....	Chicago.....	D. Vail..... J. F. Delph.....	Oph Otol	203 .....	.....	523 220	1,365	2 1	7/1 7/1	..... .....
Presbyterian Hospital*.....	Chicago.....	J. M. Donegan..... S. A. Friedberg.....	Oph Otol	325 .....	.....	5,537 813	3,199	2 .....	..... .....	25.00 25.00
Provident Hospital* ¹	Chicago.....	W. M. Jones and D. Mazique.....	OpOt	546	.....	5,571	1,842	2	7/1	50.00
Research and Educational Hospitals* ¹	Chicago.....	W. F. Hughes..... F. E. Lederer.....	Oph Otol	230	712	9,187 10,299	.....	2	7/1 7/1	55.00 55.00
St. Joseph Hospital*.....	Chicago.....	J. M. Donegan.....	Oph	38	.....	958	.....	1	?	.....
St. Luke's Hospital*.....	Chicago.....	R. C. Gamble..... R. J. Coombs.....	Oph Otol	 390	1,339	1,099	.....	1	7/1 7/1	25.00 25.00
University of Chicago Clinics* ¹	Chicago.....	A. Krause..... J. R. Lindsay.....	Oph Otol	154 .....	.....	11,515	9,350	5 2	7/1 7/1	25.00 25.00
Wesley Memorial Hospital* ¹	Chicago.....	W. A. Mann..... G. Shanmough.....	Oph Otol	338	1,098	.....	.....	1 .....	..... .....	25.00
Woodlawn Hospital* ¹	Chicago.....	J. M. Masters.....	Oph	166	.....	.....	.....	1	.....	.....
Indianapolis General Hospital*.....	Indianapolis.....	J. M. Masters..... R. Masters.....	Otol Oph	207	6,357	5,567	.....	2	7/1 7/1	80.00 80.00
Indiana University Medical Center* ¹	Indianapolis.....	R. Masters..... C. McCaskey.....	Oph Otol	233	450	3,277	2,418	4 3	7/1 7/1	65.33 65.33
University Hospitals* ¹	Iowa City.....	C. S. O'Brien..... D. M. Lierle.....	Oph Otol	1,241 .....	.....	5,373	7,455	10 14	7/1 7/1	50.00 50.00
University of Kansas Medical Center*.....	Kansas City, Kan.....	S. E. Roberts..... D. Townes and J. S. Bumgardner.....	Otol OpOt	 137	778 114	2,975 5,661	3,440	1 2	 7/1	 25.00
Louisville General Hospital*.....	Louisville, Ky.....	.....	OpOt	1236	1,762	20,325	19,817	13	7/1	.....
Charity Hospital of Louisiana* ¹	New Orleans.....	W. R. Buffington..... F. E. LeJune.....	Oph Otol	1,142 .....	.....	20,492 31,242	.....	6	7/1 7/1	..... .....
Eye, Ear, Nose and Throat Hospital ¹	New Orleans.....	E. E. Allgeyer and S. Cohen.....	OpOt	99	1,255	2,496	2,578	1	.....	25.00
Touro Infirmary*.....	New Orleans.....	J. E. Brumback and R. G. Reeves.....	OpOt	917	3,055	12,721	7,550	5	.....	10.00
Baltimore Eye, Ear and Throat Charity Hosp. ¹	Baltimore.....	A. C. Woods..... S. J. Crowe.....	Oph Otol	1,592 .....	.....	20,259 11,556	.....	7 4	7/1 7/1	41.63 41.63
Johns Hopkins Hospital*.....	Baltimore.....	S. Fox..... F. E. Knowles, Jr. and E. A. Loope.....	Otol OpOt	 11	583	1,375 3,896	3,356	2 1	6/1 7/1	75.00
†South Baltimore General Hospital* ¹	Baltimore.....	G. B. Fred..... J. J. Regan.....	Oph Otol	..... .....	1,024	2,455	.....	1	7/1 10/2	 41.66
University Hospital* ¹	Baltimore.....	E. J. Monahan.....	Otol	.....	2,533	15,941	.....	2	.....	.....
Beth Israel Hospital*.....	Boston.....	E. B. Dunphy..... L. A. Schau.....	Oph Otol	1,877 .....	.....	44,553 28,392	.....	10 9	..... .....	..... .....
Boston City Hospital* ¹	Boston.....	L. F. Johnson..... A. L. Caron.....	Otol Otol	..... .....	1,723 1,905	.....	.....	1	6/1	50.00 100.00
Lahey Clinic.....	Boston.....	F. B. Fralick..... A. C. Furstenberg.....	Oph Otol	670 .....	.....	13,855 10,932	.....	4 5	7/1 7/1	111.80 111.80
†Massachusetts Eye and Ear Infirmary.....	Boston.....	R. D. Ruedemann and J. M. Robb.....	OpOt	294	398	11,918	5,087	6	7/1	185.00
†Massachusetts Memorial Hospitals* ¹	Boston.....	R. S. Goux..... R. H. Pino and W. Warren.....	OpOt	2,143	.....	2,803	.....	3	7/1	75.00
Memorial Hospital* ¹	Worcester, Mass.....	E. L. Whitney..... J. L. Dill.....	Oph Otol	292 .....	.....	17,235 15,942	.....	8 3	7/1 7/1	200.00 200.00
University Hospital* ¹	Ann Arbor, Mich.....	F. T. May..... W. K. Haven and R. E. Priest.....	OpOt	460	.....	5,392	.....	2	7/1	235.00
City of Detroit Receiving Hospital* ¹	Detroit.....	E. Hansen..... L. R. Boies.....	Oph Otol	150	136	3,404	2,152	3 8	7/1, 1/1	115.00
Grace Hospital* ¹	Detroit.....	W. L. Benedict..... H. I. Lillie.....	Oph Otol	..... .....	.....	.....	.....	12 12	..... .....	92.50 92.50
Harper Hospital* ¹	Detroit.....	J. Hilger..... E. Burch.....	OpOt	93	235	2,665	1,613	2	.....	.....
Henry Ford Hospital* ¹	Detroit.....	E. Burch..... J. Green.....	Oph	689 107	.....	2,327 3,547	.....	2 2	 7/1	115.00 80.00
Wayne County General Hosp. and Infirmary* ¹	Eloise, Mich.....	W. R. Eubank and R. Parker.....	OpOt	62	407	1,085	1,282	1	.....	.....
Minneapolis General Hospital* ¹	Minneapolis.....	A. J. Baer..... J. S. Knight.....	Oph Otol	218 .....	.....	4,024 709	3,741	2 1	7 7	50.00 50.00
Mayo Foundation.....	Rochester, Minn.....	L. T. Post..... T. E. Walsh.....	Oph Otol	1,433	1,931 3,227	.....	830	6 9	7/1 7/1	10.00 10.00
Ancker Hospital*.....	St. Paul.....	L. T. Post and L. W. Dean.....	OpOt	156	465	2,717	2,878	2	7/1	95.00
Charles T. Miller Hospital* ^{1, 24}	St. Paul.....	.....	Otol	.....	388	.....	.....	1	.....	50.00
St. Louis County Hospital*.....	Clayton, Mo.....	Bisno and Eber.....	Oph	132	.....	3,717	.....	2	7/1	95.00
Children's Mercy Hospital.....	Kansas City, Mo.....	T. Walsh.....	Otol	.....	415	3,752	.....	1	7/1	95.00
Kansas City General Hospital No. 1*.....	Kansas City, Mo.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Barnes Hospital* ¹	St. Louis.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Homer G. Phillips Hospital* ¹	St. Louis.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Jewish Hospital* ¹	St. Louis.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
St. Louis City Hospital* ¹	St. Louis.....	.....	.....	.....	.....	.....	.....	.....	.....	.....

14. OPHTHALMOLOGY AND OTOLARYNGOLOGY—Continued

Name of Hospital	Location	Chief of Service	Residencies Approved	Inpatients Treated		Outpatient Visits		Asst. Res. and Residencies Offered	Beginning of Service (1949)	Beginning Stipend (Month)
				Oph	Otol	Oph	Otol			
St. Mary's Group of Hospitals*	St. Louis	W. H. Luedde	Oph	260		7,619		3	7/1	\$ 25.00
University of Nebraska Hospital*	Omaha	B. J. McMahon	Otol		999		5,075	12	7/1	35.00
Jersey City Hospital*	Jersey City, N. J.	J. H. Judd	Oph	132		807		12	7/1	75.00
		F. X. Brophy and M. G. Borroni	OpOt	281	1,800	6,495	7,578	5		
Newark City Hospital*	Newark, N. J.	H. Orten	Otol					12	7	
Newark Eye and Ear Infirmary	Newark, N. J.		Oph	1,052		6,408				
			Otol		133		2,645			
Albany Hospital*	Albany, N. Y.	H. K. Tebbutt, Jr.	Otol		776		1,585	2	7/1	41.67
Brooklyn Eye and Ear Hospital	Brooklyn		Oph	2,363		47,626		9		
			Otol		6,791		44,084	5		
Jewish Hospital*	Brooklyn	C. Kaplan	Otol		248		2,782	1		
Kings County Hospital*	Brooklyn	W. Moehle	Oph	414		10,684		12	1/1, 7/1	50.00
		A. Christensen	Otol		1,429		5,793	2	7/1	80.00
Long Island College Hospital*	Brooklyn	M. A. Lasky	Oph	175		4,245		3	7/1	25.00
		C. R. Weeth	Otol		570		2,331	1	7/1	25.00
Buffalo General Hospital*	Buffalo	C. C. Cott	Otol		788		4,956	3	7/1	25.00
Edward J. Meyer Memorial Hospital*	Buffalo	I. J. Koenig	Oph	99		3,101		4		100.00
		H. E. Bozer	Oph		122		1,836	2		100.00
Queens General Hospital*	Jamaica, N. Y.	W. G. Frey	Oph	223		5,226		1	8/15	80.00
		M. S. Bender	Otol		823		4,568	2	7/1	80.00
New Rochelle Hospital*	New Rochelle, N. Y.	A. L. Beck	OpOt		1,305	801	644	1		
Bellevue Hospital, Div. III—N. Y. Univ.*	New York City	D. Kirby	Oph	4,351		14,353		2	1, 7	60.00
		J. Daly	Otol		2,185		15,247	2	1, 7	60.00
Beth Israel Hospital*	New York City	E. B. Gresser	Oph	223		3,669		1	7/1	50.00
		M. L. Som	Otol		513		3,042	1	7/1	50.00
Bronx Eye and Ear Infirmary	New York City		Oph	834		14,353		1	7/1	50.00
			Otol		2,854		13,824	1	7/1	50.00
Flower and Fifth Avenue Hospitals*	New York City	J. A. W. Hetrick	Otol		181		1,932	2	7/1	70.00
Goldwater Memorial Hospital*	New York City	J. W. Smith	Oph	1,484		1,521		3	7/1	
Harlem Eye and Ear Hospital	New York City	C. B. Meding and F. Grabscheld	OpOt	638	1,858	17,473	17,161	2		
Harlem Hospital*	New York City	H. J. Burman	Otol		697		6,836	2		
Lenox Hill Hospital*	New York City	J. J. Reid	Oph	305				1	4/1	50.00
		G. F. Oberrender	Otol		1,199			1	7/1	50.00
Manhattan Eye, Ear and Throat Hospital	New York City		Oph	2,592		74,956		10	Varies	
			Otol		9,711		61,136	7	7/1	
Metropolitan Hospital*	New York City	C. A. Turtz	Oph	99		3,596		1	7/1	120.00
		J. A. W. Hetrick	Otol		343		4,150	1	7/1	130.00
Morrisania City Hospital*	New York City	G. B. Gilmore	Otol				3,431	1		80.00
Mount Sinai Hospital*	New York City	H. Minsky	Oph					3		50.00
		R. Kramer	Otol					2		50.00
New York City Hospital*	New York City	O. C. Risch	Otol		466		4,994	1	7/1	130.00
New York Eye and Ear Infirmary	New York City	C. Berens	Oph			62,677		13	10/1	
		S. L. Craig	Otol		6,361		42,840	13	10/1	
New York Hospital*	New York City	Glenn and Moore	Otol				12,672	3	7/1	25.00
New York Polyclinic Medical School and Hosp.*	New York City		OpOt	368	649	4,966	7,743	3	7/1	50.00
Presbyterian Hospital*	New York City	J. H. Dunnington	Oph	2,552		29,333		9		41.66
		E. P. Fowler, Jr.	Otol		1,962		22,247	6		41.66
Roosevelt Hospital*	New York City	R. C. Grove	Otol		708		3,511	1	7/1	70.00
St. Luke's Hospital*	New York City	W. G. Frey	Oph	252		8,136		1	7/1	50.00
		J. W. Fowlkes	Otol		1,341		9,291	2	7/1	50.00
University Hospital*	New York City	R. Aebli	Oph	554		7,695		3	Varies	15.00
		P. S. Seager	Otol		739		6,740	3	Varies	15.00
Rochester General Hospital*	Rochester, N. Y.	E. R. Vernon and E. L. Avery	OpOt	181	1,258	1,363	1,446	2		
Strong Memorial-Rochester Municipal Hosps.*	Rochester, N. Y.	J. F. Gipner	Oph	385		4,841		2	7/1	45.00
		C. A. Healy	Otol		1,229		3,820	3	7/1	45.00
Sea View Hospital	Staten Island, N. Y.	J. Gilbert	Otol		1,650			2	7/1	130.00
Syracuse University Medical Center	Syracuse, N. Y.	G. D. Hoople	Otol		1,172		656	1	7/1	
Grasslands Hospital*	Valhalla, N. Y.	C. Wood	Oph	120		4,678		2	7	125.00
		M. T. Smith	Otol		266		1,854	1	7	125.00
†Charlotte Memorial Hospital*	Charlotte, N. C.	V. K. Hart	Otol		644		137	1		
Duke Hospital*	Durham, N. C.	W. B. Anderson and W. W. Eagle	OpOt	407	591	3,439	3,101	8	7/1	83.33
†North Carolina Baptist Hospital*	Winston-Salem, N. C.		Otol		476		3,373	1	7/1	
Cincinnati General Hospital*	Cincinnati	D. Lyle	Oph	392		8,286		2	7/1	
		H. Goodyear	Otol		970		6,157	2	7/1	
City Hospital*	Cleveland	G. L. Miller	Oph	109		5,383		2	7/1	70.00
		C. W. Engler	Otol		710		3,787	2	7/1	70.00
Cleveland Clinic Hospital	Cleveland	R. J. Kennedy	Oph	497		27,526		3	7/1	100.00
		P. M. Moore, Jr.	Otol		707		14,156	7	7/1	100.00
St. Luke's Hospital*	Cleveland	M. W. Jacoby	Oph	351		2,677		1	6/25	90.00
		T. W. Thoburn	Otol		2,443		1,904	2	6/25	90.00
University Hospitals*	Cleveland	A. B. Bruner	Oph	933		6,030		4	7/1	25.00
		C. C. R. Jackson	Otol		2,011		3,792	3	7/1	25.00
Ohio State University Hospital*	Columbus, Ohio	A. Culler	Oph	214		5,629		4	7/1	50.00
		H. G. Beatty	Otol		374		2,634	1	7/1	50.00
University Hospitals*	Oklahoma City	J. P. McGee and C. McHenry	OpOt	278	298	3,350	1,761	2	7/1	35.00
University of Oregon Medical School Hospitals and Clinics*	Portland, Ore.	K. C. Swan	Oph	237		9,886		4	7/1	75.00
		G. L. Boyden	Otol		577		5,081	2	7/1	75.00
George F. Geisinger Memorial Hospital*	Danville, Pa.	C. H. Jacobs	Oph	247		7,477		1		75.00
		F. W. Davison	Otol		932		10,218	2		75.00
Episcopal Hospital*	Philadelphia	O. C. Hirst and J. A. Bertolet	Otol		712		2,798	1	7/1	50.00
Graduate Hosp. of the Univ. of Pennsylvania*	Philadelphia		Oph	737		3,995		3	7/1	
			Otol		1,431		3,048	4	7/1	
Hospital of the University of Pennsylvania*	Philadelphia	F. H. Adler	Oph	751		8,554		7	7/1	
		H. P. Schenk	Otol		1,642		3,142	4	Varies	
Jefferson Medical College Hospital*	Philadelphia	L. H. Clerk	Oph						7/1	
			Otol		2,226		13,423	4	7/1	
†Pennsylvania Hospital*	Philadelphia	E. H. Campbell	Otol		502		3,327	1	7/1	20.00
Philadelphia General Hospital*	Philadelphia		Oph	191				2	7/1	70.00
			Otol		199			1	7/1	70.00
Temple University Hospital*	Philadelphia	G. G. Gibson	Oph	273		2,826		3	7/1	
		M. S. Ersner	Otol		1,694		2,450	1	7/1	

14. OPHTHALMOLOGY AND OTOLARYNGOLOGY—Continued

Name of Hospital	Location	Chief of Service	Residencies Approved	Inpatients Treated		Outpatient Visits		Asst. Res. and Residencies Offered	Beginning of Service (1949)	Beginning Stipend (Month)
				Oph	Otol	Oph	Otol			
Wills Hospital ¹	Philadelphia.....	.....	Oph	4,119	.....	105,863	.....	12	.....	.....
Eye, Ear, Nose and Throat Hospital ¹	Pittsburgh.....	J. G. Linn and J. H. McCready.....	OpOt	1,398	4,421	.....	.....	4	1/1	\$ 41.66
Mercy Hospital ¹	Pittsburgh.....	W. L. Allison.....	Otol	.....	2,041	.....	2,940	2	9/1	100.00
Robert Packer Hospital ¹	Sayre, Pa.....	.....	Otol	.....	.....	.....	.....	1	7/1	100.00
Knoxville General Hospital ¹	Knoxville, Tenn.....	H. E. Christenberry, Jr.	OpOt	91	377	1,074	894	1	7/1	70.00
John Gaston Hospital ¹	Memphis, Tenn.....	W. L. Simpson.....	Otol	.....	819	.....	5,788	2	.....	.....
Memphis Eye, Ear, Nose and Throat Hospital	Memphis, Tenn.....	J. B. Stanford and S. H. Sanders.....	OpOt	.....	.....	.....	.....	4	.....	40.00
Nashville General Hospital ¹	Nashville, Tenn.....	N. B. Norris.....	OpOt	.....	.....	.....	.....	1	.....	.....
Vanderbilt University Hospital ¹	Nashville, Tenn.....	.....	Otol	(Included in Surgery)		.....	.....	1	7/1	35.41
Parkland Hospital ¹	Dallas, Texas.....	J. D. Singleton and J. G. Jones.....	OpOt	172	217	3,029	2,375	2	.....	.....
University of Texas Medical Branch Hosps. ¹	Galveston, Texas.....	J. M. Robison.....	Otol	.....	440	.....	6,412	2	7	50.00
Jefferson Davis Hospital ¹	Houston, Texas.....	R. K. Dally.....	Oph	274	.....	5,398	.....	2	7/1	50.00
University of Virginia Hospital ¹	Charlottesville, Va.....	H. H. Harris.....	Otol	.....	394	.....	5,339	1	7/1	50.00
Medical College of Virginia Hospital Division ¹	Richmond, Va.....	F. Burton.....	Oph	303	.....	3,096	.....	2	7/1	15.50
Gill Memorial Eye, Ear and Throat Hospital ¹	Roanoke, Va.....	F. D. Woodward.....	Otol	.....	1,270	.....	5,062	3	7/1	15.50
King County Hospital ¹	Seattle.....	R. H. Courtney and P. N. Pastore.....	OpOt	408	681	5,331	3,224	6	7/1	46.50
State of Wisconsin General Hospital ¹	Madison, Wis.....	E. G. Gill.....	OpOt	.....	1,572	.....	210	4	.....	.....
St. Joseph's Hospital ¹	Marshfield, Wis.....	C. D. F. Jensen.....	OpOt	359	.....	1,999	2,410	1	7/1	90.00
Milwaukee County Hospital ¹	Milwaukee.....	F. A. Davis.....	Oph	622	.....	3,549	.....	3	7	25.00
		W. Nesbit.....	Otol	.....	501	.....	2,752	3	7	25.00
		L. A. Copps.....	Otol	.....	750	.....	.....	1	.....	.....
		T. F. McCormick and J. E. Mulow.....	OpOt	318	350	5,025	1,672	5	Varies	158.09

15. ORTHOPEDIC SURGERY

The following services are approved by the Council and the American Board of Orthopedic Surgery
Hospitals, 257; Assistant Residencies and Residencies, 787

Name of Hospital	Location	Chief of Service	Type of Training ¹	Inpatients Treated	Outpatient Visits	Deaths	Autopsies	Asst. Res. and Residencies Offered ²	Beginning of Service (1949)	Length of Approved Program (Years)	Beginning Stipend (Month)
United States Army											
Letterman General Hospital*	San Francisco.....	O. B. Bollbaugh.....	AFS	1,987	2,093	8	8	11	.....	2	n
Fitzsimons General Hospital*	Denver.....	H. S. McBurney.....	AFS	1,685	3,058	4	4	6	.....	2	.....
Walter Reed General Hospital*	Washington, D. C.....	A. W. Spittler.....	AFS	1,621	2,703	4	1	6	1, 7	2	.....
Oliver General Hospital*	Augusta, Ga.....	E. Dehne.....	AFS	2,315	644	2	6	1/1, 7/1	2	Varies	.....
Brooke General Hospital*	San Antonio, Texas.....	M. S. Thompson.....	AFS	4,736	4,899	4	4	7	.....	2	.....
Tripler General Hospital*	Moanalua, T. H.....	.....	AF	664	2,440	..	..	..	7/1	1½	.....
United States Navy											
U. S. Naval Hospital*	Long Beach, Calif.....	.....	.....	.....	.....	..	..	2	.....	2	.....
U. S. Naval Hospital*	Oakland, Calif.....	C. R. Carr.....	AFS	.....	.....	..	..	3	7	2	.....
U. S. Naval Hospital*	San Diego, Calif.....	R. F. Legge.....	AF	1,569	1,815	12	7	5	.....	1½	.....
U. S. Naval Hospital*	Bethesda, Md.....	J. V. Hopkins.....	AFS	227	268	13	3	3	.....	2	.....
U. S. Naval Hospital*	Chelsea, Mass.....	W. C. Roland.....	AFS	.....	.....	..	..	1	.....	2	.....
U. S. Naval Hospital*	St. Albans, N. Y.....	H. Osterloh.....	AFS	490	82	3	3	3	.....	2	.....
U. S. Naval Hospital*	Philadelphia.....	C. F. Morrison.....	AFS	494	6,993	4	2	3	.....	2	.....
United States Public Health Service											
U. S. Marine Hospital* ¹	Baltimore.....	J. D. Lane, Jr.....	A	(Included in Surgery)				1	.....	1	.....
U. S. Marine Hospital* ¹	Stapleton, L. I., N. Y.....	A. A. Michele.....	AF	2,010	8,035	7	3	6	7/1	1½	.....
Federal Security Agency											
Freedman's Hospital* ¹	Washington, D. C.....	J. Neviaser.....	ACFS	207	4,553	10	1	1	7/1	3	\$147.65
Veterans Administration											
Veterans Admin. Center ¹	Los Angeles.....	R. Mazet, Jr.....	AFS	1,061	2,220	..	..	6	.....	2	.....
Veterans Admin. Hospital.....	San Francisco.....	J. J. Loutzenheiser and F. J. Cox.....	AF	364	1,346	1	1	3	7/1	1½	270.00
Veterans Admin. Hospital ¹	Van Nuys, Calif.....	J. Aldes.....	AFS	578	2,358	..	..	5	1/1, 7/1	2	140.00
Veterans Admin. Hospital ¹	Fort Logan, Colo.....	M. E. Gibbens.....	AF	525	.....	..	..	3	7	1½	.....
Veterans Admin. Hospital.....	Chamblee, Ga.....	R. P. Kelley.....	AFS	869	520	2	1	3	7/1	2	200.00
Veterans Admin. Hospital.....	Hines, Ill.....	H. A. Seefeld.....	AFS	1,537	.....	9	4	11	1/2, 7/1	2	200.00
Veterans Admin. Hospital ¹	Indianapolis.....	H. L. Egbert.....	AF	404	.....	3	2	1	1, 7	1½	200.00
Veterans Admin. Center ¹	Wadsworth, Kan.....	W. H. Saeed.....	AFS	540	.....	2	2	6	1, 7	2	275.00
Veterans Admin. Hospital ¹	Louisville, Ky.....	K. A. Fischer.....	AFS	1,333	33	..	..	4	.....	2	.....
Veterans Admin. Hospital ¹	New Orleans.....	R. H. Aldredge.....	AFS	740	685	5	3	4	7/1	2	275.00
Veterans Admin. Hospital.....	Fort Howard, Md.....	J. Lyford.....	AFS	277	256	4	4	3	7	2	275.00
Veterans Admin. Hospital ¹ (West Roxbury)	Boston.....	J. Barr.....	AFS	512	1,514	..	..	2	7	1½	275.00
Veterans Admin. Hospital ¹	Framingham, Mass.....	.....	AFS	528	.....	1	1	4	.....	2	.....
Veterans Admin. Hospital.....	Minneapolis.....	.....	AFS	1,072	.....	10	6	10	.....	2	.....
Veterans Admin. Hospital ¹	Jefferson Bks., Mo.....	.....	AFS	714	.....	..	..	5	.....	2	.....
Veterans Admin. Hospital.....	Lincoln, Neb.....	.....	AF	298	.....	5	4	3	.....	1½	.....
Veterans Admin. Hospital.....	Albuquerque, N. Mex.....	.....	AF	342	.....	1	1	1	7/1	1½	.....
Veterans Admin. Hospital.....	New York City.....	P. K. Sauer.....	AFS	707	310	6	3	7	7	2	.....
Veterans Admin. Hospital ¹	Staten Island, N. Y.....	D. M. Bosworth.....	A	370	323	1	1	2	7/1	1	.....
Veterans Admin. Hospital ¹	Cleveland.....	C. A. Maxwell.....	AFS	866	91	1	1	7	7/1	1	.....
Veterans Admin. Hospital ¹	Oklahoma City.....	W. K. West.....	AFS	440	.....	3	1	2	7	2	.....
Veterans Admin. Hospital.....	Portland, Ore.....	H. C. Blair.....	AFS	757	.....	4	1	3	.....	2	.....
Veterans Admin. Hospital.....	Aspinwall, Pa.....	D. I. Schwartz.....	AFS	768	.....	2	2	3	7/1	2	.....
Veterans Admin. Hospital.....	Columbia, S. C.....	K. M. Lippert.....	AFS	544	.....	5	4	7	7	2	.....
Veterans Admin. Hospital.....	Memphis, Tenn.....	D. M. Street.....	AFS	1,018	1,429	3	2	9	7/1	2	.....
Veterans Admin. Hospital ¹	Dallas, Texas.....	.....	AF	526	.....	4	2	4	1/1, 7/1	1½	.....
Veterans Admin. Hospital ¹	McKinney, Texas.....	T. McD. Anderson.....	AFS	.....	.....	..	..	5	.....	2	.....

15. ORTHOPEDIC SURGERY—Continued

Name of Hospital	Location	Chief of Service	Type of Training ¹¹	Inpatients Treated	Outpatient Visits	Deaths	Autopsies	Asst. Res. and Residencies Offered ⁸	Beginning of Service (B49)	Length of Approved Program (Years)	Beginning Stipend (Month)
Blodgett Memorial Hospital ^{1,2}	Grand Rapids, Mich.	J. T. Hodgen	ACF	153	2,996	..	..	1	7/1	2 1/2	\$100.00
Borgess Hospital	Kalamazoo, Mich.	W. H. Cole	AF	..	..	..	..	1	7/1	1 1/2	..
Shriners' Hospital for Crippled Children	Minneapolis	W. H. Cole	C	175	427	..	..	2	7/1	1	..
University of Minnesota Hospitals ^{1,2}	Minneapolis	W. Cole	A	234	1,700	7	6	1	7/1	1	..
Mayo Foundation	Rochester, Minn.	R. K. Ghormley	ACFS	..	..	..	15	..	7/1	3	92.50
Glennie State Hospital for Crippled Children ¹	St. Paul	C. C. Chatterton	C	636	6,200	2	2	4	7/1	1	100.00
Mississippi Baptist Hospital ¹	Jackson, Miss.	T. Blake	C	1,687	..	15	..	1	7/1	1	..
University Hospitals	Columbia, Mo.	W. J. Stewart	C	67	1,254	..	..	1	7/1	1	..
Children's Mercy Hospital	Kansas City, Mo.	N. Pickard	C	262	3,193	..	..	2	7/1	1	..
Kansas City General Hospital No. 1 ¹	Kansas City, Mo.	R. L. Dively	AF	951	4,906	43	13	2	7/1	1 1/2	50.00
St. Luke's Hospital ^{1,2}	Kansas City, Mo.	R. Dively and F. Dixon	ACF	462	..	5	..	1	7/1	2 1/2	..
Barnes	St. Louis	J. A. Key	ACFS	801	3,631	12	7	2	7/1	3	25.00
St. Louis	St. Louis	F. H. Albrecht	F	929	3,390	114	1	2	7/1	1 1/2	55.00
St. Mary	St. Louis	F. H. Albrecht	ACFS	499	3,633	8	3	5	7/1	3	35.00
Shriners Hospital for Crippled Children	St. Louis	C. H. Crego, Jr.	C	332	1,772	1	..	2	7/1	1	..
Nebraska Orthopedic Hospital ¹	Lincoln, Neb.	H. W. Orr	C	753	2,252	10	..	2	7/26	1	..
University of Nebraska Hospital ^{1,2}	Omaha	R. D. Schrock	ACFS	184	711	4	4	3	7/1	3	75.00
Jersey City Hospital ^{1,2}	Jersey City, N. J.	H. C. Benjamin	ACF	751	10,696	44	5	3	7/1	2	..
Monmouth Memorial Hospital ^{1,2,3}	Long Branch, N. J.	N. S. Ransloff	ACF	880	2,074	14	9	3	7/1	2 1/2	100.00
Hospital for Crippled Children	Newark, N. J.	T. Nicola	AC	..	..	..	2	..	7/1	2	..
New Jersey Orthopedic Hospital	Orange, N. J.	H. W. Smith	AC	800	14,549	4	3	2	1/1	2	90.00
Orthopaedic Hospital and Dispensary	Trenton, N. J.	R. B. Ernest	A	325	5,317	6	..	1	7/1	1	150.00
Carrie Tingley Hospital for Crippled Children	Hot Springs, N. Mex.	W. L. Minear	C	..	..	..	2	..	1/1	1	41.67
Albany Hospital ^{1,2}	Albany, N. Y.	J. W. Ghormley	A	397	638	11	4	2	7/1	1	100.00
Binghamton City Hospital ¹	Binghamton, N. Y.	C. A. Allaben	AC	431	..	1	..	1	7/1	2	..
House of St. Giles the Cripple	Brooklyn	..	..	..	..	..	..	..	7/1	1	..
Jewish Hospital ^{1,2}	Brooklyn	Koven and Milgram	AFS	1,197	6,941	8	4	1	10	2	55.00
Kings County Hospital ^{1,2}	Brooklyn	H. C. Fett	ACFS	439	7,652	6	2	3	7/1	3	80.00
Long Island College Hospital ^{1,2}	Brooklyn	H. C. Fett	ACFS	393	6,575	5	1	3	7/1	2	25.00
Methodist Hospital ^{1,2}	Brooklyn	H. P. Lange	AF	447	816	4	2	1	7/1	1 1/2	..
St. Charles Hospital Orthopedic Clinic	Brooklyn	H. D. Pett	C	224	1,871	3	..	1	7/1	1	100.00
Buffalo General Hospital ¹	Buffalo	F. N. Potts	AFS	719	694	16	5	6	7/1	2	25.00
Children's Hospital	Buffalo	F. N. Potts	C	265	..	1	2	2	7/1	1	60.00
Edward J. Meyer Memorial Hospital ^{1,2}	Buffalo	P. Bianco	AFS	131	1,300	1	..	3	7/1	2	100.00
Millard Fillmore Hospital ¹	Buffalo	J. P. Cole	A	618	..	6	..	1	7/1	1	50.00
Meadowbrook Hospital ¹	Hempstead, N. Y.	O. C. Hudson	F	622	..	51	29	1	7/1	1 1/2	115.00
Queens General Hospital ^{1,2}	Mineola, N. Y.	F. C. Courten	AFS	290	12,306	18	7	4	7/1	2	80.00
Nassau Hospital ^{1,2}	Mineola, N. Y.	..	..	1,033	..	2	..	1	7/1	1 1/2	..
Bellevue Hospital, Div. IV—Open Div. ^{1,2}	New York City	A. Krida	AF	310	3,182	2	..	2	7/1	2	60.00
Flower and Fifth Avenue Hospitals ^{1,2}	New York City	A. H. Bingham	AF	305	1,000	3	..	1	7/1	1 1/2	..
Hospital for Joint Diseases ^{1,2,3}	New York City	..	..	2,797	35,932	13	4	10	7/1	3	40.00
Hospital for Special Surgery	New York City	P. Wilson	ACFS	1,479	23,648	4	3	11	7/1	3	60.00
Lenox Hill Hospital ^{1,2}	New York City	W. Galland and A. Wiesenhal	AF	414	..	6	1	2	7/1	1 1/2	50.00
Metropolitan Hospital ^{1,2}	New York City	M. J. Wilson	AFS	739	2,180	30	..	3	7/1	2	150.00
Mount Sinai Hospital ^{1,2}	New York City	R. K. Lippmann	AFS	..	..	..	..	3	7/1	2	50.00
Presbyterian Hospital ^{1,2}	New York City	A. DeF. Smith	ACFS	1,776	65,193	3	..	25	7/1	3	41.66
St. Luke's Hospital ^{1,2}	New York City	M. Cleveland	ACFS	714	4,938	5	2	3	7/1	3	50.00
St. Charles Hospital for Crippled Children	Port Jefferson, N. Y.	F. S. Child	O	393	..	1	..	2	7/1	1	..
Rochester General Hospital ^{1,2}	Rochester, N. Y.	H. B. Crawford	A	859	1,452	14	10	1	7/1	1	70.00
Strong Memorial-Rochester Municipal Hospitals ^{1,2}	Rochester, N. Y.	R. P. Schwartz	ACFS	857	5,031	..	..	7	7/1	3	45.00
Rehabilitation Hospital ¹	W. Haverstraw, N. Y.	J. C. McCauley, Jr.	AO	415	597	2	..	4	7/1	2	200.00
Charlotte Memorial Hospital ¹	Charlotte, N. O.	H. Winkler	A	1,215	1,016	9	4	4	7/1	1	..
Duke Hospital ^{1,2,3}	Durham, N. C.	L. D. Baker	ACFS	740	4,341	..	..	16	7/1	3	83.33
North Carolina Orthopedic Hospital	Gastonia, N. C.	W. M. Roberts	O	590	4,930	32	..	3	7/1	1	..
North Carolina Baptist Hospital ^{1,2}	Winston-Salem, N. C.	R. A. Moore	AFS	383	5,490	2	..	1	8/1	2	..
Children's Hospital	Akron, Ohio	P. A. Doran	C	71	833	..	..	2	7/1	1	100.00
City Hospital ¹	Akron, Ohio	..	AF	507	418	28	6	4	7/1	1 1/2	100.00
Children's Hospital	Cincinnati	J. A. Freiberg	O	..	..	..	..	..	7/1	1	..
Cincinnati General Hospital ¹	Cincinnati	J. Freiberg	AFS	201	2,952	5	..	4	7/1	2	..
Jewish Hospital ^{1,2}	Cincinnati	J. A. Freiberg	A	421	..	9	6	1	7/1	1	75.00
Cleveland Clinic Hospital ¹	Cleveland	J. A. Dickson	ACFS	571	12,759	5	..	7	7/1	3	100.00
Mount Sinai Hospital ¹	Cleveland	R. S. Reich	AF	955	1,670	5	3	2	10/1	1 1/2	65.00
St. Luke's Hospital ¹	Cleveland	T. A. Willis	AFS	1,077	2,232	19	5	2	6/25	2	60.00
University Hospitals ¹	Cleveland	M. Harbin	ACFS	589	3,356	3	..	1	7/1	3	25.00
Children's Hospital ¹	Columbus, Ohio	E. H. Wilson	G	436	3,589	3	..	2	7/1	1	..
Mount Carmel Hospital ¹	Columbus, Ohio	E. H. Wilson	AF	1,119	2,081	20	4	1	1/1	1 1/2	110.00
White Cross Hospital ¹	Columbus, Ohio	J. D. Wilson	AF	762	502	11	1	2	7	1 1/2	100.00
St. Vincent's Hospital ¹	Toledo, Ohio	A. L. Bershon	ACFS	857	239	17	6	2	7	3	100.00
Youngstown Hospital ¹	Youngstown, Ohio	R. R. Morrill	AFS	1,054	1,403	34	8	1	7/1	2	100.00
Bone and Joint Hospital-McBride Clinic	Oklahoma City	E. D. McBride	A	1,504	31,224	12	3	4	7/1	1	150.00
St. Anthony's Hospital ¹	Oklahoma City	W. K. West	A	898	1,500	17	4	1	1/1	1	75.00
University Hospitals ¹	Oklahoma City	D. H. O'Donoghue	ACFS	933	6,965	9	..	4	7/1	3	35.00
Emanuel Hospital ¹	Portland, Ore.	H. E. Davis	AF	869	..	1	..	3	7/1	1 1/2	75.00
Shriners Hospital for Crippled Children	Portland, Ore.	L. S. Lucas	O	456	1,529	..	..	2	7/1	1	..
University of Oregon Medical School Hospitals and Clinics ¹	Portland, Ore.	L. S. Lucas	AFS	443	5,462	32	19	7	7/1	2	75.00
State Hospital for Crippled Children	Elizabethtown, Pa.	..	C	204	1,945	1	1	2	7/1	1	192.50
Hamot Hospital ^{1,2}	Erie, Pa.	A. G. Davis	AF	1,379	1,330	19	11	2	12/15	1 1/2	150.00
Children's Hospital of Philadelphia ¹	Philadelphia, Pa.	J. T. Nicholson	C	137	2,123	..	..	1	7/1	1	..
Graduate Hospital of the University of Pennsylvania ¹	Philadelphia	..	AS	156	1,383	2	..	1	7/1	1 1/2	..
Hahnemann Hospital ¹	Philadelphia	E. D. Geckeler	AFS	612	4,815	4	2	5	7/1	2	25.00
Hospital of the University of Pennsylvania ¹	Philadelphia	P. C. Colonna	ACFS	562	4,930	4	3	7	Varies	3	20.00
Jefferson Medical College Hospital ¹	Philadelphia	J. R. Martin	AFS	589	4,862	11	1	4	7/1	2	..
Philadelphia General Hospital ¹	Philadelphia	..	ACFS	753	..	112	..	5	7/1	3	70.00
Shriners Hospital for Crippled Children ¹	Philadelphia	J. R. Moore	C	230	2,623	1	..	2	7/1	1	50.00
Temple University Hospital ¹	Philadelphia	J. R. Moore	AFS	935	3,912	18	6	4	7/1	2	..
Allegheny General Hospital ¹	Pittsburgh	P. B. Steele	ACFS	933	1,908	11	2	2	7/1	3	100.00
Children's Hospital ¹	Pittsburgh	W. O. Markell	C	312	2,755	..	..	1	7	1	45.00
Presbyterian Hospital ^{1,2}	Pittsburgh	J. S. Donaldson	AFS	312	..	..	..	1	7/1	2	41.67
St. Francis Hospital ¹	Pittsburgh	C. C. Yount	A	284	3,182	1	1	1	7/1	1	100.00
Rending Hospital ^{1,2}	Rending, Pa.	E. J. Morrissey	AF	592	559	22	11	1	7/1	1 1/2	100.00
Robert Packer Hospital ¹	Sayre, Pa.	G. Hammond	ACFS	850	4,533	27	17	3	7/1	3	150.00
Rhode Island Hospital ¹	Providence, R. I.	H. McCusker	ACFS	595	3,282	2	..	1	7/1	3	..
Roper Hospital ¹	Charleston, S. C.	F. A. Hoshall	ACFS	745	3,033	6	2	2	7/1	3	25.00

15. ORTHOPEDIC SURGERY—Continued

Name of Hospital	Location	Chief of Service	Type of Training ¹¹	Inpatients Treated	Outpatient Visits	Deaths	Autopsies	Asst. Res. and Residents Offered ⁸	Beginning of Service (1949)	Length of Approved Program (Years)	Beginning Stipend (Month)
Columbia Hospital* ¹	Columbia, S. C.	W. A. Boyd	AC	1,190	5,788	17	..	1	7/1	2	\$ 75.00
Greenville General Hospital* ¹	Greenville, S. C.	J. W. White	AF	717	1,390	1	..	1	7/1	1½	100.00
Shriners Hospital for Crippled Children ¹	Greenville, S. C.		C	318	1,764	..	..	2	7/1	1	100.00
Baroness Erlanger Hospital* ¹	Chattanooga, Tenn.		AF	1,064	1,322	22	4	1		1½	.....
Willis C. Campbell Clinic Hospital	Memphis, Tenn.	J. S. Speed	ACFS	1,804	17,590	13	..	12	1/1, 7/1	3	50.00
Baylor University Hospital* ¹	Dallas, Texas	F. L. Butte	A	846	617	5	1	2	7/1	1	50.00
Parkland Hospital	Dallas, Texas		F	.....	.....	..	..	2		½	.....
Texas Scottish Rite Hospital for Crippled Children	Dallas, Texas	B. Carrell	C	651	4,982	1	..	4	7/1	1	75.00
Harris Hospital* ¹	Fort Worth, Texas	C. F. Clayton	AF	528	2,710	1	..	1	7/1	1½	100.00
University of Texas Medical Branch Hospitals*	Galveston, Texas	G. W. N. Eggers	AFS	526	4,459	8	4	3	7	2	50.00
Hermann Hospital*	Houston, Texas	E. T. Smith	AF	403	926	5	2	3	.....	1½	50.00
Jefferson Davis Hospital* ¹	Houston, Texas	J. M. Miltner	F	693	3,279	21	4	1	7/1	1½	50.00
Methodist Hospital* ¹	Houston, Texas		C	378	1,010	3	..	1	.....	1	.....
St. Joseph's Infirmary*	Houston, Texas	J. B. Foster	AF	3,311	5,130	39	10	1	.....	1½	.....
Scott and White Hospital*	Temple, Texas		AF	.....	.....	..	..	1	.....	1½	.....
St. Mark's Hospital* ^{1,3}	Salt Lake City, Utah	P. A. Pemberton	C	778	101	..	..	1	10/1	1	100.00
Salt Lake County General Hospital* ¹	Salt Lake City, Utah		FS	(Included in Surgery)						1	.....
University of Virginia Hospital* ¹	Charlottesville, Va.	R. Funsten	ACFS	580	4,025	6	2	4	7/1	3	41.33
Crippled Children's Hospital ¹	Richmond, Va.		C	.....	.....	..	..	2	.....	1	.....
Medical College of Virginia, Hospital Division* ¹	Richmond, Va.	H. P. Mauck	AFS	1,264	3,620	20	5	6	7/1	2	46.50
Children's Orthopedic Hospital ³⁰	Seattle	J. LeCocq	C	560	4,900	1	1	2	.....	1	.....
King County Hospital* ³⁰	Seattle	R. Anderson	AF	833	5,004	36	4	1	7/1	1½	90.00
Providence Hospital* ^{1,30}	Seattle	I. O. McLemore	A	591	.....	1	..	1	7/1	1	100.00
Swedish Hospital* ³⁰	Seattle	J. LeCocq	AF	1,096	.....	..	..	1	.....	1½	.....
Shriners' Hospital for Crippled Children	Spokane, Wash.	N. R. Brown	C	98	716	..	..	1	7	1	.....
Charleston General Hospital* ¹	Charleston, W. Va.	G. Miyakawa	AF	886	6,174	7	4	2	7/1	1½	100.00
St. Mary's Hospital*	Huntington, W. Va.	F. A. Scott	AF	973	747	5	2	1	4/1	1½	100.00
Morris Memorial Hospital	Milton, W. Va.	C. B. Smith	C	414	40	..	..	2	7/1, 11/1	1	100.00
State of Wisconsin General Hospital* ¹	Madison, Wis.	R. E. Burns	ACFS	1,340	5,698	15	9	5	7	3	25.00
Columbia Hospital*	Milwaukee, Wis.	H. C. Schumm	AFS	597	.....	5	4	3	.....	2	.....
Milwaukee Children's Hospital	Milwaukee, Wis.	A. C. Schmidt	C	.....	.....	..	..	7		1	.....
Shriners Hospital for Crippled Children	Honolulu, Hawaii	R. N. Hatt	O	186	3,761	1	..	1	1/1	1	.....

16. OTOLARYNGOLOGY

(See Ophthalmology)

17. PATHOLOGY

The services listed below are approved by the Council and the American Board of Pathology. These programs presently are being reappraised in accordance with the place of training announced by the Board on February 1, 1949.

Services which have been evaluated on the basis of training in the two categories, pathologic anatomy and clinical pathology, are designated as follows: pathologic anatomy only—a; clinical pathology only—c; pathologic anatomy and clinical pathology—p. Training in hospitals which are not so designated in this list will be evaluated by the Board on an individual basis (at the time of application for certification).

Hospitals, 403; Assistant Residencies and Residencies, 1,017

Name of Hospital	Location	Chief of Service	Inpatients Treated ⁸	Surgical Specimens	Number Examined Microscopically	Autopsies	Asst. Res. and Residencies Offered ⁸	Beginning of Service (1949)	Length of Approved Program (years)	Beginning Stipend (Month)
United States Army										
Letterman General Hospital*	San Francisco	K. F. Ernest	10,628	3,838	3,343	115	4	.....	3	n
Fitzsimons General Hospital*	Denver	H. W. Mahon	15,510	2,960	2,960	182	3	.....	3	n
Army Institute of Pathology ¹	Washington, D. C.	H. F. Smetana		26,803	26,803	7,081	1	.....	1a	n
Walter Reed General Hospital*	Washington, D. C.	V. H. Cornell	10,478	5,405	5,324	186	3	1, 7	3	n
Oliver General Hospital*	Augusta, Ga.	J. M. Blumberg	8,250	4,436	4,436	36	3	1/1, 7/1	3	n
Brooke General Hospital*	San Antonio, Texas	E. DeCoursey	29,218	3,668	3,668	256	4	.....	3	n
Gorgas Hospital*	Ancon, C. Z.	F. A. Mantz	11,773	2,555	2,555	201	4	7/1	3	n
United States Navy										
U. S. Naval Hospital*	Long Beach, Calif.	J. L. Zundell	21,186	3,382	3,382	196	2	Varies	3	n
U. S. Naval Hospital*	Oakland, Calif.	J. S. Shaver	17,320	.....	.....	100	3	.....	3	n
U. S. Naval Hospital*	San Diego, Calif.	A. W. Eaton	21,354	2,785	2,785	203	3	.....	3	n
U. S. Naval Hospital*	Bethesda, Md.	W. M. Silliphant	15,373	5,449	.....	232	2	.....	3	n
U. S. Naval Hospital	Brooklyn		.....	.....	.....	.....	2	.....	1	n
U. S. Naval Hospital*	St. Albans, N. Y.	D. J. Cracovaner	7,258	1,430	.....	99	4	.....	3	n
U. S. Naval Hospital*	Philadelphia	T. W. Bennett	16,333	2,376	2,376	242	3	.....	3	n
United States Public Health Service										
U. S. Marine Hospital* ¹	New Orleans	L. L. Swan	6,724	2,213	1,729	75	1	7/1	2p	n
U. S. Marine Hospital* ¹	Baltimore	C. H. Binford	8,474	14,532	14,532	151	2	7/1	3	n
National Institute of Health	Bethesda, Md.		.....	.....	.....	.....	.....	.....	1a	.....
U. S. Marine Hospital	New York City	L. Winkelmann	5,012	.....	.....	19	.....	.....	2p	n
U. S. Marine Hospital* ¹	Stapleton, S. I., N. Y.	L. H. Sophian	12,602	2,278	2,278	94	3	7/1	2p	n
U. S. Marine Hospital*	Seattle, Wash.	G. E. Tooley	5,536	1,272	809	130	1	7/1	2p	n
Veterans Administration										
Veterans Admin. Hospital ¹	Los Angeles	L. Kaplan	13,561	9,097	7,696	456	8	.....	3	n
Veterans Admin. Hospital ¹	Van Nuys, Calif.	B. E. Konwaler	7,061	4,733	4,733	224	2	1/1, 7/1	3	n
Veterans Admin. Hospital ¹	Washington, D. C.	H. Rapaport	3,490	1,303	1,121	106	3	7/1	3	n
Veterans Admin. Hospital ¹	Chamblee, Ga.	L. N. Foster	6,451	1,999	1,999	154	2	7/1	2a, 3c	n
Veterans Admin. Hospital	Hines, Ill.	K. Costich	23,682	5,599	5,599	584	2	.....	3	n
Veterans Admin. Hospital ¹	Indianapolis, Ind.	D. Rosenbaum	4,899	.....	.....	127	.....	.....	2p	n
Veterans Admin. Hospital	Des Moines, Iowa	K. R. Cross	5,351	1,590	1,590	129	3	7	3	n
Veterans Admin. Center ¹	Wadsworth, Kan.	C. J. Weber	8,062	2,945	2,908	270	4	1, 7	4p	n

17. PATHOLOGY—Continued

Name of Hospital	Location	Chief of Service	Inpatients Treated ^a	Surgical Specimens	Number Examined Microscopically	Autopsies	Asst. Res. and Refs. Offered ^c	Beginning of Service (Year)	Length of Approved Program (Years)	Beginning Stipend (Month)
Veterans Admin. Hospital ¹	Louisville, Ky.	H. Gordon	9,570	3,648	3,643	151	2	.....	2 ^p	n
Veterans Admin. Hospital ¹	New Orleans, La.	J. Ziskind	5,204	1,548	1,548	127	4	7/1	2 ^p	n
Veterans Admin. Hospital ¹	Fort Howard, Md.	W. B. Van de Grift	3,677	700	700	129	2	.....	2 ^p	n
Veterans Admin. Hospital ¹	Boston	J. D. Houghton	5,744	1,955	1,897	137	2	7	2 ^p	n
Veterans Admin. Hospital ¹	Framingham, Mass.	R. Feinberg	6,155	2,057	2,032	136	2	7/1	2 ^p	n
Veterans Admin. Hospital ¹	Dearborn, Mich.	H. J. Linn	6,048	1,906	1,890	209	1	7/1	2 ^p	n
Veterans Admin. Hospital ¹	Minneapolis, Minn.	W. Subby	10,144	3,946	3,866	262	3	.....	4 ^p	u
Veterans Admin. Hospital ¹	Jefferson Bks, Mo.	.....	7,735	2,780	2,330	179	2	.....	4 ^p	u
Veterans Admin. Hospital ¹	New York City	B. Gordon	9,977	4,215	4,215	314	3	7	4 ^p	n
Veterans Admin. Hospital ¹	Staten Island, N. Y.	O. Auerbach	5,290	2,736	2,736	130	3	7/1	1	u
Veterans Admin. Hospital ¹	.....	.....	4,090	.....	.....	124	1	.....	1 ^p	n
Veterans Admin. Hospital ¹	Cleveland	J. R. Kahn	8,698	5,641	5,641	101	1	.....	3 ^p	u
Veterans Admin. Hospital ¹	Aspinwall, Pa.	G. J. Brimley	7,550	88	1,412	229	2	7/1	4 ^p	n
Veterans Admin. Hospital ¹	Columbia, S. C.	.....	6,263	970	164	114	.....	.....	3 ^c	n
Veterans Admin. Hospital ¹	Memphis, Tenn.	D. J. Greiner	10,245	3,826	3,282	187	3	7/1	4 ^p	n
Veterans Admin. Hospital ¹	Nashville, Tenn.	S. H. Auerbach	6,087	1,455	1,309	64	1	7/1	1 ^p	u
Veterans Admin. Hospital ¹	Dallas, Texas	J. Furth	3,483	.....	.....	74	.....	.....	3 ^p	n
Veterans Admin. Hospital ¹	McKinney, Texas	O. J. Wollenman	5,095	1,357	1,357	115	3	.....	2 ^p	n
Veterans Admin. Hospital ¹	Salt Lake City	E. J. Eichwald	3,129	1,119	1,096	90	2	7	1 ^p	n
Veterans Admin. Hospital ¹	Richmond, Va.	J. R. Kriz	7,346	1,748	1,748	134	1	7/1	2 ^p	n
Veterans Admin. Center ¹	Milwaukee, Wis.	J. M. Lubitz	7,837	2,027	1,678	229	2	.....	4 ^p	n
Nonfederal										
Baptist Hospital ¹	Birmingham, Ala.	A. E. Casey	8,434	4,268	4,254	69	2	7/1	4 ^p	\$200.00
Jefferson-Hillman Hospital ¹	Birmingham, Ala.	R. D. Baker	21,818	4,090	4,087	306	4	.....	4 ^p	.....
Employees' Hospital of the Tennessee Coal, Iron and R.R. Company*	Fairfield, Ala.	L. C. Posey and J. A. Cunningham	8,675	1,502	1,485	145	1	7/1	1 ^p	225.00
University Hospital ¹	Little Rock	A. Nettleship	4,392	4,380	4,380	127	5	7/1	3	.....
Kern General Hospital ¹	Bakersfield, Calif.	J. D. Kirshbaum	2,440	1,704	1,704	.....	1	7/1	4	.....
Herrick Memorial Hospital ¹	Berkeley, Calif.	H. R. Fishback	7,241	.....	.....	124	.....	.....	2 ^p	.....
Glendale Sanitarium and Hospital*	Glendale, Calif.	A. F. Brown	7,506	1,750	1,312	86	1	7/1	1 ^p	160.00
Loma Linda Sanitarium and Hospital*	Loma Linda, Calif.	C. S. Small	5,003	2,485	2,237	61	6	7/1	3 ^p	150.00
California Hospital ¹	Los Angeles	A. Wright	14,418	5,789	4,302	179	1	7/1	3 ^p	200.00
Cedars of Lebanon Hospital ¹	Los Angeles	N. B. Friedman	11,224	5,226	4,091	163	2	.....	3 ^p	50.00
Childrens Hospital*	Los Angeles	R. F. Kutti	6,050	439	419	140	2	.....	1 ^p	.....
Hospital of the Good Samaritan*	Los Angeles	R. W. Hammack and G. D. Maner	12,249	4,741	2,700	131	1	.....	1 ^p	.....
Los Angeles County Hospital ¹	Los Angeles	E. M. Butt	62,163	8,485	7,615	1,864	6	Varies	3 ^p	165.00
Queen of Angels Hospital*	Los Angeles	A. R. Camero	17,065	5,143	3,085	215	.....	.....	3	.....
St. Vincent's Hospital*	Los Angeles	J. E. Kahler	17,586	3,345	2,728	124	1	7/1	1	.....
White Memorial Hospital*	Los Angeles	O. B. Pratt	9,174	5,300	3,499	126	3	7/1	3	140.00
Highland-Alameda County Hospital*	Oakland, Calif.	R. J. Parsons	11,433	1,975	1,912	362	3	.....	3	100.00
Permanent Foundation Hospital*	Oakland, Calif.	M. Friedman	11,572	4,587	3,057	148	1	.....	3	.....
Collis P. and Howard Huntington Memorial Hospital*	Pasadena, Calif.	A. G. Foord	9,482	6,341	5,430	216	3	Varies	3	.....
Merced Hospital*	San Diego, Calif.	D. A. DeSanto	13,316	.....	.....	98	1	7/1	1	150.00
San Diego County General Hospital*	San Diego, Calif.	H. A. Ball	8,754	1,479	1,264	248	1	7/1	1	125.00
French Hospital*	San Francisco	G. Watson	6,074	2,179	2,043	86	1	7	1	.....
Mount Zion Hospital*	San Francisco	G. R. Biskind	5,725	2,207	1,579	125	2	7/1	1	50.00
San Francisco Hospital	San Francisco	J. L. Carr	20,762	.....	.....	396	2	.....	.....	175.00
Stanford University Hospital*	San Francisco	A. J. Cox	11,593	2,436	2,436	144	3	7/1	3	50.00
University of California Hospital*	San Francisco	J. F. Rinehart	7,891	3,615	3,615	158	2	7/1, 8/1, 9/1	.....	50.00
Santa Clara County Hospital*	San Jose, Calif.	D. J. Stump	5,809	1,839	1,688	208	1	7/1	2 ^p	235.00
Santa Barbara Cottage Hospital*	Santa Barbara, Calif.	W. O. Russell	6,584	3,415	2,032	113	2	7/1	3	100.00
Glockner-Penrose Hospital*	Colorado Spgs., Colo.	.....	.....	.....	.....	.....	.....	.....	1 ^p	.....
Children's Hospital ¹	Denver	H. D. Palmer	10,394	2,556	2,478	106	1	5	3 ^p	50.00
Presbyterian Hospital*	Denver	A. E. Lubechenco	7,339	.....	.....	118	.....	.....	1 ^a	.....
St. Luke's Hospital*	Denver	W. C. Black	11,144	8,266	4,811	124	1	5/1	3 ^p	50.00
University of Colorado Medical Center	Denver	.....	.....	.....	.....	.....	.....	.....	4 ^p	.....
Colorado General Hospital*	Denver	J. B. McNaught	4,913	2,179	2,150	270	7	7/1	.....	95.00
Denver General Hospital*	Denver	A. Lapi	10,385	1,780	1,465	395	2	.....	.....	40.00
Colorado State Hospital ¹	Pueblo, Colo.	M. Gallavan	1,089	228	226	186	3	.....	1	275.00
Bridgeport Hospital*	Bridgeport, Conn.	I. B. Akerson	12,025	3,086	3,086	162	1	1/1	3	100.00
Hartford Hospital*	Hartford, Conn.	R. E. Kendall	25,110	9,025	8,255	363	3	7/1	3	50.00
St. Francis Hospital*	Hartford, Conn.	L. P. Hastings	18,024	4,773	4,170	166	3	1, 7	1	75.00
New Britain General Hospital*	New Britain, Conn.	P. D. Rosahn	7,377	2,056	922	101	2	.....	3	75.00
Grace-New Haven Community Hospital	New Haven, Conn.	A. Snoke	11,336	4,769	4,500	354	8	7/1	3	40.00
New Haven Unit (University Service)*	New Haven, Conn.	R. R. Nesbit	11,838	2,845	2,656	107	.....	.....	2 ^p	.....
Hospital of St. Raphael*	Norwalk, Conn.	R. N. Barnett	7,962	2,120	2,006	100	2	7/1	1	155.00
Norwalk Hospital*	Stamford, Conn.	J. G. Snively	7,199	2,269	1,742	179	.....	.....	3 ^p	.....
Stamford Hospital*	Waterbury, Conn.	J. O. Collins	12,773	8,090	5,376	162	.....	7/1	2 ^p	100.00
Waterbury Hospital*	Wilmington, Del.	J. W. Howard	9,839	3,611	3,892	185	2	7/1	3	90.00
Delaware Hospital*	Wilmington, Del.	J. W. Hooker	5,852	2,311	2,311	142	1	7/1	2	110.00
Memorial Hospital*	Washington, D. C.	.....	7,709	403	278	118	2	7/1	1	50.00
Children's Hospital	Washington, D. C.	O. B. Hunter	8,839	4,279	3,246	162	1	.....	1	.....
Doctors' Hospital*	Washington, D. C.	A. R. Monaco	22,566	2,495	2,540	600	1	7/1	3	.....
Gallinger Municipal Hospital*	Washington, D. C.	E. C. Rice	10,251	.....	.....	160	1	.....	3	.....
Garfield Memorial Hospital*	Washington, D. C.	C. G. Geschickter	8,274	1,726	1,726	105	12	.....	3	.....
.....	Washington, D. C.	T. M. Peery	3,941	1,611	1,611	59	3	7/1	3	50.00
.....	Washington, D. C.	H. H. Leffler	11,331	5,589	2,639	230	1	.....	3	75.00
.....	Washington, D. C.	O. B. Hunter	11,881	3,929	3,665	202	1	7/1	.....	100.00
St. Vincent's Hospital*	Jacksonville, Fla.	M. A. Murray	9,695	3,528	2,691	93	.....	.....	1	.....
Jackson Memorial Hospital*	Miami, Fla.	P. R. Rezek	17,904	4,584	3,618	408	3	7/1	3	60.00
Crawford W. Long Memorial Hospital*	Atlanta, Ga.	D. Ayer	17,129	4,347	4,265	100	3	7/1	4 ^p	75.00
Grady Memorial Hospital*	Atlanta, Ga.	W. Sheldon	17,490	5,274	5,274	562	3	7/1	3	.....
University Hospital*	Augusta, Ga.	W. L. Sheppard and E. R. Pund	15,311	3,266	2,833	93	1	.....	3	.....
Emory University Hospital*	Emory University, Ga.	W. Sheldon	9,555	2,680	2,680	150	4	.....	3	.....
Alexian Brothers' Hospital*	Chicago	J. P. Simonds	4,821	.....	.....	96	.....	.....	1 ^p	.....
Augustana Hospital*	Chicago	G. Miles	8,074	3,463	2,507	166	1	7/1	3 ^p	50.00
Children's Memorial Hospital ¹	Chicago	J. P. Simonds	4,553	316	316	105	1	1	1	77.50
City of Chicago Municipal Tuberculosis Sanitarium	Chicago	G. W. Drymalski	1,385	610	844	144	2	.....	1	.....
Cook County Hospital*	Chicago	H. Popper	80,962	7,852	7,459	1,356	23	1, 7	3	32.00

Numerical and other references will be found on page 225.

17. PATHOLOGY—Continued

Name of Hospital	Location	Chief of Service	Inpatients Treated	Surgical Specimens	Number Examined Microscopically	Autopsies	Asst. Res. and Residencies Offered	Beginning of Service (1949)	Length of Approved Program (Years)	Beginning Stipend (Month)
Englewood Hospital*	Chicago	L. Grams	7,450	1,575	1,407	61	..	..	..	..
Grant Hospital*	Chicago	C. C. Mason and H. A. Grimm	7,093	3,300	3,000	133	1	7/1	2P	\$145.00
Illinois Masonic Hospital*	Chicago	L. S. King	7,378	2,021	1,959	185	3	..	3P	..
Mersey Hospital-Loyola University Clinics*	Chicago	E. Loettler	9,901	3,145	2,785	129	1	..	3	25.00
Michael Reese Hospital*	Chicago	O. Saphir	16,267	4,850	4,850	421	15	1/1, 7	3	25.00
Mount Sinai Hospital*	Chicago	I. Davidsohn	9,005	5,017	4,174	155	3	2, 7	3P	50.00
Norwegian-American Hospital*	Chicago	A. Learner	6,072	2,350	1,700	82	1	7	1	150.00
Passavant Memorial Hospital*	Chicago	M. Wheelock	6,520	1,989	1,959	80	2	..	3	..
Presbyterian Hospital*	Chicago	G. M. Hass	12,374	4,524	4,524	213	2	..	3	50.00
Provident Hospital*	Chicago	E. F. Hirsch	5,000	1,183	1,183	103	1	..	1	..
Ravenswood Hospital*	Chicago	..	..	1,090	1,753	..	1	1/1, 7/1	2P	60.00
Research and Educational Hospitals*	Chicago	G. A. Bennett	6,724	3,325	3,325	177	3	7/1	3	55.00
St. Luke's Hospital*	Chicago	E. F. Hirsch	15,538	6,914	5,500	259	8	..	3	..
University of Chicago Clinics*	Chicago	P. R. Cannon	12,845	4,454	3,910	261	2	7/1	3	25.00
Wesley Memorial Hospital*	Chicago	T. O. Lapply	15,009	4,024	4,017	246	5	..	4P	25.00
Evanston Hospital*	Evanston, Ill.	J. C. McCarter	8,040	2,542	2,326	178	2	..	3	50.00
St. Francis Hospital*	Evanston, Ill.	J. W. Henry	11,282	2,761	2,577	144	1	7/1	3	75.00
Methodist Hospital of Central Illinois*	Peoria, Ill.	D. O. Munsardt	7,191	5,010	3,454	69	1	7/1	1	150.00
St. Francis Hospital*	Peoria, Ill.	J. E. Kaus	14,582	4,350	2,817	231	1	7	3	150.00
St. Anthony's Hospital*	Rockford, Ill.	..	..	..	..	..	..	..	3P	..
St. Joseph Hospital*	Fort Wayne, Ind.	S. M. Rubson	9,316	2,846	2,312	100	2	..	2P	125.00
Indianapolis General Hospital*	Indianapolis	W. Dubin	10,505	2,461	2,210	369	2	7/1	3	100.00
Indiana University Medical Center*	Indianapolis	J. L. Aronson	9,817	3,492	3,412	326	6	7/1	3	63.33
Methodist Hospital*	Indianapolis	H. M. Banks	22,505	..	..	205	2	7/1	3	200.00
St. Elizabeth Hospital*	Lafayette, Ind.	J. M. McCadden	8,042	1,773	1,670	119	2	7/1	1	100.00
Ball Memorial Hospital*	Muncie, Ind.	L. G. Montgomery	8,751	5,621	5,016	210	3	7/1	4P	100.00
Memorial Hospital*	South Bend, Ind.	A. S. Gordon	8,059	1,600	1,269	127	1	..	3	150.00
Broadlawn Polk County Hospital*	Des Moines, Iowa	J. L. Mosberger	5,072	1,600	1,162	119	..	..	1P	..
Iowa Methodist Hospital*	Des Moines, Iowa	R. F. Birge	11,550	5,310	5,315	183	2	7/1	3	75.00
Mersey Hospital*	Des Moines, Iowa	E. C. Coleman	8,228	2,124	2,124	123	1	7/1	3P	100.00
University Hospitals*	Iowa City	E. D. Warner	20,255	4,597	4,597	294	3	7/1	3	50.00
University of Kansas Medical Center*	Kansas City, Kan.	H. R. Wahl	8,528	5,749	4,453	243	4	..	3	..
St. Francis Hospital*	Wichita, Kan.	O. A. Helwig	14,870	8,143	8,143	151	1	..	3	125.00
Louisville General Hospital*	Louisville, Ky.	A. J. Miller	8,369	2,665	2,061	164	3	7/1	3	45.00
Charity Hospital of Louisiana*	New Orleans	E. Moss	44,374	10,438	10,438	854	10	7/1	3	25.00
Hotel Dieu, Sisters' Hospital*	New Orleans, La.	R. M. Hartwell	11,268	4,475	4,475	163	..	..	4P	..
Southern Baptist Hospital*	New Orleans	E. Lawson	13,652	5,898	5,898	159	3	7/1	3P	150.00
Touro Infirmary*	New Orleans	A. Hertzog	14,234	4,846	4,846	183	3	..	3	17.50
Shreveport Charity Hospital*	Shreveport, La.	R. W. Mathews	4,833	3,201	3,201	277	1	..	1	..
Eastern Maine General Hospital*	Bangor, Me.	R. Wadsworth	7,596	5,075	4,576	112	2	7/1	2P	50.00
Maine General Hospital*	Portland, Me.	J. E. Porter	8,401	4,285	4,285	118	2	..	3	..
Baltimore City Hospital*	Baltimore	C. G. Warner	7,407	1,441	1,441	397	2	7/1	3	15.00
Johns Hopkins Hospital*	Baltimore	A. K. Rich	10,593	5,931	..	515	3	7/1	3	41.66
Sinai Hospital*	Baltimore	T. Weinberg	9,390	3,375	3,575	189	1	7/1	3	25.00
Union Memorial Hospital*	Baltimore	W. O. Merkel	9,261	2,164	2,164	153	..	..	2P	..
University Hospital*	Baltimore	H. R. Spencer	10,638	5,550	5,550	264	1	..	3A	..
Beverly Hospital*	Beverly, Mass.	D. E. Brown	5,206	1,384	1,384	131	1	1/1	3	50.00
Beth Israel Hospital*	Boston	M. J. Schlesinger	5,781	3,303	3,363	141	1	10/1	3	79.16
Boston City Hospital*	Boston	F. Parker, Jr.	36,421	5,431	5,431	944	5	..	3	..
Boston Lying-In Hospital*	Boston	A. T. Hertig	2,971	1,769	1,769	35	2	1/1	1	50.00
Children's Hospital*	Boston	S. Farber	9,250	1,514	1,514	245	12	Varies	..	41.67
Massachusetts General Hospital*	Boston	T. B. Mallory	7,390	10,213	..	291	3	..	3	..
Massachusetts Memorial Hospital*	Boston	R. Osgood	8,140	2,725	2,719	139	3	7/1	3	50.00
New England Deaconess Hospital*	Boston	S. Warren	7,624	8,837	8,837	110	3	..	3	..
Peter Bent Brigham Hospital*	Boston	A. R. Moritz	5,133	2,100	2,100	150	2	..	3	..
St. Elizabeth Hospital*	Boston	J. J. Larkin	7,127	2,260	1,844	74	1	..	1	..
Cambridge City Hospital*	Cambridge	R. Z. Schulz	5,724	1,149	1,149	165	1	7/1	1	53.33
Mount Auburn Hospital*	Cambridge, Mass.	H. E. MacMahon	6,831	2,136	2,136	100	1	1/1	1A	100.00
Lawrence General Hospital*	Lawrence, Mass.	L. S. Jolline	5,903	1,592	1,590	95	1	7/1	1A	100.00
Lynn Hospital*	Lynn, Mass.	H. Olken	7,090	..	..	102	..	..	1A	..
Salem Hospital*	Salem, Mass.	D. A. Nickerson	6,800	1,690	1,690	79	4	..	3	50.00
Pondville Hospital*	Walpole, Mass.	S. Warren	800	1,155	1,155	43	2	..	1	..
Worcester City Hospital*	Worcester, Mass.	R. H. Goodale	10,363	..	..	267	3	7/1, 1/1	4P	50.00
Worcester State Hospital*	Worcester, Mass.	..	889	89	89	36	1	..	3	..
University Hospital*	Ann Arbor, Mich.	C. V. Weller	17,348	963	963	433	3	7/1	3	111.80
Lella Y. Post Montgomery Hospital*	Battle Creek, Mich.	G. W. Schelm	7,401	3,025	3,025	69	1	7/1	3	..
City of Detroit Receiving Hospital*	Detroit	O. A. Briens	17,570	3,719	3,719	600	4	..	4P	..
Grace Hospital*	Detroit	C. I. Owen	27,178	12,624	12,624	295	2	7/1	3	75.00
Harper Hospital*	Detroit	P. F. Morse	20,937	10,570	10,570	185	3	..	3	..
Henry Ford Hospital*	Detroit	F. W. Hartman	17,224	6,852	6,852	204	3	..	3	..
Herman Kiefer Hospital*	Detroit	W. L. Brosius	7,927	405	405	169	1	7/1	1	368.00
Providence Hospital*	Detroit	D. H. Kaupn	13,691	8,830	8,830	271	2	7/1	3	140.00
St. Mary's Hospital*	Detroit	M. E. Maun	9,681	2,597	2,458	119	1	..	3	..
Woman's Hospital*	Detroit	D. Beaver	9,498	4,134	3,928	89	1	..	1	..
Wayne County General Hospital and Infirmary*	Eloise, Mich.	S. E. Gould	7,923	3,326	3,326	496	2	7/1	3	235.00
Hurley Hospital*	Flint, Mich.	G. R. Backus and R. J. Jernstad	15,774	4,915	3,146	158	1	..	3	..
Blodgett Memorial Hospital*	Grand Rapids, Mich.	C. A. Payne	5,556	4,198	3,974	95	1	7	1	100.00
Butterworth Hospital*	Grand Rapids, Mich.	P. A. VanPernis	11,481	5,104	2,623	162	1	7/1	1	100.00
St. Luke's Hospital*	Duluth, Minn.	A. H. Wells	10,160	..	..	288	1	..	3	..
St. Mary's Hospital*	Duluth, Minn.	W. V. Knoll	10,099	5,889	5,539	102	1	7/1	1	100.00
Minneapolis General Hospital*	Minneapolis	S. S. Barron	9,192	2,065	1,525	386	1	1/1, 7/1	3	115.00
Northwestern Hospital*	Minneapolis	S. Lofness	10,473	..	..	120	1	7/1	3	150.00
St. Barnabas Hospital*	Minneapolis	N. Lufkin	8,544	2,387	1,913	184	..	..	2P	..
Swedish Hospital*	Minneapolis	J. A. Williams	13,788	..	..	155	..	..	3P	..
University of Minnesota Hospitals*	Minneapolis	E. T. Bell	9,423	4,764	4,650	284	0	..	4P	..
Mayo Foundation	Rochester, Minn.	..	..	..	..	..	18	..	3	92.50
Acker Hospital*	St. Paul	J. F. Noble	7,339	1,108	850	143	2	7/1	1	91.50
Charles T. Miller Hospital*	St. Paul	K. Ikeda	8,733	4,264	3,981	132	1	..	3	..
St. Louis County Hospital*	Clayton, Mo.	W. G. Brown	3,279	1,179	953	170	1	..	3	..
Kansas City General Hospital No. 1*	Kansas City, Mo.	V. Buhler	11,074	2,491	2,091	414	4	7	3P	50.00
Menorah Hospital*	Kansas City, Mo.	R. Koritschoner	6,869	4,053	2,820	60	..	..	1P	200.00
Research Hospital*	Kansas City, Mo.	H. K. B. Alebach	8,029	3,891	3,733	150	1	7/1	3	100.00
St. Joseph Hospital*	Kansas City, Mo.	R. W. Kerr	12,484	6,214	3,770	179	1	..	3	..
St. Luke's Hospital*	Kansas City, Mo.	F. C. Helwig	11,232	7,097	5,535	146	10	..	4P	..
Barnes Hospital*	St. Louis	R. A. Moore	10,062	6,644	6,644	305	3	7/1	3	25.00

17. PATHOLOGY—Continued

Name of Hospital	Location	Chief of Service	Inpatients Treated	Surgical Specimens	Number Examined Microscopically	Autopsies	Asst. Res. and Residencies Offered	Beginning of Service (1946)	Length of Approved Program (Years)	Beginning Stipend (Month)
Homer G. Phillips Hospital ^{1,1}	St. Louis	S. H. Gray	15,715	1,841	1,600	183	1	.....	1	\$ 95.00
Jewish Hospital ^{1,1}	St. Louis	Gray	8,488	.....	.....	141	1	.....	1	50.00
Missouri Baptist Hospital ¹	St. Louis	W. E. B. Hall	11,114	5,381	2,303	95	1	7/1	2p	70.00
St. Louis City Hospital ^{1,1}	St. Louis	J. A. Saxton	17,714	3,329	3,329	513	4	7/1	3	95.00
St. Mary's Group of Hospitals ¹	St. Louis	H. Pinkerton	10,478	9,833	8,199	123	2	7/1	3	35.00
Montana Deaconess Hospital ¹	Great Falls, Mont.	E. Hildebrand	5,261	.....	.....	85	.....	.....	1p	.....
Lincoln General Hospital ^{1,1,1}	Lincoln, Neb.	F. H. Tanner	6,372	2,624	.....	73	1	.....	1	.....
Creighton Memorial St. Joseph's Hospital ^{1,1}	Omaha	C. B. Russum	12,529	19,900	17,800	125	1	7/1	3	100.00
Nebraska Methodist Hospital ^{1,1}	Omaha	J. Schenken	7,406	2,903	2,993	97	2	.....	4p	100.00
University of Nebraska Hospital ^{1,1}	Omaha	J. P. Tollman	3,094	1,464	1,464	136	2	.....	3	.....
Mary Hitchcock Memorial Hospital ^{1,1}	Hanover, N. H.	R. E. Miller	5,574	2,666	3,300	121	2	7/1	3	150.00
Elliot Hospital ¹	Manchester, N. H.	S. M. Brooks	3,654	2,122	1,421	53	1	.....	1a	.....
Atlantic City Hospital ¹	Atlantic City, N. J.	F. W. Konzelmann	8,314	2,314	2,314	122	1	7/1	1	30.00
Cooper Hospital ¹	Camden, N. J.	W. T. Read, Jr.	10,386	2,120	2,034	261	1	4/1	3	125.00
West Jersey Hospital ¹	Camden, N. J.	W. R. Platt	9,933	.....	.....	186	1	9/1	2	125.00
Jersey City Hospital ¹	Jersey City, N. J.	A. Gnassi	23,819	5,578	5,578	438	2	.....	1	.....
Monmouth Memorial Hospital ^{1,1}	Long Branch, N. J.	J. A. Ferguson	7,348	1,336	1,336	151	1	7/1	3p	.....
Mountainside Hospital ¹	Montclair, N. J.	J. L. Work	7,628	2,739	2,917	117	1	7/1	3p	100.00
Burlington County Hospital ¹	Mount Holly, N. J.	J. T. Bauer	3,066	636	636	91	1	7/1	1a	100.00
Hospital of St. Barnabas and for Women and Children ¹	Newark, N. J.	W. G. Bernhard	7,484	.....	.....	77	1	.....	2p	.....
Newark Beth Israel Hospital ¹	Newark, N. J.	W. Antopol	11,702	4,314	4,314	137	2	7/1	3	25.00
Newark City Hospital ^{1,1}	Newark, N. J.	H. S. Martland	12,076	.....	.....	318	1	.....	3p	.....
Passaic General Hospital ^{1,1}	Passaic, N. J.	J. Gannon	6,732	.....	.....	113	.....	.....	1p	.....
Paterson General Hospital ¹	Paterson, N. J.	A. H. Davis	9,641	.....	.....	127	1	.....	2p	.....
Muhlenberg Hospital ¹	Plainfield, N. J.	O. G. Darlington	8,842	.....	.....	97	.....	.....	1p	.....
Mercer Hospital ¹	Trenton, N. J.	T. K. Rathmell	7,372	1,258	1,366	90	1	7/1	2p	150.00
Albany Hospital ^{1,1}	Albany, N. Y.	A. W. Wright	15,099	6,610	6,610	359	4	7/1	3	41.67
Bender Hygienic Laboratory ¹	Albany, N. Y.	J. J. Clemmer	.....	10,606	10,606	309	5	7/1	3	150.00
Binghamton City Hospital ¹	Binghamton, N. Y.	V. Bergstrom	11,177	2,433	2,433	265	2	.....	3	.....
Beth-El Hospital ^{1,1}	Brooklyn	N. Mitchell	8,270	2,550	2,548	120	.....	.....	3p	.....
Brooklyn Hospital ¹	Brooklyn	J. A. deVeer	9,181	2,852	.....	140	2	7/1	3	25.00
Coney Island Hospital ^{1,1}	Brooklyn	H. Fink	6,105	1,400	1,400	136	2	7/1	3p	130.00
Cumberland Hospital ^{1,1}	Brooklyn	S. H. Polayes	8,842	1,254	2,508	161	1	.....	3	.....
Greenpoint Hospital ^{1,1}	Brooklyn	R. Aronoff	6,210	9,706	9,664	101	1	7	4p	130.00
Jewish Hospital ^{1,1}	Brooklyn	D. M. Grayzel	.....	6,027	4,999	.....	5	7	3	34.00
Kings County Hospital ^{1,1}	Brooklyn	C. G. Burn	2,509	9,518	9,518	919	7	7/1	3	80.00
Long Island College Hospital ^{1,1}	Brooklyn	W. H. Cook	9,748	2,928	2,928	101	3	7/1	3	25.00
Maimonides Hospital, Israel Zion Division ^{1,1}	Brooklyn	A. Kantowitz	11,216	2,475	2,475	98	2	7/1	3	.....
Methodist Hospital ^{1,1}	Brooklyn	J. S. Howe	9,839	2,893	2,893	111	1	7/1	1	.....
St. John's Hospital ^{1,1}	Brooklyn	R. Gettlinger	4,695	1,457	1,457	60	1	.....	1	.....
Buffalo General Hospital ¹	Buffalo	K. L. Terplan	11,221	4,937	4,927	269	5	7/1	3	25.00
Edward J. Meyer Memorial Hospital ^{1,1}	Buffalo	S. Sances	10,777	.....	.....	491	4	.....	3	100.00
Millard Fillmore Hospital ¹	Buffalo	A. V. Postoloff	13,489	5,530	5,530	153	2	7/1	3	50.00
Flushing Hospital and Dispensary ^{1,1}	Flushing, N. Y.	J. Werne	9,556	1,951	1,823	103	1	7/1	1p	150.00
Meadowbrook Hospital ¹	Hempstead, N. Y.	T. J. Curphrey	5,663	3,469	1,999	274	2	7	1	115.00
Mary Immaculate Hospital ^{1,1}	Jamaica, N. Y.	M. Bevilacqua	9,951	.....	.....	.....	.....	.....	2p	.....
Queens General Hospital ^{1,1}	Jamaica, N. Y.	A. Angrist	14,557	82,601	82,601	678	7	7/1	3	80.00
Charles S. Wilson Memorial Hospital ^{1,1}	Jamaica, N. Y.	A. Kostnisk	9,241	3,053	3,053	115	1	7/1	3p	.....
St. John's Long Island City Hospital ^{1,1}	Long Island City, N. Y.	J. Werne	5,957	1,024	1,024	171	2	7/1	3a	100.00
Mount Vernon Hospital ¹	Mount Vernon, N. Y.	J. G. Sharnoff	7,665	3,265	3,259	112	1	.....	1	.....
Bellevue Hospital ^{1,1}	New York City	W. C. Von Glabn	58,182	4,794	4,794	856	6	.....	4p	60.00
Beth Israel Hospital ^{1,1}	New York City	A. Plaut	9,174	3,188	3,188	108	2	1/1, 7/1	3	50.00
Bronx Hospital ^{1,1}	New York City	J. Felsen	9,125	3,318	3,859	72	2	7/1	3	75.00
Doctors Hospital ¹	New York City	R. L. Liss	6,743	3,088	3,088	98	1	.....	1p	200.00
Flower and Fifth Avenue Hospitals ^{1,1}	New York City	G. K. Higgins and F. D. Speer	9,525	4,011	4,806	94	4	7/1	3	.....
Fordham Hospital ^{1,1}	New York City	L. Millman	10,480	2,259	2,106	335	3	7/1	1	43.33
Goldwater Memorial Hospital ^{1,1}	New York City	J. Rosenthal	1,571	5,457	5,457	180	4	7/1	3	70.00
Harlem Hospital ^{1,1}	New York City	S. Weintraub	21,067	7,747	7,747	333	3	1, 7	1	80.00
Hospital for Joint Diseases ^{1,1}	New York City	H. L. Jaffe	5,621	2,592	2,592	48	.....	.....	1p	.....
Jewish Memorial Hospital ¹	New York City	A. Anerst	5,810	2,008	1,723	84	1	7/1	1	100.00
Lehman Hospital ^{1,1}	New York City	J. C. Ehrlich	6,240	.....	.....	87	.....	.....	2p	.....
Lenox Hill Hospital ^{1,1}	New York City	G. L. Rodenburg	12,975	4,011	4,011	117	3	1/1, 7/1	3	50.00
Lincoln Hospital ^{1,1}	New York City	C. R. Brown	14,907	2,068	2,058	240	4	.....	3	.....
Memorial Hospital ¹	New York City	F. W. Stewart	6,583	18,416	18,416	145	5	.....	2a	.....
Metropolitan Hospital ^{1,1}	New York City	A. Saccone	12,512	1,466	1,434	235	1	.....	1	.....
Montefiore Hospital for Chronic Diseases ^{1,1}	New York City	H. M. Zimmerman	4,027	2,684	2,684	405	3	7/1	3	50.00
Morrifania City Hospital ^{1,1}	New York City	W. Aronson	13,549	3,290	3,290	214	2	7/1	1	80.00
Mount Sinai Hospital ^{1,1}	New York City	P. Klemperer	15,956	.....	.....	293	13	.....	3	60.00
New York City Hospital ^{1,1}	New York City	J. R. Lisa	12,040	1,870	1,620	263	4	7/1	3	80.00
New York Hospital ^{1,1}	New York City	J. G. Kidd	20,743	609	501	384	3	.....	2	.....
Presbyterian Hospital ^{1,1}	New York City	H. P. Smith	30,220	5,663	5,484	368	3	.....	3	.....
Roosevelt Hospital ^{1,1}	New York City	W. W. Brandes	9,002	3,216	3,216	152	1	7/1	1	100.33
St. Clare's Hospital ¹	New York City	J. M. Ravid	9,513	2,246	2,240	129	1	7/1	2p	25.00
St. Luke's Hospital ^{1,1}	New York City	B. E. Clarke	9,829	2,743	2,743	176	2	7	3	50.00
St. Vincent's Hospital ^{1,1}	New York City	A. Rottino	11,887	2,677	2,677	233	2	7/1	1	50.00
Sydenham Hospital ^{1,1}	New York City	A. Ginzler	5,014	1,486	1,486	61	1	7	1	35.00
University Hospital ^{1,1}	New York City	M. N. Richter	9,429	6,632	6,332	129	2	.....	3	.....
Willard Parker Hospital ¹	New York City	V. B. Dolgopoul	5,469	304	304	33	1	7/1	1	150.00
Rochester General Hospital ^{1,1}	Rochester, N. Y.	M. G. Bohrod	14,913	5,208	5,208	267	1	7/1	3	.....
St. Mary's Hospital ^{1,1}	Rochester, N. Y.	J. Adler	12,332	3,832	2,743	161	2	7/1	1	125.00
Strong Memorial—Rochester Municipal Hospitals ^{1,1}	Rochester, N. Y.	G. H. Whipple	17,524	4,294	4,294	416	1	7/1	3a	45.00
Ellis Hospital ^{1,1}	Schenectady, N. Y.	E. Kellert	13,684	3,826	3,826	184	2	.....	3	.....
Syracuse University Medical Center	Syracuse, N. Y.	.....	.....	.....	.....	.....	1	.....	3	.....
Samaritan Hospital ^{1,1}	Troy, N. Y.	W. A. Derrick	5,323	2,178	2,178	81	1	7/1	1	125.00
Grasslands Hospital ^{1,1}	Valhalla, N. Y.	S. Gross	4,424	1,634	1,494	270	2	7	3	125.00
White Plains Hospital ^{1,1}	White Plains, N. Y.	H. D. Kesten	6,188	3,661	3,661	99	1	7/1	1	100.00
Charlotte Memorial Hospital ¹	Charlotte, N. O.	P. Kimmelstiel	10,297	5,650	5,459	140	3	7/1	3	75.00
Duke Hospital ^{1,1}	Durham, N. O.	W. D. Forbus	13,862	10,946	10,940	204	5	7/1	3	83.33
Watts Hospital ^{1,1}	Durham, N. O.	J. U. Gunter	8,668	3,166	2,782	127	1	7/1	2	.....
North Carolina Baptist Hospital ^{1,1}	Winston-Salem, N. C.	R. P. Morehead	7,762	3,163	3,163	144	3	4/1	3	.....
City Hospital ^{1,1}	Akron, Ohio	L. Catron	16,047	5,017	5,017	250	3	7/1	3	100.00
Aultman Hospital ^{1,1}	Canton, Ohio	D. G. Henderson	10,067	13,612	12,304	164	2	7/1	1	75.00
Bethesda Hospital ^{1,1}	Cincinnati	R. J. Davis	8,407	3,448	2,220	158	1	7/1	2	150.00
Christ Hospital ¹	Cincinnati	J. W. Leichter	11,027	3,727	3,210	165	1	7/1	1	75.00
Cincinnati General Hospital ^{1,1}	Cincinnati	E. Gall	14,933	2,957	2,892	500	6	7/1	3a	.....

17. PATHOLOGY—Continued

Name of Hospital	Location	Chief of Service	Inpatients Treated	Surgical Specimens	Number Examined Microscopically	Autopsies	Asst. Res. and Residencies Offered	Beginning of Service (1949)	Length of Approved Program (Years)	Beginning Stipend (Month)
Good Samaritan Hospital*	Cincinnati	W. McK. Germain	16,431	8,618	14,778	132	1	7/1	3	\$ 75.00
Jewish Hospital*	Cincinnati	P. Wasserman	9,432	3,924	4,095	170	1	7/1	3	75.00
City Hospital*	Cleveland	T. Kinney	12,863	2,472	2,472	1,036	6	7/1	2	.....
Cleveland Clinic Hospital*	Cleveland	J. B. Hazard	8,473	4,564	4,564	105	8	7/1	4 ^p	100.00
Mount Sinai Hospital*	Cleveland	B. S. Kline	9,644	3,375	3,375	106	2	7/1	3	65.00
St. Luke's Hospital*	Cleveland	R. Dominguez	14,044	3,292	3,518	149	2	6/25	3	60.00
St. Vincent Charity Hospital*	Cleveland	D. J. Rehbock	8,781	2,123	2,102	122	1	7/1	1	75.00
University Hospitals*	Cleveland	H. T. Karns	22,725	5,425	5,425	548	6	7/1	3	25.00
Grant Hospital*	Columbus, Ohio	W. H. Benham	9,998	2,939	2,553	123	1	7/1	1	100.00
Ohio State University Hospital*	Columbus, Ohio	H. L. Reinhart	8,876	3,068	3,066	471	4	7/1	3	50.00
White Cross Hospital*	Columbus, Ohio	R. S. Fidler	10,718	11,309	10,146	136	2	7	3	100.00
Miami Valley Hospital*	Dayton, Ohio	M. Oosting	13,752	7,687	7,687	220	1	7/1	1	75.00
Huron Road Hospital*	E. Cleveland, Ohio	E. Goodsitt	10,717	4,948	3,997	133	1	.....	4 ^p	80.00
Mersey Hospital*	Hamilton, Ohio	K. Lande	8,699	.....	.....	100	.....	.....	1 ^p	.....
Mersey Hospital*	Toledo, Ohio	E. L. Burns	11,750	5,512	4,396	185	1	.....	3	.....
St. Vincent's Hospital*	Toledo, Ohio	M. F. Vidoli	10,656	3,089	5,617	120	.....	7	1	100.00
Toledo Hospital*	Toledo, Ohio	B. Steinberg	9,574	3,473	2,827	172	2	.....	4 ^a	.....
Youngstown Hospital*	Youngstown, Ohio	H. K. Giffen	19,327	4,375	4,375	216	3	7/1	4 ^p	100.00
University Hospitals*	Oklahoma, City	D. Halpert	6,474	2,270	2,054	136	3	7/1	3	35.00
Hillcrest Memorial Hospital*	Tulsa, Okla.	L. Lowbeer	10,786	.....	.....	102	.....	.....	1 ^a	.....
Emanuel Hospital*	Portland, Ore.	H. H. Foskett	13,183	7,294	7,824	141	1	7/1	1	75.00
Good Samaritan	Portland, Ore.	W. L. Lehman	13,927	3,937	3,229	174	1	.....	3 ^a	.....
Providence	Portland, Ore.	J. Minckler	7,890	2,544	1,858	138	.....	7/1	2 ^a	75.00
St. Vincent's	Portland, Ore.	F. R. Menne	10,845	6,317	6,300	125	1	.....	4 ^p	.....
University of	Portland, Ore.	W. C. Hunter	6,879	2,666	2,666	383	4	7/1	3	75.00
Abington Memorial Hospital*	Abington, Pa.	J. Elman	8,025	4,108	3,106	266	2	7/1	4 ^p	100.00
Allentown Hospital*	Allentown, Pa.	J. J. Wenner	12,658	4,620	2,945	169	1	7/1	3	100.00
Sacred Heart Hospital*	Allentown, Pa.	D. E. Stader	7,635	4,362	3,745	136	1	7/1	1 ^p	150.00
St. Luke's Hospital*	Bethlehem, Pa.	T. A. Cope, Jr.	14,210	1,842	1,842	160	1	7/1	2 ^p	100.00
Bryn Mawr Hospital*	Bryn Mawr, Pa.	M. M. Strumia	7,564	3,057	3,057	136	2	.....	1	.....
George F. Geisinger Memorial Hospital*	Danville, Pa.	H. F. Hunt	8,358	2,074	2,035	100	1	.....	1	75.00
Fitzgerald-Mercy Hospital*	Darby, Pa.	A. Valdes-Dapena	6,780	.....	.....	67	1	7/1	1	200.00
Hamot Hospital*	erie, Pa.	E. L. Armstrong	9,491	1,696	1,696	161	4	1/1	4 ^p	.....
Episcopal Hospital*	Philadelphia	W. P. Belk	12,347	1,449	8,393	106	1	7/1	1	50.00
Frankford Hospital*	Philadelphia	W. L. C. Spaeth	4,484	1,508	1,508	81	1	7/1	1 ^a	100.00
Germantown Dispensary and Hospital*	Philadelphia	F. B. Lynch, Jr.	7,956	1,450	1,100	134	1	7	1	50.00
Graduate Hospital of the University of Pennsylvania*	Philadelphia	E. A. Case	7,550	2,592	2,592	135	3	7/1	3	.....
Hahnemann Hospital*	Philadelphia	J. E. Gregory	14,184	3,781	3,781	291	3	.....	4 ^p	25.00
Hospital of the University of Pennsylvania*	Philadelphia	B. Lucke	18,395	6,296	6,296	361	5	Varies	3	.....
Jefferson Medical College Hospital*	Philadelphia	C. J. Bucher	17,277	250,124	250,124	278	5	7/1	3	.....
Jewish Hospital*	Philadelphia	H. Ingleby	9,234	2,605	2,355	252	3	7	1	50.00
Lankenau Hospital*	Philadelphia	C. E. Brown	6,052	106,583	.....	141	2	7/1	3	50.00
Mount Sinai Hospital*	Philadelphia	D. R. Meranze	6,231	2,456	2,456	178	3	6/21	4 ^p	50.00
Pennsylvania Hospital*	Philadelphia	A. R. Crane	10,430	3,061	3,061	195	3	11/1, 7/1	3	20.00
Philadelphia General Hospital*	Philadelphia	J. H. Clark	25,436	4,094	4,094	1,815	5	7/1	3	70.00
Presbyterian Hospital*	Philadelphia	R. F. Custer	7,174	2,351	2,351	156	3	.....	4 ^p	25.00
Temple University Hospital*	Philadelphia	E. E. Aegerter	14,503	6,208	6,208	263	3	7/1	3	.....
Allegheny General Hospital*	Pittsburgh	S. R. Haythorn	11,946	2,714	2,714	129	1	.....	3	100.00
Children's Hospital*	Pittsburgh	M. L. Menton	6,745	363	363	88	1	.....	3	45.00
.....	Pittsburgh	H. H. Fennar	14,945	4,134	3,927	163	1	9/1	3	100.00
.....	Pittsburgh	K. Yardumlian	8,986	2,887	4,817	128	1	7/1	1	50.00
.....	Pittsburgh	G. R. Lacy	5,027	4,929	4,329	126	2	.....	3	41.67
St. Francis Hospital*	Pittsburgh	R. O. Hamilton	14,674	148,427	2,104	85	1	.....	3	100.00
Western Pennsylvania Hospital*	Pittsburgh	A. Graham	13,533	3,302	3,302	120	1	10/1	3 ^p	75.00
Reading Hospital*	Reading, Pa.	W. P. Jennings	9,214	2,773	2,820	201	1	7/1	3	100.00
Robert Packer Hospital*	Sayre, Pa.	C. H. DeVan	10,553	1,927	1,871	142	2	7/1	2	150.00
Seranton State Hospital*	Seranton, Pa.	E. P. Swartz	5,876	2,143	1,512	62	.....	.....	1 ^p	.....
Williamsport Hospital*	Williamsport, Pa.	M. G. Colvin	8,773	3,077	2,029	124	1	.....	3	.....
York Hospital*	York, Pa.	L. C. Pusch	7,544	1,893	1,534	122	.....	.....	3	.....
Rhode Island Hospital*	Providence, R. I.	.....	14,395	5,118	5,118	324	6	7/1	3 ^p	50.00
Medical College of the State of South Carolina	Charleston, S. C.	.....	.....	.....	.....	1	.....	.....	3	.....
Baroness Erlanger Hospital*	Chattanooga, Tenn.	J. Adams	15,565	4,256	3,762	142	.....	.....	4 ^p	.....
Baptist Memorial Hospital*	Memphis, Tenn.	M. L. Trumbull	18,934	7,282	6,754	112	4	7/1	2	75.00
John Gaston Hospital*	Memphis, Tenn.	D. Sprunt	16,649	2,578	5,127	612	11	.....	3	.....
Methodist Hospital*	Memphis, Tenn.	W. V. Tribby	15,465	9,720	5,270	104	2	7/1	4 ^p	75.00
St. Joseph Hospital*	Memphis, Tenn.	T. C. Moss	10,818	11,029	4,789	184	3	.....	3 ^a	.....
Nashville General Hospital*	Nashville, Tenn.	W. A. Demonbreun	6,525	.....	.....	113	2	.....	1	.....
Vanderbilt University Hospital*	Nashville, Tenn.	F. W. Goodpasture	9,234	1,504	1,740	217	1	7/1	3	35.41
Baylor University Hospital*	Dallas, Texas	J. M. Hill	16,594	6,812	6,512	156	4	7/1	3	50.00
Parkland Hospital*	Dallas, Texas	E. E. Muirhead	9,982	2,679	6,346	224	2	7/1	3	50.00
St. Paul's Hospital*	Dallas, Texas	J. L. Goforth	12,870	4,694	3,948	101	3	.....	4 ^p	.....
University of Texas Medical Branch Hospitals*	Galveston, Texas	P. Brindley	11,132	25,020	24,032	293	5	7	3	100.00
Hermann Hospital*	Houston, Texas	V. H. Keiler	9,054	3,343	3,148	146	1	.....	3	50.00
Jefferson Davis Hospital*	Houston, Texas	W. W. Coulter	12,707	3,159	8,292	270	1	.....	3	.....
Baptist Memorial Hospital*	San Antonio, Texas	A. O. Severance	12,393	.....	.....	115	.....	.....	2 ^p	.....
Santa Rosa Hospital*	San Antonio, Texas	J. M. Moore	13,094	4,876	3,848	170	2	7/1	3	110.00
Dr. W. H. Groves Latter-Day Saints Hospital*	Salt Lake City	J. H. Carlsquist	14,481	5,788	5,788	159	.....	.....	1 ^a	.....
Holy Cross Hospital*	Salt Lake City	O. McNeil	7,397	4,739	4,739	60	1	7/1	1 ^p	50.00
Salt Lake County General Hospital*	Salt Lake City	F. D. Gunn	3,672	1,361	1,222	174	3	7/1	3	60.00
Mary Fletcher Hospital*	Burlington, Vt.	B. Pearson	7,246	1,281	1,281	94	8	7/1	3	50.00
University of Virginia Hospital*	Charlottesville, Va.	J. R. Cash	14,271	12,395	12,395	171	1	.....	3 ^a	.....
DePaul Hospital*	Norfolk, Va.	A. Strauss	8,872	3,690	3,628	117	1	7/1	3	100.00
Norfolk General Hospital*	Norfolk, Va.	L. J. Motyca and E. D. Levy	9,706	4,862	4,862	110	1	7/1	3	100.00
Medical College of Virginia Hospital Division*	Richmond, Va.	F. L. Apperly	16,859	8,637	8,637	276	3	7/1	3	46.50
King County Hospital* Unit no. 1 (Harborview)	Seattle, Wash.	C. R. Jensen	12,153	2,540	1,757	465	1	.....	3	.....
Providence Hospital*	Seattle	D. G. Mason	11,918	4,821	3,341	168	1	7/1	3	100.00
Swedish Hospital*	Seattle	P. K. Lund	11,808	13,886	9,431	157	1	7/1	1	100.00
Deaconess Hospital*	Spokane, Wash.	G. A. C. Snyder	8,874	4,296	3,092	145	1	7/1	3	150.00
St. Luke's Hospital*	Spokane, Wash.	O. O. Christianson	7,264	2,740	1,405	108	1	.....	2 ^p	.....
St. Joseph's Hospital*	Tacoma, Wash.	O. R. McColl	8,779	3,922	3,922	125	1	7/1	1	.....
Tacoma General Hospital*	Tacoma, Wash.	C. P. Larson	8,375	2,361	2,059	95	2	7/1	3	150.00
Charleston General Hospital*	Charleston, W. Va.	W. Putschar	8,782	2,113	2,084	74	2	7/1	3	100.00
State of Wisconsin General Hospital*	Madison, Wis.	D. M. Angevine and W. D. Stovall	14,349	3,410	3,386	255	5	7	3	25.00
Columbia Hospital*32	Milwaukee	G. Ritchie	5,294	2,004	1,302	96	1	.....	3	.....

17. PATHOLOGY—Continued

Name of Hospital	Location	Chief of Service	Inpatients Treated*	Surgical Specimens	Number Examined Microscopically	Autopsies	Asst. Res. and Residencies Offered*	Beginning of Service (1916)	Length of Approved Program (Years)	Beginning Stipend (Month)
Milwaukee County Hospital* ¹	Milwaukee	J. F. Kuzma	18,486	747	747	485	3	Varies	4 ¹	\$158.00
St. Joseph's Hospital*	Milwaukee	W. A. D. Anderson	13,051	3,447	2,262	127	3	7	4 ¹	75.00
St. Mary's Hospital*	Milwaukee	S. B. Pessin	9,321	3,689	2,096	155	1	7/1	1 ¹	.....
Queen's Hospital* ¹	Honolulu, Hawaii	S. Price	12,360	3,253	3,253	225	2	7	3	75.00
University Hospital (School of Tropical Medicine)	San Juan, P. R.	E. Kopsch	846	.....	.....	13	..	.....	3 ¹	.....

18. PEDIATRICS

The following services are approved by the Council and the American Board of Pediatrics Hospitals, 211; Assistant Residencies and Residencies, 959

Name of Hospital	Location	Chief of Service	Inpatients Treated	Outpatient Visits	Deaths	Autopsies	Asst. Res. and Residencies Offered	Beginning of Service (1916)	Length of Approved Program (years)	Beginning Stipend (Month)
United States Army										
Letterman General Hospital*.....	San Francisco.....	W. M. Edwards.....	311	414	9	9	..	.....	1	n
Brooke General Hospital*.....	Denver, Colo.....	.....	.....	.....	..	..	..	.....	2	n
Fitzsimons General Hospital*.....	San Antonio, Texas.....	L. J. Geppert.....	1,079	12,985	33	30	4	.....	2	n
United States Navy										
U. S. Naval Hospital*.....	San Diego, Calif.....	.....	.....	.....	..	..	..	.....	1	n
U. S. Naval Hospital*.....	Chelsea, Mass.....	D. W. Sherwood.....	.....	.....	..	..	2	.....	1	n
U. S. Naval Hospital*.....	Philadelphia.....	J. F. Shaul.....	431	7,200	..	1	4	.....	1	n
Federal Security Agency										
Freedmen's Hospital* ¹	Washington, D. C.....	R. Scott.....	445	2,325	28	18	4	7/1	2	n
Nonfederal										
Carraway Methodist Hospital*.....	Birmingham, Ala.....	S. Wainwright and G. Griffin.....	928	11,509	21	10	1	7/1	1	\$100.00
Children's Hospital ¹	Birmingham, Ala.....	A. A. Walker.....	1,897	7,517	40	19	2	5/1	2	100.00
Jefferson-Hillman Hospitals* ¹	Birmingham, Ala.....	A. A. Walker.....	1,855	5,421	98	54	4	.....	2	.....
Employees' Hospital of the Tennessee Coal, Iron and Railroad Company*.....	Fairfield, Ala.....	G. C. McCullough.....	970	11,404	19	11	3	7/1	1	225.00
University Hospital* ¹	Little Rock, Ark.....	W. A. Reilly.....	1,789	2,130	84	30	4	7/1	2	50.00
San Joaquin General Hospital*.....	French Camp, Calif.....	.....	.....	.....	..	..	..	.....	1	.....
General Hospital of Fresno County* ¹	Fresno, Calif.....	M. Eakin.....	1,022	1,986	73	35	1	7/1	1	231.00
California Babies' and Children's Hospital ¹	Los Angeles.....	J. W. St. Geme.....	407	19,803	3	3	1	7/1	1	100.00
Children's Hospital* ¹	Los Angeles.....	E. S. Fish.....	2,701	58,601	14	105	10	.....	2	138.00
Los Angeles County Hospital* ¹	Los Angeles.....	M. B. Brooks.....	3,802	7,096	161	111	11	Varies	2	165.00
Queen of Angels Hospital*.....	Los Angeles.....	.....	1,475	938	..	68	1	7/1	1	100.00
White Memorial Hospital* ¹	Los Angeles.....	M. B. Brooks.....	519	9,316	20	10	3	7/1	2	147.33
Children's Hospital of the East Bay ¹	Oakland, Calif.....	C. D. Sweet.....	4,220	22,782	70	46	7	1, 7	2	150.00
Children's Hospital* ¹	San Francisco.....	C. F. Gelston.....	696	3,534	21	19	2	7/1	2	50.00
Mt. Zion Hospital*.....	San Francisco.....	E. Wolff.....	403	1,045	19	14	..	.....	1	50.00
St. Mary's Hospital*.....	San Francisco.....	R. Flood.....	.....	.....	..	..	1	7/1	1	100.00
San Francisco Hospital* ¹	San Francisco.....	.....	2,148	.....	97	48	2	.....	..	175.00
Stanford University Hospital* ¹	San Francisco.....	H. K. Faber.....	530	16,893	22	18	4	7/1	2	50.00
University of California Hospital* ¹	San Francisco.....	W. O. Deamer.....	639	13,573	67	51	4	7/1, 8/1, 9/1	2	50.00
Children's Hospital ¹	Denver.....	J. M. Nelson.....	3,458	5,304	94	86	8	7	2	50.00
University of Colorado Medical Center	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Colorado General Hospital* ¹	Denver.....	H. H. Gordon.....	383	8,417	22	20	15	7/1	2	75.00
Denver General Hospital* ^{1,2,3}	Denver.....	H. H. Gordon.....	1,468	5,675	31	24	3	7	1	40.00
Hartford Hospital*.....	Hartford, Conn.....	E. Caulfield.....	1,024	111	17	14	2	7/1	1	50.00
Grace-New Haven Community Hospital	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
New Haven Unit (University Service)* ¹	New Haven, Conn.....	G. Powers.....	2,864	10,033	60	50	10	7/1	2	40.00
Hospital of St. Raphael*.....	New Haven, Conn.....	W. C. McGuire.....	.....	.....	..	..	1	7/1	1	75.00
Delaware Hospital* ¹	Wilmington, Del.....	O. E. Wagner.....	1,550	750	48	33	1	7/1	1	110.00
Children's Hospital ¹	Washington, D. C.....	J. S. Wall.....	.....	.....	.....	.....	6	.....	2	.....
Gallinger Municipal Hospital* ¹	Washington, D. C.....	.....	1,357	11,278	40	14	8	7/1	2	100.00
Providence Hospital*.....	Washington, D. C.....	W. F. O'Donnell.....	4,483	800	64	30	1	7/1	1	75.00
Crawford W. Long Memorial Hospital*.....	Atlanta, Ga.....	L. H. Muse.....	6,493	878	91	47	4	7/1	..	75.00
Grady Memorial Hospital*.....	Atlanta, Ga.....	R. W. Dickson.....	1,059	32,060	83	36	9	7/1	2	.....
Henrietta Eggleston Hospital for Children ¹	Atlanta, Ga.....	M. H. Roberts.....	.....	.....	..	3	1/1, 7/1	2	35.00	
University Hospital* ¹	Augusta, Ga.....	P. Mulherin.....	1,287	.....	72	16	2	7	..	40.00
Children's Memorial Hospital ¹	Chicago.....	S. Gibson.....	2,259	50,031	86	76	17	1, 7	2	75.00
Cook County Hospital* ¹	Chicago.....	A. Levinson.....	8,307	35,613	253	..	14	1, 7	2	52.00
Mercy Hospital—Loyola University Clinics* ¹	Chicago.....	H. W. Elghammer.....	1,688	2,161	22	13	2	.....	1	.....
Michael Reese Hospital* ¹	Chicago.....	A. Abt.....	3,335	11,211	..	6	1/1, 7/1	2	25.00	
Mount Sinai Hospital* ¹	Chicago.....	M. P. Borovsky.....	956	1,801	6	6	1	7/1	1	50.00
Presbyterian Hospital* ¹	Chicago.....	H. N. Sanford.....	1,487	4,036	47	42	3	.....	2	25.00
Provident Hospital* ¹	Chicago.....	.....	.....	.....	..	..	1	.....	2	.....
Research and Educational Hospitals* ¹	Chicago.....	H. G. Poncher.....	321	9,438	..	..	4	7/1	2	55.00
St. Joseph Hospital*.....	Chicago.....	A. L. Hoyne.....	961	1,217	16	14	1	9/1	1	75.00
St. Luke's Hospital* ¹	Chicago.....	A. D. Biggs.....	1,322	7,164	22	21	2	7/1	2	25.00
St. Vincent's Infant and Maternity Hospital ¹	Chicago.....	L. W. Sauer.....	559	0	3	3	3	1, 7	1	50.00
University of Chicago Clinics* ¹	Chicago.....	F. H. Wright.....	1,069	18,591	35	32	8	.....	2	25.00
Little Company of Mary Hospital*.....	Evergreen Park, Ill.....	E. G. Lawler.....	1,975	.....	12	3	1	7/1	1	100.00
St. Francis Hospital* ¹	Peoria, Ill.....	F. H. Maurer.....	1,208	651	70	29	1	1	1	150.00
Indianapolis General Hospital* ¹	Indianapolis.....	B. K. Rust.....	1,916	5,634	113	47	2	7/1	2	80.00
Indiana University Medical Center* ¹	Indianapolis.....	M. Winter.....	1,927	3,315	179	126	5	7/1	2	68.33
Iowa Methodist Hospital (Raymond Blank Memorial Hospital for Children)*.....	Des Moines, Iowa.....	L. F. Hill.....	3,839	.....	54	46	6	7/1	2	75.00
University Hospitals* ¹	Iowa City.....	P. C. Jeans.....	1,377	2,270	70	43	7	7/1	2	50.00
University of Kansas Medical Center* ¹	Kansas City, Kan.....	H. C. Miller.....	923	5,676	57	42	5	7	2	.....
Louisville General Hospital* ^{1,10}	Louisville, Ky.....	L. T. Davidson.....	2,023	11,237	77	23	9	7/1	2	45.00
St. Joseph Infirmary*.....	Louisville, Ky.....	H. Andrews.....	1,958	641	41	24	3	7/1	2	75.00
Charity Hospital of Louisiana* ¹	New Orleans.....	R. V. Platou.....	3,102	25,392	112	68	17	7/1	2	25.00
Touro Infirmary*.....	New Orleans.....	J. Graubarth.....	722	8,553	26	20	2	.....	2	17.50

18. PEDIATRICS—Continued

Name of Hospital	Location	Chief of Service	Inpatients Treated	Outpatient Visits	Deaths	Autopsies	Asst. Res. and Residencies Offered	Beginning of Service (1949)	Length of Approved Program (Years)	Beginning Stipend (Month)
†Shreveport Charity Hospital*	Shreveport, La.	C. H. Webb	1,636	0	76	45	2	7/1	..	\$ 60.00
†Central Maine General Hospital*	Leewiston, Maine	G. L. Brooks	850	788	29	26	2	7/1	1	..
Baltimore City Hospitals*	Baltimore	H. E. Harrison	600	4,931	77	58	5	7/1	2	15.00
Johns Hopkins Hospital*	Baltimore	F. P. Schwenker	1,238	52,691	164	142	14	7/1	2	41.66
†Mercy Hospital*	Baltimore	E. Friedenwald	398	1,316	22	11	1	7/1	1	75.00
†Sinai Hospital*	Baltimore	A. J. Schaffer	554	..	73	60	2	7/1	1	25.00
Union Memorial Hospital*	Baltimore	S. B. Grimes	477	1,702	12	6	2	..	1	..
University Hospital*	Baltimore	C. L. Joslin	636	8,526	44	29	5	7/1	2	75.00
Boston City Hospital*	Boston	M. J. English	4,174	8,983	232	58	1	..	2	..
Boston Floating Hospital	Boston	J. M. Baty	1,583	..	62	45	7	..	2	..
Children's Hospital*	Boston	C. Janeway	1,016	17,654	53	44	27	Varies	2	41.67
Massachusetts General Hospital*	Boston	A. M. Butler	670	..	27	24	7	..	2	..
New England Hospital for Women and Children*	Boston	E. Zaudy	553	1,708	3	3	3	1/1	2	50.00
University Hospital*	Ann Arbor, Mich.	J. Wilson	1,306	12,392	82	62	11	7/1	2	111.89
Children's Hospital	Detroit	P. V. Wooley, Jr.	4,377	24,660	493	290	20	7/1	2	100.00
Harper Hospital*	Detroit	D. J. Barnes	1,564	333	29	15	2	..	1	..
Henry Ford Hospital*	Detroit	A. Johnston	1,768	22,938	22	14	5	7/1	2	200.00
Providence Hospital*	Detroit	L. P. Sondra	769	..	45	30	1	7/1	1	140.00
†Butterworth Hospital*	Grand Rapids, Mich.	R. J. Schermerhorn	828	614	45	34	2	7/1	2	100.00
†Saginaw General Hospital*	Saginaw, Mich.	R. M. Kempton	3,000	691	57	32	1	1/1	1	100.00
St. Mary's Hospital*	Duath, Minn.	R. P. Buckley	2,350	..	44	39	3	..	1	..
Minneapolis General Hospital*	Minneapolis	A. V. Stoesser	2,403	4,040	39	26	3	1/1, 7/1	2	115.00
†Northwestern Hospital*	Minneapolis	E. Platou	2,182	..	31	17	1	7/1	..	150.00
†St. Barnabas Hospital*	Minneapolis	..	3,536	..	40	36	1	..	1	..
University of Minnesota Hospitals*	Minneapolis	I. McQuarrie	1,569	..	86	..	17	..	2	..
Mayo Foundation	Rochester, Minn.	R. L. J. Kennedy	..	..	..	..	15	..	2	92.50
Kansas City General Hospital No. 1*	Kansas City, Mo.	H. M. Gilkey	690	4,319	21	11	2	7/1	1	50.00
Homer G. Phillips Hospital*	St. Louis	P. J. White	1,964	6,256	56	33	4	7/1	2	95.00
†Jewish Hospital*	St. Louis	..	..	..	..	..	1	7	1	50.00
St. Louis Children's Hospital	St. Louis	A. F. Hartmann	3,537	..	139	101	24	7/1	2	10.00
St. Louis City Hospital*	St. Louis	A. Hartman and V. Hrdlicka	2,087	4,100	84	38	6	7/1	2	95.00
St. Mary's Group of Hospitals*	St. Louis	P. G. Danis	1,815	11,770	36	18	6	7/1	2	35.00
†Creighton Memorial St. Joseph Hospital*	Omaha	J. H. Murphy	1,677	..	21	11	1	7/1	1	100.00
†University of Nebraska Hospital*	Omaha	J. A. Henshaw	437	1,650	36	35	4	7/1	2	75.00
Mary Hitchcock Memorial Hospital*	Hanover, N. H.	C. C. Stewart	738	4,426	13	11	1	7/1	1	150.00
Jersey City Hospital*	Jersey City, N. J.	C. P. De Fucelo	2,941	7,411	30	18	2	..	2	..
Babies Hospital, Colt Memorial	Newark, N. J.	C. R. Brown	2,353	3,600	24	18	2	7/1	1	50.00
†St. Michael's Hospital*	Newark, N. J.	H. A. Murray	2,229	4,622	23	18	4	7/1	2	75.00
Albany Hospital*	Albany, N. Y.	O. A. Faust	969	2,361	47	33	4	7/1	2	41.67
†Beth-El Hospital*	Brooklyn	A. Litvak	3,922	1,588	78	61	3	1, 7	1	169.00
Brooklyn Hospital*	Brooklyn	H. A. Naumer	..	6,162	..	..	2	7/1	1	25.00
Coney Island Hospital*	Brooklyn	S. Nussbaum	1,468	2,165	50	38	1	7/1	1	130.00
Cumberland Hospital*	Brooklyn	T. B. Givan	2,160	4,528	65	60	2	7/1	2	70.00
†Greenpoint Hospital*	Brooklyn	I. Schiff	652	4,578	28	19	2	7	1	80.00
Jewish Hospital*	Brooklyn	B. Kramer	5,311	13,738	94	57	9	7	2	30.00
Kings County Hospital*	Brooklyn	G. Brockway and Krabulik	9,014	5,099	261	165	4	7/1	2	80.00
Long Island College Hospital*	Brooklyn	C. A. Weymuller	584	6,950	22	16	4	7/1	2	25.00
Maimonides Hospital—Israel Zion Div.*	Brooklyn	J. Rosenblum and M. R. Pullinsky	340	1,034	33	21	..	7/1	1	..
Methodist Hospital*	Brooklyn	W. F. Watton	475	3,251	13	13	2	7/1	1	..
Norwegian Lutheran Deaconesses' Home and Hospital*	Brooklyn	J. A. Monfort and T. B. Givan	789	1,599	12	..	2	7/1	..	25.00
†St. Mary's Hospital*	Brooklyn	K. G. Jennings	423	793	19	11	1	7/1	1	50.00
Children's Hospital	Buffalo	M. I. Rubin	1,894	..	54	..	20	1, 7	2	25.00
Edward J. Meyer Memorial Hospital*	Buffalo	F. J. Gustina	..	..	..	..	4	7/1	1	100.00
†Mary Imogene Bassett Hospital*	Cooperstown, N. Y.	T. C. Goodwin	280	5,310	16	15	1	7/1	2	83.33
Queens General Hospital*	Jamaica, N. Y.	H. A. Reisman	1,438	3,559	67	44	4	8/15, 7/1	2	80.00
Bellevue Hospital Div. III—N. Y. Univ.*	New York City	L. E. Holt, Jr.	1,471	27,325	91	64	5	1, 7	2	60.00
Beth Israel Hospital*	New York City	P. Cohen and J. M. Lewis	356	2,391	24	15	4	1/1, 7/1	1	50.00
Flower and Fifth Avenue Hospitals*	New York City	A. Slobody	924	4,066	58	34	3	7/1	2	..
Fordham Hospital*	New York City	J. Golomb	720	1,826	44	21	2	7/1	2	80.00
†Gouverneur Hospital*	New York City	L. Hodess	498	5,063	7	2	1	7/1	1	80.00
Harlem Hospital*	New York City	M. Gleich	1,335	8,166	90	33	4	1, 7	2	80.00
Lenox Hill Hospital*	New York City	H. Chaplin	627	..	15	10	1	7/1	2	50.00
Lincoln Hospital*	New York City	H. S. Altman	1,026	8,093	43	26	5	..	2	..
Metropolitan Hospital*	New York City	R. A. Benson	1,632	7,301	34	18	2	7/1	2	130.00
Morrisania City Hospital*	New York City	L. H. Barenberg	933	2,717	37	21	3	7/1	2	80.00
Mount Sinai Hospital*	New York City	..	..	..	..	..	5	..	2	50.00
New York City Hospital*	New York City	G. B. Irving	1,576	5,501	73	56	3	7/1	2	80.00
New York Foundling Hospital	New York City	A. J. Vigne	585	5,420	4	4	4	1, 7	1/2	50.00
New York Hospital*	New York City	S. Z. Levine	2,455	34,563	138	114	8	7/1	2	25.00
†New York Infirmary*	New York City	R. Bakwin	395	3,745	5	1	7	..	1	75.00
Presbyterian Hospital*	New York City	R. McIntosh	4,093	32,771	112	..	18	..	2	41.66
†Roosevelt Hospital*	New York City	A. T. Martin	565	2,182	10	6	1	7/1	1	103.33
†St. Clare's Hospital*	New York City	C. H. O'Regan	2,192	5,767	7	6	3	7/1	1	25.00
St. Luke's Hospital*	New York City	H. F. Jackson	734	5,275	24	20	4	1, 7	2	50.00
St. Vincent's Hospital*	New York City	A. J. Vigne	1,693	6,906	18	11	2	7/1	2	50.00
†Sydenham Hospital*	New York City	E. Schiff and H. O. Paschoff	244	1,102	6	3	1	7/1	1	35.00
University Hospital*	New York City	A. G. DeSanctis	691	12,423	32	20	5	5/1, 7/1	2	90.00
Genesee Hospital*	Rochester, N. Y.	..	529	759	12	12	1	1	1	83.33
†Rochester General Hospital*	Rochester, N. Y.	F. W. Bush	816	1,978	..	..	1	7/1	1	70.00
Strong Memorial-Rochester Municipal Hospitals*	Rochester, N. Y.	S. W. Clausen	1,520	9,117	71	61	8	7/1	2	45.00
†St. Vincent's Hospital*	Staten Island, N. Y.	G. McCormick	3,122	774	37	22	1	7/1	1	100.00
Sea View Hospital	Staten Island, N. Y.	B. Ratner	402	..	3	1	7	7/1	1	130.00
Syracuse Memorial Hospital*	Syracuse, N. Y.	T. C. Wyatt	904	408	67	62	4	7/1	2	125.00
Grasslands Hospital*	Valhalla, N. Y.	F. D. Barnes	513	1,584	9	9	3	7	2	125.00
Charlotte Memorial Hospital*	Charlotte, N. C.	C. H. Gay	1,707	3,843	53	26	2	7/1	1	60.00
†Presbyterian Hospital	Charlotte, N. C.	J. R. Ashe	875	230	7	3	1	..	1	..
Duke Hospital*	Durham, N. C.	W. O. Davison	2,299	9,000	105	59	16	7/1	2	83.33
Watts Hospital*	Durham, N. C.	..	920	2,278	20	9	1	7/1	2	75.00

18. PEDIATRICS—Continued

Name of Hospital	Location	Chief of Service	Inpatients Treated	Outpatient Visits	Deaths	Autopsies	Asst. Res. and Residencies Offered	Beginning of Service (1949)	Length of Approved Program (Years)	Beginning Stipend (Month)
†Sternberger Hospital for Women and Children ¹	Greensboro, N. C.	M. Y. Keith	1,705	942	26	7	1	7/1	1	.....
†Rex Hospital ¹	Raleigh, N. C.	A. S. Root	.....	.....	.....	.....	1	7/1	1	\$155.00
†Bables' Hospital ¹	Wilmington, N. C.	J. B. Sidbury	.....	.....	.....	.....	2	7/1	1	100.00
James Walker Memorial Hospital ¹	Wilmington, N. C.	J. C. Knox	3,219	2,239	79	19	1	.....	1	.....
North Carolina Baptist Hospital ¹	Winston-Salem, N. C.	L. J. Butler	712	2,191	24	13	4	7/1	1	.....
Trinity Hospital ¹	Minot, N. D.	.....	328	6,744	.....	.....	1	.....	2	.....
Children's Hospital ¹	Akron, Ohio	M. M. Miller	183	.....	3	1	4	7/1	2	103.00
Children's Hospital ¹	Cincinnati	A. A. Weech	.....	.....	.....	.....	16	7/1	2	35.00
Cincinnati General Hospital ¹	Cincinnati	A. A. Weech	1,688	9,286	41	29	16	7/1	2	.....
University Hospitals ¹	Cleveland	C. F. McKhann	2,285	16,884	133	.....	9	7/1	2	25.00
Children's Hospital ¹	Columbus, Ohio	E. H. Baxter	1,890	11,188	172	116	11	.....	2	.....
University Hospitals ¹	Oklahoma City	C. H. Hall	803	6,287	62	41	4	7/1	2	35.00
Hillcrest Memorial Hospital ¹	Tulsa, Okla.	H. Graham	1,589	.....	26	12	5	.....	2	.....
University of Oregon Medical School Hospitals and Clinics ¹	Portland, Ore.	J. B. Bliederback	1,137	6,735	72	59	4	7/1	2	75.00
†Abington Memorial Hospital ¹	Abington, Pa.	S. Wilder	314	193	25	3	1	7/1	1	60.00
Children's Hospital ¹	Philadelphia	J. Stokes, Jr.	1,852	15,612	67	58	29	.....	2	.....
Children's Hospital of the Mary J. Drexel Home ¹	Philadelphia	.....	.....	.....	.....	.....	2	7/1	1	50.00
†Germanstown Dispensary and Hospital ¹	Philadelphia	P. S. Barba	1,359	1,274	13	11	1	7	1	50.00
†Graduate Hospital of the University of Pennsylvania ¹	Philadelphia	.....	713	619	11	8	2	7/1	1	.....
Hahnemann Hospital ¹	Philadelphia	C. G. Fischer	1,186	5,939	34	25	1	.....	2	25.00
Hospital of the Univ. of Pennsylvania ¹	Philadelphia	J. Stokes	316	3,412	39	27	6	Varies	2	.....
Hospital of the Women's Medical College of Pennsylvania ¹	Philadelphia	E. P. Bacon	1,850	2,826	84	33	1	7/1	2	60.00
Jefferson Medical College Hospital ¹	Philadelphia	.....	763	9,984	60	35	2	7/1	2	.....
Jewish Hospital ¹	Philadelphia	.....	651	353	22	11	2	7	1	50.00
Philadelphia General Hospital ¹	Philadelphia	.....	1,061	.....	70	.....	4	7/1	2	70.00
St. Christopher's Hospital for Children ¹	Philadelphia	W. E. Nelson	.....	.....	.....	.....	6	.....	1	.....
St. Luke's and Children's Medical Center ¹	Philadelphia	J. L. Redman	563	.....	16	7	1	6/1	1	125.00
Temple University Hospital ¹	Philadelphia	W. E. Nelson	562	6,948	20	12	6	7/1	2	.....
Children's Hospital ¹	Pittsburgh	.....	.....	.....	.....	.....	13	7	2	45.00
†St. Francis Hospital ¹	Pittsburgh	R. R. O'Toole	404	628	26	9	1	7/1	1	100.00
†Western Pennsylvania Hospital ¹	Pittsburgh	.....	1,696	848	.....	.....	1	10/1	1	.....
Robert Packer Hospital ¹	Sayre, Pa.	J. M. Higgins	457	417	13	10	1	7/1	2	150.00
†Charles V. Chapin Hospital ¹	Providence, R. I.	H. G. Calder	1,568	593	37	14	5	.....	1	.....
†Rhode Island Hospital ¹	Providence, R. I.	W. P. Bufum	1,158	2,843	31	17	2	7/1	1	50.00
Roper Hospital ¹	Charleston, S. C.	M. W. Beach	1,073	7,773	66	31	4	7/1	2	25.00
Columbia Hospital ¹	Columbia, S. C.	T. D. Dotterer	2,093	3,631	79	40	2	7/1	2	75.00
T. C. Thompson Children's Hospital	Chattanooga, Tenn.	H. J. Starr	2,448	9,290	117	50	3	7/1	1	90.00
Knoxville General Hospital ¹	Knoxville, Tenn.	H. S. Christian	934	1,079	58	11	1	7/1	1	70.00
†Baptist Memorial Hospital ¹	Memphis, Tenn.	W. L. Rucks	1,179	532	30	10	1	7/1	1	75.00
John Gaston Hospital ¹	Memphis, Tenn.	F. T. Mitchell	1,825	7,664	62	52	6	.....	2	.....
†Methodist Hospital ¹	Memphis, Tenn.	C. V. Crowell	1,376	.....	43	25	2	7/1	2	75.00
St. Joseph Hospital ¹	Memphis, Tenn.	H. J. Jacobson	1,517	473	30	16	1	.....	2	.....
George W. Hubbard Hospital of Meharry Medical College ¹	Nashville, Tenn.	E. P. Crump	534	5,937	34	17	3	7/1	2	75.00
Vanderbilt University Hospital ¹	Nashville, Tenn.	A. Christie	942	10,852	100	77	5	7/1	2	35.41
Children's Medical Center	Dallas, Texas	H. L. Moore	.....	.....	74	42	12	7/1	2	50.00
†Parkland Hospital ¹	Dallas, Texas	J. Bradford	447	2,935	41	24	2	.....	1	.....
University of Texas Medical Branch Hospitals ¹	Galveston, Texas	A. E. Hansen	602	9,935	53	36	10	1/1, 7/1	2	50.00
Hermann Hospital ¹	Houston, Texas	R. J. Blattner	470	4,456	61	29	5	.....	1	50.00
Jefferson Davis Hospital ¹	Houston, Texas	H. Schaffer	3,930	13,099	275	63	2	7/1	1	50.00
†Santa Rosa Hospital ¹	San Antonio, Texas	S. R. Kaliski	2,148	4,570	306	114	1	7/1	1	110.00
Salt Lake County General Hospital ¹	Salt Lake City	J. A. Anderson	934	2,354	33	26	10	7/1	2	25.00
†Mary Fletcher Hospital ¹	Burlington, Vt.	S. S. Corbin	349	8	12	9	4	7/1	1	60.00
University of Virginia Hospital ¹	Charlottesville, Va.	W. W. Waddell, Jr.	482	4,219	62	32	4	7/1	2	62.00
Medical College of Virginia, Hosp. Div. ¹	Richmond, Va.	L. Sutton, Jr.	1,332	6,991	86	44	8	7/1	2	46.50
Children's Orthopedic Hospital ¹	Seattle	J. L. Durand	2,528	6,232	40	30	3	4/1, 1/1	1	123.00
King County Hospital ¹	Seattle	W. B. Seelye	2,188	1,876	51	37	1	7/1	2	90.00
State of Wisconsin General Hospital ¹	Madison, Wis.	J. E. Goncz, Jr.	769	4,008	34	28	3	7, 1/1	2	25.00
†Milwaukee Children's Hospital ¹	Milwaukee	.....	4,950	28,633	87	66	11	7	2	75.00
†Milwaukee County Hospital ¹	Milwaukee	R. P. Schowalter	2,616	4,676	57	4	3	Varies	2	158.02
†Kaulkeolani Children's Hospital ¹	Honolulu, Hawaii	F. D. Nance	3,541	.....	60	48	2	1/1	1	200.00

19. PHYSICAL MEDICINE

The following services are approved by the Council and the American Board of Physical Medicine Hospitals, 39; Assistant Residencies and Residencies, 65

Name of Hospital	Location	Chief of Service	Inpatients Treated	Number of Treatments	Asst. Res. and Residencies Offered	Beginning of Service (1949)	Beginning Stipend (Month)
United States Army							
†Letterman General Hospital ¹	San Francisco	L. J. Butler	14,163	207,661	2	.....	n
†Fitzsimons General Hospital ¹	Denver	H. B. Luscombe	20,370	240,636	2	.....	n
Walter Reed General Hospital ¹	Washington, D. O.	E. M. Smith	6,849	174,825	1	1, 7	n
Veterans Administration							
†Veterans Admin. Hospital ¹	Ft. Logan, Colo.	C. O. Hoffman	2,875	48,162	1	.....	n
Veterans Admin. Hospital	Chamblee, Ga.	G. D. Williams	1,905	37,824	1	7/1	n
†Veterans Admin. Hospital	Hines, Ill.	L. B. Newmann	12,600	486,539	7	.....	n
Veterans Admin. Hospital	New Orleans, La.	S. Winokur	923	35,356	1	7/1	n
Veterans Admin. Hospital	Framingham, Mass.	.....	3,008	94,543	2	.....	n
†Veterans Admin. Hospital ¹	Jefferson Bks., Mo.	.....	1,141	75,519	1	.....	n
Veterans Admin. Hospital	New York City	H. Kessler	3,612	290,091	3	7	n
†Veterans Admin. Hospital ¹	Cleveland, Ohio	H. T. Zankel	14,030	142,719	.....	.....	n
†Veterans Admin. Hospital	Portland, Ore.	E. W. Fowles	4,078	95,079	1	1/1, 7/1	n
†Veterans Admin. Hospital	Aspinwall, Pa.	S. Machover	1,919	61,934	.....	7/1	n

Numerical and other references will be found on page 225.

19. PHYSICAL MEDICINE—Continued

Name of Hospital	Location	Chief of Service	Inpatients Treated	Number of Treatments	Asst. Res. and Residencies Offered	Beginning of Service (1949)	Beginning Stipend (Month)
Nonfederal							
Los Angeles County Hospital* ¹	Los Angeles		.....	114,657	1	Varies	\$165.00
†White Memorial Hospital*	Los Angeles	F. B. Moor	221	.....	1	7/1	140.00
Stanford University Hospitals* ¹	San Francisco	W. H. Northway	.....	7,445	2	7/1	50.00
†University of California Hospital* ¹	San Francisco	L. Elsing	.....	29,891	1	7/1, 8/1, 9/1	50.00
†University of Colorado Medical Center							
†Colorado General Hospital* ¹	Denver	H. L. Dinken	2,320	40,307	1	7/1	75.00
†Emory University Hospital*	Emory University, Ga.	R. Bennett	9,564	22,721	1	7/1	.....
†Georgia Warm Springs Foundation	Warm Springs, Ga.		.....	.....	1	.....	.....
Michael Reese Hospital* ¹	Chicago	C. O. Molander	2,678	25,219	2	.....	25.00
Passavant Memorial Hospital*	Chicago		12,403	34,185	.....	.....	.....
University of Kansas Medical Center*	Kansas City, Kan.	D. L. Rose	7,452	27,094	3	.....	.....
†Massachusetts General Hospital*	Boston	A. L. Watkins	.....	.....	2	.....	.....
†University of Minnesota Hospitals* ¹	Minneapolis	M. Knapp	8,018	19,580	3	.....	.....
Mayo Foundation	Rochester, Minn.	F. H. Krusen	.....	.....	9	.....	92.50
†Bellevue Hospital, Div. III—N. Y. Univ.* ¹	New York City	H. Rusk	35,406	63,198	4	.....	60.00
†Goldwater Memorial Hospital* ¹	New York City	H. Behrend	.....	69,483	1	7/1	70.00
†Hospital for Joint Diseases* ¹	New York City	J. Weiss	62,557	87,314	2	1/1	40.00
†Hospital for Special Surgery	New York City		.....	.....	.....	.....	.....
†Montefiore Hospital for Chronic Diseases* ¹	New York City	K. Harpuder	1,597	25,560	1	.....	.....
†Mount Sinai Hospital* ¹	New York City	W. Bierman	2,610	52,705	1	.....	50.00
†Presbyterian Hospital* ¹	New York City	W. B. Snow	71,514	108,791	1	.....	41.66
St. Luke's Hospital*	New York City	R. Muller	24,412	95,718	1	.....	50.00
†Rehabilitation Hospital ¹	W. Haverstraw, N. Y.	M. Hoberman	415	237,356	.....	.....	.....
†Cleveland Clinic Hospital ¹	Cleveland	W. J. Zeiter	16,060	37,691	1	7/1	100.00
†Hospital of the Univ. of Pennsylvania* ¹	Philadelphia	G. M. Pierson	1,106	14,557	1	Varies	.....
†Medical College of Virginia, Hosp. Div.* ¹	Richmond, Va.	W. J. Lee	3,047	31,433	1	7/1	46.50
†State of Wisconsin General Hospital* ¹	Madison, Wis.	H. D. Bouman	1,988	18,291	2	.....	.....

20. PLASTIC SURGERY

The following services are approved by the Council and the American Board of Plastic Surgery Hospitals, 18; Assistant Residencies and Residencies, 38

Name of Hospital	Location	Chief of Service	Inpatients Treated	Outpatient Visits	Deaths	Autopsies	Asst. Res. and Residencies Offered	Beginning of Service (1949)	Beginning Stipend (Month)
Veterans Administration									
Veterans Admin. Hospital	Hines, Ill.	P. Greeley	609	.....	6	..	1	.....	n
†Veterans Admin. Hospital	New York City	P. K. Sauer	501	139	2	..	4	7	n
Nonfederal									
†Franklin Hospital* ¹	San Francisco, Calif.	H. M. Blackfield	405	.....	..	..	2	7/1	\$100.00
†University of Kansas Medical Center*	Kansas City, Kan.	D. W. Robinson	290	650	7	..	1	.....	.....
†Charity Hospital of Louisiana* ¹	New Orleans		.....	2,209	..	..	3	7/1	25.00
Blodgett Memorial Hospital* ¹	Grand Rapids, Mich.	W. H. Steffenson	.....	746	..	..	1	7	100.00
Mayo Foundation	Rochester, Minn.	G. B. New	.....	.....	.....	..	6	.....	92.50
Barnes Hospital*	St. Louis	J. B. Brown	1,043	.....	4	3	2	7/1	25.00
†Hospital of St. Barnabas and for Women and Children*	Newark, N. J.	L. A. Peer	.....	.....	..	..	2	.....	.....
Kings County Hospital* ¹	Brooklyn	W. A. Conkley	1,623	2,600	37	3	2	7/1	80.00
Presbyterian Hospital* ¹	New York City	J. P. Webster	329	3,215	..	..	4	.....	100.00
University Hospital*	New York City	J. W. Hinton	170	1,078	..	..	1	.....	.....
Strong Memorial-Rochester Municipal Hospitals* ¹	Rochester, N. Y.	F. O. J. Young	273	384	..	..	1	7/1	45.00
†University Hospitals*	Oklahoma City	J. F. Burton	268	756	1	..	1	7/1	35.00
Graduate Hospital of the University of Pennsylvania*	Philadelphia		104	39	..	..	1	7/1	.....
†Jefferson Medical College Hospital*	Philadelphia		296	110	3	..	2	7/1	.....
†University of Texas Medical Branch Hospitals* ¹	Galveston, Texas	T. G. Blocker	452	1,414	3	12	3	7/1	50.00
†State of Wisconsin General Hospital* ¹	Madison, Wis.	W. Slaughter	370	.....	5	4	1	7	25.00

21. PROCTOLOGY

Hospitals, 12; Assistant Residencies and Residencies, 23

Name of Hospital	Location	Chief of Service	Inpatients Treated	Outpatient Visits	Deaths	Autopsies	Asst. Res. and Residencies Offered	Beginning of Service (1949)	Beginning Stipend (Month)
United States Navy									
†U. S. Naval Hospital*	Oakland, Calif.		.....	.....	..	..	1	.....	n
Nonfederal									
†Mercy Hospital-Loyola University Clinics*	Chicago	C. L. Martin	266	545	7	4	1	.....	.....
†City of Detroit Receiving Hospital* ¹	Detroit	C. G. Johnston	132	910	2	..	1	.....	.....
Mayo Foundation	Rochester, Minn.	L. E. Bule	.....	.....	..	..	6	.....	\$92.50
Millard Fillmore Hospital* ¹	Buffalo	L. S. Knapp	349	.....	7	3	1	7/1	50.00
.....	Youngstown, Ohio	P. J. Fuzy	435	48	11	4	1	7/1	100.00
.....	Allentown, Pa.	M. Kleckner	441	118	..	..	1	7/1	.....
.....	Philadelphia		415	3,175	1	1	1	7/1	.....
.....	Philadelphia	H. E. Bacon	832	780	16	10	2	7/1	.....
.....	Pittsburgh		.....	.....	..	..	5	.....	.....
Reading Hospital* ¹	Reading, Pa.	F. G. Runyon	428	258	4	3	1	7/1	100.00
†Milwaukee County Hospital* ¹	Milwaukee		222	594	..	..	2	Varies	158.02

22. PSYCHIATRY

The following services are approved by the Council and the American Board of Psychiatry and Neurology
Hospitals, 253; Assistant Residencies and Residencies, 1,595

Name of Hospital	Location	Chief of Service	Inpatients Treated	Outpatient Visits	Deaths	Autopsies	Asst. Res. and Residencies Offered	Beginning of Service (1949)	Length of Approved Pro- gram (years)	Beginning stipend (Monthly)
United States Army										
Letterman General Hospital*	San Francisco	E. B. Litteral	2,304	2,604	0	0	18	.....	3	n
†Fitzsimons General Hospital*	Denver, Colo.	D. B. Peterson	1,024	1,052	1	1	13	.....	2	n
Walter Reed General Hospital*	Washington, D. C.	E. R. Inwood	2,347	1,846	2	2	15	1, 7	2	n
†Brooke General Hospital*	San Antonio, Texas	R. E. Chambers	2,490	3,459	2	1	2	.....	2	n
United States Navy										
†U. S. Naval Hospital*	Bethesda, Md.	G. N. Raines	870	1,296	5	5	9	.....	3	n
†U. S. Naval Hospital*	Philadelphia	(Included in Neurology)					6	.....	2	n
†U. S. Naval Hospital*	Portsmouth, Va.						2	.....	1	n
United States Public Health Service										
U. S. Public Health Service Hospital ¹	Lexington, Ky.	K. W. Chapman	2,591	3,100	30	26	8	7/1	2	n
U. S. Marine Hospital ¹	New York City	V. T. Davis	2,656	1,485	10	3	7	7/1	2	n
U. S. Public Health Service Hospital ¹	Fort Worth, Texas	R. T. Hewitt	2,590	.....	...	...	10	.....	2	n
Federal Security Agency										
St. Elizabeths Hospital* ¹	Washington, D. C.	W. Overholser	7,980	.....	419	250	24	7/1	3	n
Veterans Administration										
†Veterans Admin. Hospital ¹	N. Little Rock, Ark.	W. Rottersman	.....	.....	.....	.....	8	7/1	3	n
†Veterans Admin. Center ¹	Los Angeles, Calif.	J. Pessin	2,931	326	172	104	30	1	3	n
†Veterans Admin. Hospital ¹	Palo Alto, Calif.	J. J. Prusmack	2,318	7,418	58	41	30	1/1, 7/1	3	n
†Veterans Admin. Hospital ¹	Van Nuys, Calif.	H. H. DeJong	249	989	.....	.....	1	1/1, 7/1	3	n
†Veterans Admin. Hospital	Fort Lyon, Colo.	L. V. Lopez	1,297	0	27	18	3	1/1	2	n
†Veterans Admin. Hospital	Augusta, Ga.	H. M. Cleckly	2,356	2,709	49	20	1	.....	2	n
†Veterans Admin. Hospital ¹	Downey, Ill.	A. Rodriguez	2,796	459	44	25	9	6/1, 1/1	2	n
†Veterans Admin. Hospital	Hines, Ill.	F. G. Gerty	1,461	.....	26	8	9	.....	3	n
†Veterans Admin. Hospital ¹	Marion, Ind.	S. T. Ginsberg	2,621	.....	77	37	4	.....	3	n
†Veterans Admin. Hospital	Knoxville, Iowa	.....	.....	.....	.....	.....	.....	.....	2	n
†Veterans Admin. Hospital ¹	Topeka, Kan.	H. C. Modlin	2,135	.....	16	10	86	7/1	3	n
†Veterans Admin. Hospital ¹	Lexington, Ky.	.....	.....	.....	.....	.....	.....	.....	2	n
†Veterans Admin. Hospital ¹	Louisville, Ky.	D. F. Moore	233	26	.....	.....	3	.....	1	n
†Veterans Admin. Hospital ¹	New Orleans, La.	H. T. Posey	295	155	1	1	1	7/1	2	n
†Veterans Admin. Hospital ¹	Perry Point, Md.	W. G. Reese	3,027	.....	66	39	20	7	3	n
†Veterans Admin. Hospital ¹	Bedford, Mass.	J. L. Rothman	2,907	35,000	47	25	17	7/1	1	n
†Veterans Admin. Hospital (West Roxbury) ¹	Boston	(Included in Neurology)	.....	.....	.....	.....	4	.....	1	n
†Veterans Admin. Hospital ¹	Framingham, Mass.	.....	438	.....	6	3	14	7/1	3	n
†Veterans Admin. Hospital ¹	Fort Custer, Mich.	A. L. Olsen	3,034	542	59	49	9	7/1	3	n
†Veterans Admin. Hospital	Minneapolis	.....	464	.....	3	2	16	.....	3	n
†Veterans Admin. Hospital	St. Cloud, Minn.	.....	.....	.....	.....	.....	2	.....	2	n
†Veterans Admin. Hospital ¹	Gulfport, Miss.	J. J. Blasko	1,045	1,393	30	27	2	1/1	2	n
†Veterans Admin. Hospital ¹	Jefferson Bks., Mo.	.....	427	.....	0	.....	.....	.....	3	n
†Veterans Admin. Hospital ¹	Lyons, N. J.	.....	.....	.....	.....	.....	11	9/1	3	n
†Veterans Admin. Hospital ¹	Canandaigua, N. Y.	E. M. Levy	1,826	66	44	28	4	7/1	1	n
†Veterans Admin. Hospital	New York City	H. Flowers	717	129	4	4	23	1, 7	3	n
†Veterans Admin. Hospital ¹	Northport, N. Y.	.....	.....	.....	.....	.....	29	.....	3	n
†Veterans Admin. Hospital	Chillicothe, Ohio	.....	.....	.....	.....	.....	.....	.....	2	n
†Veterans Admin. Hospital ¹	Cleveland	L. Halle	831	506	4	2	11	.....	3	n
†Veterans Admin. Hospital ¹	Conestoga, Pa.	A. O. Hecker	2,050	30	50	36	37	7/1	3	n
†Veterans Admin. Hospital	Memphis, Tenn.	S. Easter	1,042	1,078	8	5	6	7/1	3	n
†Veterans Admin. Hospital ¹	McKinney, Texas	C. V. Taylor	.....	.....	.....	.....	1	.....	3	n
†Veterans Admin. Hospital ¹	Waco, Texas	T. J. Hardgrove	4,107	.....	54	60	7	1/1, 7/1	2	n
†Veterans Admin. Hospital ¹	Richmond, Va.	B. Nagler	851	.....	9	7	2	7/1	3	n
†Veterans Admin. Hospital ¹	Ronoke, Va.	L. G. Sewall	3,990	.....	69	31	1	.....	3	n
†Veterans Admin. Center ¹	Milwaukee	D. L. Lieberman	1,696	690	28	13	4	.....	2	n
†Veterans Admin. Hospital	Tomah, Wis.	N. C. Mace	887	1,239	30	11	4	1	2	n
Nonfederal										
†Jefferson-Hillman Hospital* ¹	Birmingham, Ala.	.....	.....	.....	.....	.....	.....	.....	1	.....
†Herrick Memorial Hospital* ¹	Berkeley, Calif.	A. E. Bennett	.....	.....	.....	.....	1	7/1	2	\$50.00
Compton Sanitarium ¹	Compton, Calif.	G. E. Myers	625	0	5	4	4	1/1, 7/1	2	250.00
Napa State Hospital ¹	Imola, Calif.	W. A. Oliver	5,300	350	429	94	2	1/1	1	255.00
Livermore Sanitarium	Livermore, Calif.	.....	834	500	13	2	1	7	1	275.00
Los Angeles County Hospital* ¹	Los Angeles	M. G. Carter	7,200	.....	100	25	2	Varies	3	165.00
†Patton State Hospital ¹	Patton, Calif.	.....	.....	.....	.....	.....	2	.....	1	.....
Langley-Porter Clinic ¹	San Francisco	K. M. Bowman	303	12,959	.....	.....	47	Varies	3	255.00
Mount Zion Hospital*	San Francisco	N. Reider	17	5,038	.....	.....	3	.....	2	50.00
Stanford University Hospitals* ^{1,7}	San Francisco	G. S. Johnson	.....	.....	.....	.....	1	7/1	3	50.00
University of California Hospital* ¹	San Francisco	K. M. Bowman	2,639	.....	.....	.....	1	7/1, 8/1, 9/1	3	50.00
Pasadena Sanitarium ¹	S. Pasadena, Calif.	.....	.....	.....	.....	.....	.....	.....	1	150.00
†Pacific Colony ¹	Spadra, Calif.	G. Tarjan	2,200	75	30	13	3	7/1	1	255.00
†Stockton State Hospital ¹	Stockton, Calif.	F. H. Adams	6,140	168	402	85	1	1/1	1	255.00
Mendocino State Hospital ¹	Talmage, Calif.	D. B. Williams	.....	.....	.....	.....	2	.....	2	.....
University of Colorado Medical Center										
Colorado Psychopathic Hospital ¹	Denver	F. G. Ebaugh	1,032	5,637	20	13	25	7/1	3	125.00
Colorado State Hospital ¹	Pueblo, Colo.	F. H. Zimmerman	1,089	.....	400	186	6	.....	2	275.00
Institute of Living (Neuro-Psychiatric Institute of the Hartford Retreat) ¹	Hartford, Conn.	C. C. Burlingame	1,243	.....	10	2	3	Varies	3	275.00
Connecticut State Hospital ¹	Middletown, Conn.	.....	.....	.....	.....	.....	3	.....	2	.....
†Silver Hill Foundation	New Canaan, Conn.	.....	.....	.....	.....	.....	2	.....	1	.....
Grace-New Haven Community Hospital	New Haven, Conn.	F. Redlich	358	2,951	2	2	7	7/1	2	40.00
†New Haven Unit (University Service)* ¹	Newtown, Conn.	J. E. Oltman	3,374	250	264	187	5	7/1	2	200.00
†Fairfield State Hospital	Norwich, Conn.	C. O. Ranger	3,486	112	268	53	1	.....	2	200.00
Delaware State Hospital ¹	Farmhurst, Del.	M. A. Tarumianz	.....	.....	93	25	7	1, 7	2	125.00
Gallinger Municipal Hospital* ¹	Washington, D. C.	.....	4,910	.....	105	18	1	7/1	1	125.00
†George Washington University Hospital* ¹	Washington, D. C.	W. Overholser	60	.....	.....	.....	.....	.....	2	50.00

22. PSYCHIATRY—Continued

Name of Hospital	Location	Chief of Service	Inpatients Treated	Outpatient Visits	Deaths	Autopsies	Asst. Res. and Residencies Offered	Beginning of Service (Year)	Length of Approved Program (Years)	Beginning Stipend (Month)
†University Hospital*	Augusta, Ga.	H. M. Cleaveley	382	.....	7	2	1	7	1	\$ 40.00
†Emory University Hospital*	Emory University, Ga.	.....	(Included in Internal Medicine)	.....	.....	.....	4	.....	1	.....
†Alton State Hospital ¹	Alton, Ill.	.....	.....	.....	.....	.....	4	.....	1	.....
†Anna State Hospital ¹	Anna, Ill.	C. D. Nobles	.....	.....	.....	.....	.....	.....	1	.....
Chicago State Hospital ¹	Chicago	I. Spinka	7,275	1,387	711	143	5	1/1	2	200.00
Cook County Hospital*	Chicago	C. A. Neyman	9,033	.....	174	.....	6	1, 7	2	75.00
Illinois Neuropsychiatric Institute ¹	Chicago	F. J. Gerty	273	8,021	.....	.....	10	.....	3	.....
†Loretto Hospital*	Chicago	J. J. Madden	469	1,018	4	4	1	.....	1	.....
Michael Reese Hospital*	Chicago	R. R. Griener	240	5,835	.....	.....	12	1/1, 7	3	.....
St. Luke's Hospital*	Chicago	F. J. Gerty	316	.....	5	3	.....	.....	1	.....
University of Chicago Clinics*	Chicago	H. Brosin	150	6,957	.....	.....	3	7/1	3	25.00
Veterans Rehabilitation Center ¹	Chicago	D. Sligh	127	4,770	.....	.....	6	.....	1	200.00
Wesley Memorial Hospital*	Chicago	T. T. Stone	654	.....	1	.....	1	.....	1	25.00
†Dixon State Hospital	Dixon, Ill.	.....	.....	.....	.....	.....	.....	.....	1	.....
Elgin State Hospital ¹	Elgin, Ill.	E. Liebert	8,004	2,505	400	165	11	.....	3	200.00
†Jacksonville State Hospital ¹	Jacksonville, Ill.	H. Hoffman	.....	.....	.....	.....	4	.....	1	.....
†Kankakee State Hospital ¹	Kankakee, Ill.	C. J. Katz	.....	.....	.....	.....	1	.....	1	200.00
†Lincoln State School and Colony ¹	Lincoln, Ill.	W. W. Fox	.....	.....	.....	2	2	7	1	87.00
Manteno State Hospital ¹	Manteno, Ill.	M. Wallenberg	9,412	.....	632	105	1	7/1	2	.....
Peoria State Hospital ¹	Peoria, Ill.	.....	.....	.....	.....	.....	2	.....	2	.....
†North Shore Health Resort ¹	Winnetka, Ill.	S. Liebman	455	.....	5	4	2	7/1	1	50.00
Central State Hospital	Indianapolis	.....	.....	.....	.....	.....	4	.....	3	.....
Indianapolis General Hospital*	Indianapolis	E. W. Mericle	705	1,117	31	16	3	7/1	2	80.00
†Norways Sanatorium ¹	Indianapolis	P. B. Reed	352	685	8	.....	1	.....	2	200.00
Logansport State Hospital	Logansport, Ind.	.....	.....	.....	.....	.....	1	.....	2	425.00
†Cherokee State Hospital	Cherokee, Iowa	.....	.....	.....	.....	.....	.....	.....	1	.....
†St. Bernard's Hospital	Council Bluffs, Iowa	W. E. Ash	938	.....	21	0	1	.....	1	.....
Iowa State Psychopathic Hospital ¹	Iowa City	W. R. Miller	316	2,337	0	0	6	7/1	3	93.00
Menninger Sanitarium ¹	Topeka, Kan.	R. L. Worthington	152	.....	1	.....	3	.....	3	.....
†Louisville General Hospital*	Louisville, Ky.	S. S. Ackerly	601	2,124	10	6	2	.....	2	.....
†Charity Hospital of Louisiana*	New Orleans	.....	.....	8,645	(Included in Neurology)	.....	.....	.....	1	.....
†DePaul Sanitarium ¹	New Orleans	H. O. Colomb	1,109	700	13	3	3	1/1, 7/1	2	300.00
†Ochsner Foundation Hospital ^{1,41,43}	New Orleans	T. L. L. Soulat	354	3,071	.....	.....	2	7/1	2	225.00
Johns Hopkins Hospital*	Baltimore	J. C. Whitehorn	309	4,514	2	2	12	7/1	3	41.63
†Seton Institute	Baltimore	D. Ross and W. Muncie	647	0	14	0	8	7/1	2	125.00
Spring Grove State Hospital	Catonsville, Md.	.....	3,270	2,554	155	48	16	.....	2	.....
†Chestnut Lodge Sanitarium ¹	Rockville, Md.	F. Fromm-Reichmann	.....	.....	.....	.....	6	7	2	175.00
Springfield State Hospital	Sykesville, Md.	.....	3,720	.....	180	55	10	.....	2	.....
Sheppard and Enoch Pratt Hospital ¹	Towson, Md.	.....	423	121	10	4	7	7	2	100.00
†Beth Israel Hospital*	Boston	G. L. Birling	.....	955	.....	.....	1	7/1	1	300.00
Boston Psychopathic Hospital ¹	Boston	H. C. Solomon	1,228	8,219	4	2	14	0	3	170.00
Boston State Hospital ¹	Boston	E. V. Semrad	4,342	0	391	74	4	.....	2	.....
Massachusetts General Hospital*	Boston	S. Cobo	193	.....	.....	.....	7	.....	2	.....
†Massachusetts Memorial Hospital*	Boston	W. Malamud	.....	2,391	.....	.....	1	5/2	3	50.00
†New England Center Hospital ¹	Boston	R. D. Adams	1,143	237	.....	.....	2	7/1	1	83.33
†Peter Bent Brigham Hospital*	Boston	.....	(Included in Medicine)	.....	.....	.....	.....	.....	1	.....
Foxboro State Hospital ¹	Foxboro, Mass.	J. T. Shea	1,507	267	94	22	2	1/1, 4/1	2	460.00
Gardner State Hospital ¹	Gardner, Mass.	C. E. Thompson	1,629	551	83	5	0	.....	2	.....
Danvers State Hospital ¹	Hawthorne, Mass.	P. B. Hoptopian	3,209	683	247	65	2	.....	2	170.00
Medfield State Hospital	Medfield, Mass.	E. K. Hoyt	.....	.....	.....	.....	2	.....	2	.....
Northampton State Hospital ¹	Northampton, Mass.	J. H. F. Longpre	.....	.....	.....	.....	10	.....	2	300.00
Grafton State Hospital ¹	North Grafton, Mass.	.....	2,099	1,172	111	39	2	7/1	2	170.00
Monson State Hospital	Palmers, Mass.	R. G. Osterheld	1,465	175	.....	.....	2	.....	1	.....
†Austen Riggs Foundation	Stockbridge, Mass.	R. P. Knight	139	282	.....	.....	2	7/1	1	500.00
Taunton State Hospital ¹	Taunton, Mass.	B. E. Zuwaeki	738	1,497	209	88	5	7/1	2	500.00
Metropolitan State Hospital ¹	Waltham, Mass.	W. C. Gachler	1,997	.....	108	84	2	1/1	1	.....
McLean Hospital ¹	Waverley, Mass.	W. F. Wood	.....	.....	17	7	4	.....	2	.....
Westboro State Hospital ¹	Westboro, Mass.	R. V. Hadley	2,230	692	159	10	2	.....	2	.....
†Worcester City Hospital*	Worcester, Mass.	F. Vibber	.....	.....	.....	.....	.....	7/1	1	50.00
Worcester State Hospital	Worcester, Mass.	D. Rothschild	3,676	600	263	36	14	Varies	3	.....
University Hospital*	Ann Arbor, Mich.	R. W. Waggoner	580	7,787	1	1	14	7/1	3	111.80
†St. Joseph's Retreat	Dearborn, Mich.	M. H. Hoffman	1,382	.....	11	3	.....	.....	1	.....
City of Detroit Receiving Hospital*	Detroit	T. V. Hoagland	6,100	85	96	45	6	7/1	1	188.00
Henry Ford Hospital*	Detroit	T. J. Heldt	783	10,350	33	12	4	7/1	2	200.00
Wayne County General Hospital and Infirmary*	Eloise, Mich.	L. S. Lipsebutz	5,539	3,728	309	69	6	1/1, 7/1	3	235.00
†Ionia State Hospital	Ionia, Mich.	G. H. Cook	.....	.....	.....	.....	.....	.....	2	335.00
Kalamazoo State Hospital ¹	Kalamazoo, Mich.	C. M. Schrier	3,870	2,235	205	17	4	1/1	2	335.00
†Newberry State Hospital ¹	Newberry, Mich.	.....	1,663	2,742	137	10	.....	.....	1	.....
Pontiac State Hospital ¹	Pontiac, Mich.	P. V. Wagley	3,033	149	203	69	5	Varies	2	335.00
Traverse City State Hospital ¹	Traverse City, Mich.	R. P. Sheets	3,480	1,295	237	58	6	.....	2	335.00
Ypsilanti State Hospital ¹	Ypsilanti, Mich.	O. R. Yoder	4,775	764	275	73	13	Varies	2	335.00
Minneapolis General Hospital*	Minneapolis	.....	(Included in Neurology)	.....	.....	.....	.....	.....	1	.....
University of Minnesota Hospitals*	Minneapolis	D. W. Hastings	303	2,063	1	.....	7	.....	3	.....
Mayo Foundation	Rochester, Minn.	F. J. Bruceland	.....	.....	.....	.....	.....	.....	.....	.....
†Rochester State Hospital	Rochester, Minn.	.....	2,146	0	179	81	8	.....	1	.....
State Hospital No. 1	Fulton, Mo.	W. J. Cremer	2,525	0	266	43	1	.....	2	150.00
Kansas City General Hospital No. 1*	Kansas City, Mo.	M. L. Bills	.....	(Included in Neurology)	.....	.....	.....	.....	1	50.00
State Hospital No. 2	St. Joseph, Mo.	.....	.....	.....	.....	.....	.....	.....	2	100.00
Barnes Hospital*	St. Louis	E. F. Gliden	564	7,175	2	1	14	7/1	3	25.00
Homer G. Phillips Hospital*	St. Louis	E. F. Gliden	(Included in Neurology)	.....	.....	.....	.....	.....	2	95.00
St. Louis City Hospital*	St. Louis	T. Thale	2,686	867	150	33	7	7/1	3	95.00
St. Louis State Hospital ¹	St. Louis	L. H. Kohler	3,920	.....	169	57	5	7/1	2	150.00
St. Vincent's Sanitarium	St. Louis	P. E. Kubitschek	649	.....	22	11	1	7/1	1	200.00
Hastings State Hospital ¹	Ingleside, Neb.	J. O. Nielsen	2,399	200	.....	.....	2	7/1	2	300.00
Norfolk State Hospital ¹	Norfolk, Neb.	.....	1,342	1,165	74	26	3	.....	2	300.00
†Lutheran Hospital ¹	Omaha	R. Young	806	.....	0	4	1	1/1	1	150.00
†University of Nebraska Hospital*	Omaha	.....	.....	.....	.....	.....	.....	.....	2	.....
New Hampshire State Hospital ¹	Concord, N. H.	J. L. Smallidon	3,437	.....	319	39	3	1/1	2	135.75
†Essex County Overbrook Hospital ¹	Cedar Grove, N. J.	H. G. Smith	3,355	703	316	93	4	.....	1	.....
New Jersey State Hospital ¹	Greystone Park, N. J.	M. A. Curry	7,515	.....	579	59	5	.....	2	300.00
New Jersey State Hospital ¹	Marlboro, N. J.	.....	4,126	1,558	317	124	2	.....	2	100.00

22. PSYCHIATRY—Continued

Name of Hospital	Location	Chief of Service	Inpatients Treated	Outpatient Visits	Deaths	Autopsies	Asst. Res. and Residents Offered *	Beginning of Service (1949)	Length of Approved Program (years)	Beginning Stipend (month)
New Jersey State Hospital.....	Trenton, N. J.....	H. S. Magee.....	5,011	.....	298	54	5	.....	2	\$100.00
Albany Hospital*1,2.....	Albany, N. Y.....	S. E. Barrera.....	1,514	332	39	24	4	7/1	3	41.67
South Oaks, Long Island Home 1.....	Amityville, N. Y.....	A. Rolo.....	690	.....	17	.....	3	7/1	1	250.00
Craig House.....	Beacon, N. Y.....	.....	.....	.....	.....	.....	.....	.....	1	.....
Matteawan State Hospital.....	Beacon, N. Y.....	J. F. McNeill.....	1,641	.....	39	12	6	4/1	1	290.00
Hillside Hospital 1.....	Bellerose, N. Y.....	J. S. A. Miller.....	418	635	2	.....	6	1/1	2	150.00
Binghamton State Hospital 1.....	Binghamton, N. Y.....	.....	.....	.....	.....	.....	3	9/1	2	300.00
Brooklyn State Hospital 1.....	Brooklyn.....	.....	5,825	5,439	613	66	16	.....	3	.....
Kings County Hospital*1.....	Brooklyn.....	H. Potter.....	9,325	5,026	246	19	11	7/1	1	130.00
Buffalo State Hospital 1.....	Buffalo.....	C. Fletcher.....	3,478	15	257	61	2	.....	2	250.00
Edward J. Meyer Memorial Hospital*1.....	Buffalo.....	L. A. Osborn.....	1,937	605	89	37	5	7/1	2	100.00
Central Islip State Hospital 1.....	Central Islip, N. Y.....	D. Corcoran.....	9,595	3,118	582	137	8	.....	3	.....
Gowanda State Homeopathic Hospital 1.....	Helmuth, N. Y.....	P. J. Tomlinson.....	2,994	3,205	264	50	6	.....	2	300.00
Pinewood Sanitarium 1.....	Katonah, N. Y.....	L. Wender.....	257	.....	2	.....	1	.....	1	.....
Kings Park State Hospital 1.....	Kings Park, N. Y.....	.....	8,951	3,147	473	.....	11	.....	2	.....
River Crest Sanitarium.....	Long Island City, N. Y.....	M. Dollin.....	.....	.....	.....	.....	2	9/1	1	.....
Marcy State Hospital.....	Marcy, N. Y.....	.....	3,288	.....	.....	25	4	.....	2	.....
Middletown State Homeopathic Hospital 1.....	Middletown, N. Y.....	W. A. Schmitz.....	3,753	833	268	81	5	.....	2	304.00
Bellevue Hospital, Div. III—N. Y. Univ.*1.....	New York City.....	S. B. Wortis.....	21,214	10,671	635	268	58	.....	3	63.60
Manhattan State Hospital 1.....	New York City.....	J. H. Travis.....	5,459	2,061	711	139	14	Varies	2	304.16
Mount Sinai Hospital*1.....	New York City.....	M. R. Kaufman.....	.....	.....	.....	.....	3	.....	.....	50.00
New York Hospital*1.....	New York City.....	O. Diethelm.....	1,210	7,143	.....	13	7/1	3	.....	50.00
New York State Psychiatric Institute 1.....	New York City.....	I. H. MacKinnon.....	354	1,361	1	1	21	.....	3	.....
St. Lawrence State Hospital 1.....	Ogdensburg, N. Y.....	.....	2,639	972	163	3	4	.....	2	.....
Rockland State Hospital 1.....	Orangeburg, N. Y.....	.....	.....	.....	.....	.....	8	.....	2	.....
Stony Lodge Sanitarium 1.....	Ossing, N. Y.....	B. C. Glueck, Jr.....	84	162	.....	.....	2	1/1	1	150.00
Hudson River State Hospital 1.....	Poughkeepsie, N. Y.....	W. C. Groom.....	5,938	781	403	77	2	.....	2	.....
Credmore State Hospital.....	Queens Village, N. Y.....	H. A. LaBurt.....	6,830	3,331	448	74	9	.....	2	304.00
Rochester State Hospital 1.....	Rochester, N. Y.....	K. K. Slaght.....	3,997	4,767	353	45	4	Varies	2	304.09
Strong Memorial—Rochester Municipal Hospitals*1.....	Rochester, N. Y.....	J. Romano.....	439	2,329	3	2	11	7/1	2	45.00
Syracuse Psychopathic Hospital 1.....	Syracuse, N. Y.....	M. F. Brew.....	716	1,036	7	2	2	.....	2	304.00
Hutchworth Village 1.....	Thiells, N. Y.....	J. Campbell.....	4,302	25	72	35	2	.....	1	316.00
Utica State Hospital 1.....	Utica, N. Y.....	.....	2,359	2,958	184	25	2	.....	2	.....
Grasslands Hospitals*1.....	Valhalla, N. Y.....	F. V. Rockwell.....	1,322	1,308	52	29	7	7	2	125.00
Pilgrim State Hospital 1.....	W. Brentwood, N. Y.....	H. J. Worthing.....	9,150	2,767	867	156	20	.....	2	.....
New York Hospital—Westchester Division 1.....	White Plains, N. Y.....	.....	691	.....	11	1	9	1/1, 7/1	3	125.00
Willard State Hospital 1.....	Willard, N. Y.....	.....	.....	.....	.....	.....	5	.....	2	.....
Harlem Valley State Hospital 1.....	Wingdale, N. Y.....	A. M. Stanley.....	5,431	1,003	293	103	4	Varies	2	.....
Duke Hospital*1.....	Durham, N. C.....	R. S. Lyman.....	223	1,563	.....	.....	20	7/1	3	\$3.33
North Carolina Baptist Hospital*1.....	Winston-Salem, N. C.....	L. J. Thompson.....	(Included in Medicine)	.....	.....	.....	4	7/1	2	.....
Windsor Hospital.....	Chagrin Falls, Ohio.....	.....	.....	.....	.....	.....	1	.....	1	.....
Christ Hospital*.....	Cincinnati.....	H. D. Fabing.....	606	.....	.....	.....	1	7/1	1	75.00
Cincinnati General Hospital*1.....	Cincinnati.....	M. Levine.....	1,192	719	20	9	19	7/1	3	.....
Longview State Hospital 1.....	Cincinnati.....	.....	.....	.....	.....	.....	3	.....	2	.....
Cleveland Clinic Hospital 1.....	Cleveland.....	L. J. Karnosh.....	(Included in Neurology)	.....	.....	.....	2	.....	2	.....
Cleveland State Hospital.....	Cleveland.....	E. H. Crawfis.....	.....	.....	.....	.....	2	7/1	1	200.00
Cleveland State Receiving Hospital.....	Cleveland.....	F. E. Merritt.....	1,200	.....	44	24	13	7/1	3	.....
University Hospitals*1.....	Cleveland.....	D. D. Bond.....	24	4,077	1	.....	1	7/1	2	25.00
Columbus State Hospital 1.....	Columbus, Ohio.....	J. F. Bateman.....	2,660	750	167	89	3	7	2	250.00
Massillon State Hospital.....	Massillon, Ohio.....	.....	.....	.....	.....	.....	3	.....	2	.....
Harding Sanitarium 1.....	Worthington, Ohio.....	H. Evans.....	519	3,102	9	.....	3	.....	2	.....
Central Oklahoma State Hospital 1.....	Norman, Okla.....	D. W. Griffin.....	2,552	.....	199	2	2	.....	1	.....
Oregon State Hospital.....	Salem, Ore.....	.....	.....	.....	.....	.....	2	.....	2	.....
Allentown State Hospital 1.....	Allentown, Pa.....	H. F. Hoffman.....	2,903	413	154	21	4	.....	2	225.00
Danville State Hospital 1.....	Danville, Pa.....	.....	2,570	1,271	147	20	3	.....	2	.....
Harrisburg State Hospital 1.....	Harrisburg, Pa.....	H. K. Petry.....	2,926	480	178	74	2	.....	2	351.00
Norristown State Hospital 1.....	Norristown, Pa.....	A. P. Noyes.....	5,000	.....	295	97	15	.....	2	337.50
Friends Hospital 1.....	Philadelphia.....	T. L. Dehne.....	427	1,474	18	7	4	7/1	2	200.00
Hospital of the University of Pennsylvania*1.....	Philadelphia.....	K. Appel.....	.....	4,443	.....	.....	8	Varies	2	.....
Institute of the Pennsylvania Hospital 1.....	Philadelphia.....	L. H. Smith.....	.....	.....	.....	.....	14	.....	3	166.60
Jefferson Medical College Hospital*.....	Philadelphia.....	.....	89	2,007	.....	.....	2	7/1	1	.....
Pennsylvania Hospital, Department for Mental and Nervous Diseases 1.....	Philadelphia.....	L. H. Smith.....	.....	.....	.....	.....	15	.....	3	165.60
Philadelphia Psychiatric Hospital 1.....	Philadelphia.....	.....	481	1,472	3	.....	5	7	2	100.00
Philadelphia State Hospital 1.....	Philadelphia.....	.....	.....	.....	.....	.....	6	.....	2	.....
Temple University Hospital*1.....	Philadelphia.....	O. S. English.....	.....	2,481	.....	.....	5	7/1	2	.....
St. Francis Hospital*1.....	Pittsburgh.....	.....	3,255	440	81	14	3	7/1	2	100.00
Western State Psychiatric Institute and Clinic 1.....	Pittsburgh.....	R. A. Clark.....	428	6,025	8	5	12	7/1	3	266.50
Warren State Hospital 1.....	Warren, Pa.....	R. H. Israel.....	3,523	.....	.....	.....	4	7/1	2	257.00
Woodville State Hospital 1.....	Woodville, Pa.....	R. J. Phifer.....	2,487	.....	.....	.....	4	.....	2	.....
State Hospital for Mental Diseases 1.....	Howard, R. I.....	J. F. Regan.....	3,508	261	395	65	8	Varies	2	333.30
Butler Hospital 1.....	Providence, R. I.....	D. G. Wright.....	345	1,910	27	10	6	.....	1	175.00
Charles V. Chapin Hospital 1.....	Providence, R. I.....	T. L. Greason.....	851	788	21	7	2	Varies	1	172.50
Vanderbilt University Hospital*1.....	Nashville, Tenn.....	W. F. Orr.....	.....	.....	.....	.....	3	7/1	2	55.41
Beverly Hills Sanitarium 1.....	Dallas, Texas.....	S. Weiz.....	1,021	586	13	.....	4	7/1	1	200.00
Parkland Hospital*1.....	Dallas, Texas.....	.....	.....	.....	.....	.....	.....	.....	1	.....
Timberlawn Sanitarium.....	Dallas, Texas.....	G. F. Witt.....	529	.....	2	1	5	1/1, 7/1	2	300.00
Galveston State Psychopathic Hospital 1.....	Galveston, Texas.....	J. R. Ewalt.....	1,419	.....	6	6	12	9	3	200.00
University of Texas Medical Branch Hosps.*.....	Galveston, Texas.....	T. H. Harris.....	904	.....	14	6	7	7	2	50.00
Vermont State Hospital 1.....	Waterbury, Vt.....	R. A. Chittick.....	1,612	.....	120	58	2	.....	1	.....
University of Virginia Hospital*1.....	Charlottesville, Va.....	D. C. Wilson.....	606	1,761	8	5	6	7/1	3	.....
Medical College of Virginia Hospital Division*1.....	Richmond, Va.....	R. F. Gayle, Jr.....	569	2,120	9	3	4	7/1	3	46.50
Western State Hospital 1.....	Ft. Steilacoom, Wash.....	R. H. Rea.....	3,536	.....	301	149	5	.....	.....	.....
Eastern State Hospital 1.....	Medical Lake, Wash.....	H. A. Perry.....	2,576	910	209	7	1	7/1	2	350.00
Northern State Hospital 1.....	Sedro Woolley, Wash.....	F. E. Shovlain.....	.....	.....	.....	.....	2	.....	2	.....
State of Wisconsin General Hospital*1.....	Madison, Wis.....	M. Masten.....	941	548	27	20	5	7	3	25.00
Milwaukee County Hospital for Mental Diseases 1.....	Milwaukee.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Milwaukee Sanitarium 1.....	Milwaukee.....	M. Kasak.....	1,686	1,177	41	19	9	Varies	2	150.58
Queen's Hospital*1.....	Honolulu, Hawaii.....	J. A. Kindwall.....	474	.....	7	5	1	.....	2	.....
.....	.....	R. Kepner.....	1,115	167	4	3	2	7	2	75.00

23. PULMONARY DISEASES

The following services are approved by the Council and the American Board of Internal Medicine
Hospitals, 128; Assistant Residencies and Residencies, 445

Name of Hospital	Location	Chief of Service	Inpatients Treated	Outpatient Visits	Deaths	Autopsies	Asst. Res. and Residencies Offered	Beginning of Service (1949)	Beginning Stipend (Month)
United States Army									
†Fitzsimons General Hospital*	Denver	C. W. Tempel	2,510	274	76	60	6	.....	n
Federal Security Agency									
†Freedmen's Hospital* ¹	Washington, D. C.	H. Payne	163	6,098	50	15	3	7/1	n
Veterans Administration									
†Veterans Admin. Hospital ¹	San Fernando	D. Solkin	711	3,511	59	26	1	.....	n
†Veterans Admin. Hospital ¹	Van Nuys, Calif.	J. D. Davis	905	3,009	46	37	8	1/1, 7/1	n
†Veterans Admin. Hospital ¹	Pt. Logan, Colo.	D. W. Zahn	160	150	10	7	..	1	n
†Veterans Admin. Hospital	Hines, Ill.	H. C. Sweany	936	.....	117	40	1	.....	n
†Veterans Admin. Hospital	Alexandria, La.	L. B. Newman	.....	.....	.....	.....	6	.....	n
†Veterans Admin. Hospital	Rutland Hgts., Mass.	S. T. Allison	1,155	586	90	47	1	.....	n
†Veterans Admin. Hospital	Minneapolis, Minn.	.....	268	.....	18	12	.....	.....	n
†Veterans Admin. Hospital	Excelsior Springs, Mo.	L. Levin	627	.....	41	21	6	.....	n
†Veterans Admin. Hospital ¹	Castle Point, N. Y.	J. K. Deegan	527	3,037	76	44	.....	.....	n
†Veterans Admin. Hospital ¹	Staten Island, N. Y.	V. F. Woolf	229	.....	27	16	4	7/1	n
†Veterans Admin. Hospital	Summumount, N. Y.	N. D. E'Esopo	.....	.....	.....	.....	.....	.....	n
†Veterans Admin. Hospital	Oteen, N. C.	.....	.....	.....	.....	.....	1	.....	n
†Veterans Admin. Hospital ¹	Brecksville, Ohio	N. S. Greene	674	211	42	10	3	.....	n
†Veterans Admin. Hospital ^{1,26}	McKinney, Texas	F. K. Reichsman	.....	.....	.....	.....	4	.....	n
†Veterans Admin. Hospital	Walla Walla, Wash.	L. S. Aranyman	691	283	35	19	1	.....	n
†Veterans Admin. Center ¹	Milwaukee, Wis.	.....	.....	.....	.....	.....	.....	.....	n
Nonfederal									
Los Angeles Sanatorium ¹	Duarte, Calif.	A. Goldman	429	.....	33	12	6	.....	.....
Arroyo-Del Valle Sanatorium	Livermore, Calif.	C. Bush	501	.....	43	0	1	.....	.....
Barlow Sanatorium ¹	Los Angeles	H. W. Bosworth	87	1,277	1	1	2	7/1	\$100.00
Los Angeles County Hospital* ¹	Los Angeles	C. B. Howson	1,572	3,808	368	71	3	Varies	165.00
Pottenger Sanatorium and Clinic ¹	Monrovia, Calif.	F. M. Pottenger	164	1,373	18	2	1	.....	.....
Bret Harte Sanatorium	Murphys, Calif.	E. P. Smart	440	5,383	20	4	2	.....	335.00
Olive View Sanatorium ¹	Olive View, Calif.	O. E. Babcock	1,901	0	34	25	18	.....	575.00
San Diego County General Hospital*	San Diego, Calif.	P. O'Hara	210	2,401	44	14	3	7/1	125.00
San Francisco Hospital* ¹	San Francisco	.....	929	.....	204	22	4	.....	175.00
Santa Clara County Hospital*	San Jose, Calif.	C. Ianne	4,069	4,060	45	2	2	7/1	235.00
Fairmont Hospital of Alameda County ¹	San Leandro, Calif.	J. L. Eaton	157	1,934	49	12	1	7/1	145.00
†Tulare-Kings Counties Joint Tuberculosis Hospital	Springfield, Calif.	W. A. Winn	247	1,656	7	4	2	7/1	425.00
National Jewish Hospital ¹	Denver	A. Hurst	511	.....	17	12	16	7	100.00
University of Colorado Medical Center	Denver	D. Reissner	154	6,637	32	11	1	7	40.00
Sanatorium of the Jewish Consumptives' Relief Society	Sprink, Colo.	M. Chernyk	315	1,763	17	9	4	.....	150.00
Undercliff Sanatorium ¹	Meriden, Conn.	C. B. Gibson	377	3,412	52	2	4	7/1	338.66
Norwich State Tuberculosis Sanatorium (Uncas-on-Thames)	Norwich, Conn.	.....	598	3,654	73	12	1	.....	.....
Laurel Heights State Tuberculosis Sanatorium	Shelton, Conn.	.....	434	2,474	33	5	2	.....	.....
Gaylord Farm Sanatorium ¹	Wallingford, Conn.	.....	279	3,900	3	1	2	.....	.....
Tuberculosis Sanatorium (Glen Dale, Md. P. O.)	Washington, D. C.	D. L. Finucane	1,082	.....	109	75	3	.....	220.40
†City of Chicago Municipal Tuberculosis Sanatorium	Chicago	.....	725	.....	.....	.....	2	.....	.....
University of Chicago Clinics* ¹	Chicago	R. G. Bloch	.....	2,179	.....	.....	1	7/1	25.00
Macon County Tuberculosis Sanatorium ¹	Decatur, Ill.	D. F. Loewen	174	5,728	16	14	1	1/1	250.00
Pleasant View Sanatorium	East St. Louis, Ill.	W. S. Broker	208	9,126	44	.....	1	.....	.....
Peoria Municipal Tuberculosis Sanatorium ¹	Peoria, Ill.	.....	165	3,635	19	10	1	7/1	175.00
Rockford Municipal Tuberculosis Sanatorium ¹	Rockford, Ill.	W. J. Bryan	230	6,874	23	7	1	.....	250.00
Lake County Tuberculosis Sanatorium	Waukegan, Ill.	C. K. Petter	232	4,869	19	8	1	.....	.....
Boehne Tuberculosis Hospital	Evansville, Ind.	P. D. Crum	448	835	55	55	1	Varies	350.00
Indianapolis General Hospital*	Indianapolis, Ind.	D. J. White	197	2,807	42	2	1	7/1	100.00
Sunnyside Sanatorium	Indianapolis	F. L. Jennings	363	1,508	36	11	2	.....	250.00
Healthwin Hospital ¹	South Bend, Ind.	E. W. Custer	328	1,457	33	4	2	3/1	200.00
State Sanatorium ¹	Oakdale, Iowa	.....	773	2,562	48	6	1	.....	100.00
†Waverly Hills Sanatorium ¹	Waverly Hills, Ky.	A. B. Mullen	681	0	121	14	4	7/1	90.00
†Charity Hospital of Louisiana* ¹	New Orleans, La.	.....	839	9,846	144	8	4	7/1	25.00
Western Maine Sanatorium ¹	Greenwood Mt., Maine	L. Adams	152	797	22	5	1	.....	.....
Baltimore City Hospital* ¹	Baltimore	H. V. Langeluttlg.	567	.....	122	56	4	7/1	15.00
Boston Sanatorium	Boston	J. A. Foley	1,015	.....	124	.....	8	.....	.....
Rutland State Sanatorium ¹	Rutland, Mass.	.....	.....	.....	.....	.....	1	.....	.....
Norfolk County Hospital	S. Braintree, Mass.	N. R. Pillsbury	189	4,193	16	4	2	7	235.00
Middlesex County Sanatorium ¹	Waltham, Mass.	.....	524	20,726	47	19	2	7	230.00
Westfield State Sanatorium ¹	Westfield, Mass.	W. Knowlton	.....	4,466	34	3	4	7/1	270.00
Belmont Hospital	Worcester, Mass.	H. K. Spangler	256	5,336	34	8	2	1/1, 7/1	155.00
University Hospital* ¹	Ann Arbor, Mich.	C. O. Sturgis	.....	.....	.....	.....	2	7/1	111.88
American Legion Hospital	Battle Creek, Mich.	.....	233	226	59	1	1	1	300.00
Herman Kiefer Hospital ¹	Detroit	P. T. Chapman	1,807	49,593	235	100	15	7/1	368.00
Michigan State Sanatorium ¹	Howell, Mich.	E. W. Laboe	702	2,629	45	0	4	Varies	480.00
Ingham Sanatorium	Lansing, Mich.	.....	444	18,622	25	.....	3	7	200.00
Morgan Heights Sanatorium ¹	Marquette, Mich.	J. R. Acecos	164	2,812	18	4	1	Varies	300.00
William H. Maybury Sanatorium ¹	Northville, Mich.	W. L. Howard	1,500	.....	.....	7	1	368.00	.....
Oakland County Tuberculosis Sanatorium	Pontiac, Mich.	.....	483	4,490	35	9	4	.....	300.00
Nopeming Sanatorium ¹	Nopeming, Minn.	G. A. Hedberg	.....	.....	.....	.....	2	.....	.....
Glen Lake Sanatorium	Oak Terrace, Minn.	.....	993	32,949	102	40	2	.....	125.00
Mississippi State Tuberculosis Sanatorium	Sanatorium, Miss.	H. Boswell	711	1,967	33	2	1	7/1	175.00
Kansas City Municipal Tuberculosis Hospital	Kansas City, Mo.	G. K. Landis	.....	.....	.....	.....	2	.....	.....
Robert Koch Hospital ¹	Koch, Mo.	G. D. Kettelkamp	844	0	122	50	9	.....	.....
Homer G. Phillips Hospital* ¹	St. Louis	A. Goldman	248	1	60	16	1	7/1	95.00
Mount St. Rose Sanatorium	St. Louis	J. A. Smith	.....	.....	.....	.....	1	.....	.....
New Jersey Sanatorium for Tuberculous Dis- eases ¹	Glen Gardner, N. J.	J. A. Smith	505	2,096	18	5	7	.....	.....
Berthold S. Pollak Hospital for Chest Diseases	Jersey City, N. J.	G. O'Hanlon	858	33,291	201	48	8	.....	.....
†Bergen Pines, Bergen County Hospital ¹	Ridgewood, N. J.	R. R. Little	719	8,800	65	10	.....	1	200.00
Essex County Sanatorium ¹	Verona, N. J.	A. M. Hicks	685	1,937	172	27	6	Varies	200.00
Albany Hospital* ¹	Albany, N. Y.	R. J. Erickson	271	1,625	45	25	1	7/1	41.67

23. PULMONARY DISEASES—Continued

Name of Hospital	Location	Chief of Service	Inpatients Treated	Outpatient Visits	Deaths	Autopsies	Asst. Res. and Residencies Offered *	Beginning of Service (1949)	Beginning Stipend (Month)
Montefiore Hospital Country Sanatorium.....	Bedford Hills, N. Y.....	S. Rothbard .....	.....	.....	.....	.....	4	.....	\$100.00
Kings County Hospital*1.....	Brooklyn.....	C. Hamilton	856	6,150	201	17	4	1/1, 7/1	130.00
Kingston Avenue Hospital.....	Brooklyn.....	F. Murray	422	.....	54	14	3	7/1	130.00
Edward J. Meyer Memorial Hospital*1.....	Buffalo.....	H. G. Dayman.....	780	1,103	185	76	1	7/1	100.00
Nassau County Tuberculosis Hospital 1.....	Farmingdale, N. Y.....	J. C. Walsh	548	9,562	69	10	.....	.....	.....
Herman M. Biggs Memorial Hospital 1.....	Ithaca, N. Y.....	N. S. Lincoln.....	415	7,945	28	7	.....	.....	.....
Triboro Hospital 1.....	Jamaica, N. Y.....	R. H. Bennett.....	.....	.....	153	68	14	.....	80.00
†Niagara Sanatorium 1.....	Lockport, N. Y.....	A. N. Aitken.....	340	9,790	42	33	.....	.....	233.00
Mount Morris Tuberculosis Hospital 1.....	Mount Morris, N. Y.....	A. M. Stokes.....	333	7,262	33	16	4	.....	.....
Bellevue Hospital, Div. I—Columbia University*	New York City.....	J. B. Amberson.....	2,779	8,551	263	74	22	.....	63.00
Lenox Hill Hospital*1.....	New York City.....	G. Thorburn.....	84	.....	1	.....	1	1/1	50.00
Metropolitan Hospital*1.....	New York City.....	G. G. Ornstein.....	818	5,600	193	25	5	7/1	130.00
Montefiore Hospital for Chronic Diseases*1.....	New York City.....	S. Rothbard	325	.....	35	18	3	.....	.....
†Morrisania City Hospital.....	New York City.....	.....	.....	.....	.....	.....	.....	.....	.....
St. Joseph Hospital for Chest Diseases.....	New York City.....	F. J. McCarthy.....	741	.....	64	15	4	.....	175.00
Homer Folks Tuberculosis Hospital 1.....	Oneonta, N. Y.....	R. Horton	427	7,319	48	16	2	.....	342.50
Municipal Sanatorium 1.....	Ottsville, N. Y.....	J. S. Edlin.....	1,106	.....	.....	.....	7	.....	.....
Ray Brook State Tuberculosis Hospital 1.....	Ray Brook, N. Y.....	.....	617	5,875	24	15	4	.....	.....
Iola-Monroe County Tuberculosis Sanatorium 1	Rochester, N. Y.....	.....	657	18,960	93	48	6	7	247.91
Schenectady County Tuberculosis Hospital 1.....	Schenectady, N. Y.....	J. M. Blake.....	225	3,517	17	5	2	7/1	100.00
Sea View Hospital 1.....	Staten Island, N. Y.....	G. G. Ornstein.....	3,046	.....	436	.....	23	.....	130.00
Trudeau Sanatorium 1.....	Trudeau, N. Y.....	E. N. Packard.....	370	.....	3	2	3	Varies	50.00
Grasslands Hospital*1.....	Valhalla, N. Y.....	W. G. Childress.....	453	1,702	62	35	8	7	125.00
Jefferson County Sanatorium 1.....	Watertown, N. Y.....	S. E. Simpson.....	92	2,947	7	4	1	.....	150.00
†North Carolina Sanatorium for the Treatment of Tuberculosis.....	McCain, N. C.....	J. S. Hlatt, Jr.....	1,173	2,472	136	19	.....	.....	.....
Dunham Hospital.....	Cincinnati.....	.....	928	976	134	50	6	.....	.....
City Hospital*1.....	Cleveland.....	R. C. McKay.....	533	742	198	81	2	7/1	100.00
Franklin County Tuberculosis Hospital 1.....	Columbus, Ohio.....	W. L. Potts.....	521	518	64	13	5	Varies	375.00
Sunny Acres, Cuyahoga County Tuberculosis Hospital.....	Warrensville, Ohio.....	.....	.....	.....	.....	.....	6	.....	.....
†Mahoning Tuberculosis Sanatorium 1.....	Youngstown, Ohio.....	W. Newcomer .....	.....	.....	.....	.....	3	7	250.00
Eagleview Sanatorium for Consumptives 1.....	Eagleview, Pa.....	A. J. Cohen	339	\$1,21	17	4	2	.....	.....
†Hamburg State Sanatorium.....	Hamburg, Pa.....	.....	.....	.....	.....	.....	.....	.....	.....
Germantown Dispensary and Hospital*.....	Philadelphia.....	F. M. McPhedran.....	.....	.....	.....	.....	1	7	50.00
Jefferson Medical College Hospital*.....	Philadelphia.....	.....	.....	.....	.....	.....	2	7/1	.....
†Philadelphia General Hospital*1.....	Philadelphia.....	.....	1,445	.....	446	.....	3	7/1	70.00
†City Tuberculosis Hospital.....	Pittsburgh.....	G. E. Martin.....	923	1,782	129	19	3	.....	246.25
†Tuberculosis League Hospital 1.....	Pittsburgh.....	O. H. Marcy.....	360	17,659	28	8	3	7/1	200.00
State Sanatorium 1.....	Wallum Lake, R. I.....	U. E. Zambarano.....	609	3,552	78	16	8	.....	.....
Pine Breeze Sanatorium.....	Chattanooga, Tenn.....	.....	.....	.....	.....	.....	2	.....	.....
Davidson County Tuberculosis Hospital.....	Nashville, Tenn.....	.....	430	.....	.....	.....	1	1/1, 7/1	209.00
†Oakville Memorial Sanatorium 1.....	Oakville, Tenn.....	F. H. Alley.....	976	.....	113	29	1	1, 7	150.00
†Woodlawn Hospital.....	Dallas, Texas.....	.....	.....	.....	.....	.....	1	.....	.....
Woodmen of the World Memorial Hospital.....	San Antonio, Texas.....	.....	252	.....	15	4	1	1/1	.....
†Firland Sanatorium 1.....	Seattle.....	R. Davies	760	.....	76	25	2	1/1, 7/1	150.00
Hopemont Sanatorium 1.....	Hopemont, W. Va.....	.....	356	.....	.....	.....	4	.....	209.00
Muirdale Sanatorium 1.....	Milwaukee.....	A. V. Cadden.....	.....	.....	.....	.....	1	Varies	.....
Wisconsin State Sanatorium.....	Staten, Wis.....	R. H. Schmidt, Jr.....	244	.....	6	5	2	.....	250.00
†Leahi Hospital 1.....	Honolulu, Hawaii.....	.....	.....	.....	.....	.....	9	Varies	220.00

24. RADIOLOGY

The following services are approved by the Council and the American Board of Radiology. Prior to July 1, 1950, these services will be reviewed in collaboration with the American Board of Radiology to determine whether approval will be continued beyond that date and to determine further the number of years of training in individual hospitals which the Board will continue to accept as preparation for its certification examination.

Hospitals, 359; Assistant Residencies and Residencies, 897

Name of Hospital	Location	Chief of Service	Type of Training 12	Röntgenographic Examinations	X-Ray Treatments	Radium Treatments	Asst. Res. and Residencies Offered *	Beginning of Service (1949)	Length of Approved Program (Years)	Beginning Stipend (Month)
United States Army										
†Army and Navy General Hospital.....	Hot Springs National Park, Arkansas.....	H. C. Harrell.....	Rad.	.....	.....	.....	5	.....	1	n
Letterman General Hospital*.....	San Francisco.....	E. A. Lodmell.....	Rad.	38,622	6,442	36	2	.....	2	n
†Fitzsimons General Hospital*.....	Denver.....	D. S. Kellogg.....	Roent.	58,932	6,154	202	6	.....	1	n
Walter Reed General Hospital*.....	Washington, D. C.....	H. I. Amory.....	Rad.	60,940	17,619	710	3	1, 7	3	n
†Oliver General Hospital*.....	Augusta, Ga.....	A. B. Ramsey.....	D.R.	30,949	1,797	0	3	1/1, 7/1	1	n
†Brooke General Hospital*.....	San Antonio, Texas.....	A. J. Ackerman.....	Roent.	63,679	2,688	44	3	.....	1	n
†Tripler General Hospital*.....	Moanalua, T. H.....	P. A. Paden.....	Rad.	26,694	455	6	.....	7/1	3	n
United States Navy										
†U. S. Naval Hospital*.....	Long Beach, Calif.....	C. Gartenlaub.....	Roent.	24,556	3,603	115	1	Varies	1	n
†U. S. Naval Hospital*.....	Oakland, Calif.....	K. H. Vinnege.....	Roent.	.....	.....	.....	2	.....	1	n
†U. S. Naval Hospital*.....	San Diego, Calif.....	R. C. Douthat.....	Rad.	62,744	5,204	176	2	.....	3	n
†U. S. Naval Hospital*.....	Great Lakes, Ill.....	J. P. Wood.....	Roent.	16,678	718	0	2	Varies	1	n
†U. S. Naval Hospital*.....	Bethesda, Md.....	M. W. Mason.....	Roent.	19,602	1,667	63	1	.....	1	n
†U. S. Naval Hospital*.....	Chelsea, Mass.....	G. F. Fraser.....	Roent.	20,276	3,021	5	1	.....	1	n
†U. S. Naval Hospital*.....	St. Albans, N. Y.....	N. M. Hardisty.....	Roent.	17,172	1,090	236	2	.....	2	n
†U. S. Naval Hospital*.....	Philadelphia.....	A. H. Staderman.....	Roent.	29,971	2,940	.....	2	.....	1	n
United States Public Health Service										
U. S. Marine Hospital*1.....	New Orleans.....	A. Mayoral.....	Rad.	17,199	229	.....	1	7/1	1	n
†U. S. Marine Hospital*1.....	Baltimore.....	J. E. Wirth.....	Ther.Rad.	9,133	6,498	82	2	7/1	1	n
†U. S. Marine Hospital*1.....	Stapleton, S. I., N. Y.....	W. M. Sennott.....	Roent.	35,064	1,653	.....	3	7/1	1	n
Veterans Administration										
Veterans Administration Center 1.....	Los Angeles, Calif.....	B. Hantz.....	Rad.	45,892	12,783	234	6	.....	3	n
†Veterans Administration Hospital 1.....	San Francisco.....	W. W. Saunders.....	D.R.	17,051	400	3	2	7/1	1	n

24. RADIOLOGY—Continued

Name of Hospital	Location	Chief of Service	Type of Training ¹²	Röntgeno-graphic Examinations	X-Ray Treatments	Radium Treatments	Asst. Res. and Residencies Offered ⁸	Beginning of Service (1940)	Length of Approved Program (Years)	Beginning (Month)
†Veterans Admin. Hospital ¹	Van Nuys, Calif.	E. P. Bugbee	D.R.	33,378	113	18	4	1/1, 7/1	1	n
†Veterans Admin. Hospital ¹	Fort Logan, Colo.	L. F. Ingersoll	D.R.	11,895	0	0	4	1	1	n
†Veterans Admin. Hospital ¹	Newington, Conn.	A. G. Ansprenger	Rad.	11,520	0	0	4	7/1	1	n
†Veterans Admin. Hospital ¹	Washington, D. C.	S. R. Bersack	Rad.	11,578	2,038	20	3	7/1	2	n
†Veterans Admin. Hospital ¹	Chamblee, Ga.	C. A. Privitera	Roent.	15,909	8,274	0	3	7/1	1	n
†Veterans Admin. Hospital ¹	Hines, Ill.	F. L. Hussey	Rad.	74,043	23,195	270	8	1/2, 7/1	3	n
†Veterans Admin. Hospital ¹	Indianapolis	R. T. Levin	D.R.	10,181	0	1	4	1, 7	1	n
†Veterans Admin. Center	Des Moines, Iowa	C. A. Voelker	Rad.	31,079	.....	.....	1	7	1	n
†Veterans Admin. Center ¹	Wadsworth, Kan.	A. Wolkin	D.R.	40,500	1,981	11	4	1, 7	1	n
†Veterans Admin. Hospital ¹	Louisville, Ky.	D. Shapiro	D.R.	28,006	2,953	17	3	.....	1	n
†Veterans Admin. Hospital ¹	New Orleans, La.	L. Rulder	D.R.	17,025	2,822	0	1	.....	1	n
†Veterans Admin. Hospital ¹	Fort Howard, Md.	J. T. Bracklin, Jr.	D.R.	11,213	0	0	2	Varies	1	n
†Veterans Admin. Hospital ¹	Boston	E. G. Wissing	D.R.	17,903	38	0	2	.....	1	n
†Veterans Admin. Hospital ¹	Framingham, Mass.	.....	Rad.	.....	.....	.....	.....	.....	1	n
†Veterans Admin. Hospital ¹	Dearborn, Mich.	P. H. Schraer	D.R.	23,728	2,370	.....	2	7/1	1	n
†Veterans Admin. Hospital ¹	Minneapolis, Minn.	B. J. O'Loughlin	D.R.	48,850	2,575	0	4	.....	1	n
†Veterans Admin. Hospital ¹	Jefferson Bks., Mo.	.....	Rad.	19,912	4,200	240	4	.....	1	n
†Veterans Admin. Hospital ¹	New York City	A. Sheinmel	Roent.	55,702	14,629	47	6	7	1	n
†Veterans Admin. Hospital ¹	Cleveland	M. D. Sachs	D.R.	35,192	720	.....	4	.....	1	n
†Veterans Admin. Hospital ¹	Oklahoma City, Okla.	J. R. Daustrom	D.R.	7,741	882	7	.....	.....	1	n
†Veterans Admin. Hospital ¹	Portland, Ore.	M. D. Hyman	Roent.	18,511	3,523	4	1	1/1, 7/1	1	n
†Veterans Admin. Hospital ¹	Aspinwall, Pa.	G. H. Alexander	D.R.	22,196	.....	.....	4	7/1	1	n
†Veterans Admin. Hospital ¹	Memphis, Tenn.	W. H. Mendel	D.R.	35,557	2,580	22	4	7/1	1	n
†Veterans Admin. Hospital ¹	Nashville, Tenn.	K. E. Diebert	D.R.	32,504	1,370	22	2	7/1	1	n
†Veterans Admin. Hospital ¹	Dallas, Texas	J. J. Szazama	D.R.	12,830	1,342	16	3	1/1, 7/1	1	n
†Veterans Admin. Hospital ¹	McKinney, Texas	B. K. Lovell	D.R.	23,502	3,574	20	2	.....	1	n
†Veterans Admin. Hospital ¹	Temple, Texas	I. J. Zimmerman	D.R.	14,129	.....	.....	1	.....	1	n
†Veterans Admin. Hospital ¹	Salt Lake City	H. H. Plenk	D.R.	10,330	.....	.....	2	7	1	n
†Veterans Admin. Center ¹	Milwaukee, Wis.	T. J. Pfeifer	D.R.	36,390	309	.....	3	.....	1	n
Nonfederal										
†Carraway Methodist Hospital*	Birmingham, Ala.	L. E. Sorrell	Roent.	6,843	2,454	281	1	.....	1	.....
†Jefferson-Hillman Hospital*	Birmingham, Ala.	N. B. Carter	Rad.	18,535	15,908	104	4	.....	1	.....
†St. Monica's Hospital and Health Center*	Phoenix, Ariz.	J. Foster	Rad.	8,439	1,357	37	1	7/1	1	\$200.00
†Tucson Medical Center*	Tucson, Ariz.	A. J. Present	Rad.	5,430	975	15	1	7/1	1	220.00
†University Hospital*	Little Rock, Ark.	H. O. Chenault	Roent.	14,180	6,403	84	5	7/1	3	.....
†San Joaquin General Hospital*	French Camp, Calif.	W. Brock	Roent.	10,453	2,324	97	1	.....	1	.....
†Fresno County General Hospital*	Fresno, Calif.	C. L. Ould	Rad.	7,753	2,133	17	.....	.....	1	.....
†Seaside Memorial Hospital*	Long Beach, Calif.	H. J. Prichard	Rad.	10,922	.....	0,069	1	7	1	150.00
†Cedars of Lebanon Hospital*	Los Angeles	H. L. Jaffe and E. Freedman	Rad.	15,608	4,841	39	2	.....	1	50.00
†Hospital of the Good Samaritan*	Los Angeles	R. T. Taylor and R. B. Weathered	Rad.	17,072	4,988	.....	1	.....	1	.....
†Los Angeles County Hospital*	Los Angeles	R. A. Carter	Rad.	82,293	10,121	305	7	Varies	3	165.00
†Queen of Angels Hospital*	Los Angeles	L. S. Goin	Rad.	9,263	3,711	59	1	.....	1	.....
†St. Vincent's Hospital*	Los Angeles	K. S. Davis	Rad.	6,696	1,782	30	1	7/1	3	.....
†White Memorial Hospital*	Los Angeles	W. L. Stilson	Rad.	11,474	6,946	435	3	7/1	3	140.00
†Highland-Alameda County Hospital*	Oakland, Calif.	H. H. Jensen	Rad.	9,804	1,856	45	1	.....	3	100.00
†Permanent Foundation Hospital*	Oakland, Calif.	M. Abel	Rad.	20,330	2,860	15	1	.....	1	.....
†Palo Alto Hospital	Palo Alto, Calif.	R. Powers	D.R.	.....	.....	.....	1	.....	1	.....
†Collis P. and Howard Huntington Memorial Hospital*	Pasadena, Calif.	J. H. Chapman and R. S. Harrison	Roent.	8,900	2,375	.....	1	7/1	2	.....
†Children's Hospital*	San Francisco	G. King	Rad.	5,781	1,861	70	1	7/1	1	50.00
†Franklin Hospital*	San Francisco	A. A.	.....	10,384	3,261	5	2	.....	1	100.00
†Mount Zion Hospital*	San Francisco	J. J.	.....	5,507	643	8	1	.....	1	50.00
†St. Mary's Hospital*	San Francisco	O. C.	.....	9,841	2,871	.....	1	.....	.....	.....
†San Francisco Hospital*	San Francisco	A. J. Williams and H. Garland	Rad.	71,722	3,348	43	4	.....	2	175.00
†Stanford University Hospital*	San Francisco	H. S. Kaplan	Rad.	15,508	6,315	160	5	7/1	3	50.00
†University of California Hospital*	San Francisco	R. S. Stone	Rad.	24,185	14,612	60	4	7/1, 8/1, 9/1	3	50.00
†Santa Clara County Hospital*	San Jose, Calif.	T. N. Foster and J. von Soltz	Roent.	5,958	246	12	1	.....	1	.....
†Santa Barbara Cottage Hospital*	Santa Barbara, Calif.	M. J. Geyman and R. Gates	D.R.	6,063	4,355	37	1	.....	.....	.....
†St. John's Hospital*	Santa Monica, Calif.	C. J. Conti, Jr.	Rad.	.....	.....	.....	1	7	.....	150.00
†St. Francis Hospital*	Colorado Spgs., Colo.	V. L. Bolton	D.R.	.....	.....	.....	.....	.....	1	.....
†Presbyterian Hospital*	Denver	K. D. A. Allen	Rad.	.....	.....	.....	1	.....	3	.....
†St. Luke's Hospital*	Denver	W. P. Stampfli	Rad.	6,411	1,721	4	1	1/1	1	50.00
†University of Colorado Medical Center	Denver	M. H. Levine	Rad.	2,318	2,387	33	2	7/1	3	75.00
†Colorado General Hospital*	Denver	J. H. Weles	Rad.	19,704	882	.....	.....	.....	1	75.00
†Denver General Hospital	Pueblo, Colo.	G. A. Unfug	Roent.	8,443	1,428	0	1	7/1	2	75.00
†Corwin Hospital*	Bridgeport, Conn.	B. M. Parmelee	Rad.	6,982	1,573	191	2	7/1	1	100.00
†Bridgeport Hospital*	Hartford, Conn.	D. J. Roberts	Rad.	20,732	10,013	.....	3	7/1	3	50.00
†Hartford Hospital*	Hartford, Conn.	.....	.....	.....	.....	.....	.....	.....	.....	.....
†Grace-New Haven Community Hospital	New Haven, Conn.	R. M. Lowman	Rad.	8,140	4,516	.....	1	7/1	1	52.00
†Grace Unit*	New Haven, Conn.	H. M. Wilson	Rad.	25,049	5,252	44	0	7/1	3	40.00
†Hospital of St. Raphael*	New Haven, Conn.	R. Shapiro	Roent.	.....	.....	.....	2	.....	1	.....
†Waterbury Hospital*	Waterbury, Conn.	J. L. Harvey	Rad.	9,681	1,295	.....	1	7/1	1	100.00
†Delaware Hospital*	Wilmington, Del.	W. V. Lattomus	D.R.	30,992	2,815	87	1	7/1	2	110.00
†Central Dispensary and Emergency Hospital*	Washington, D. C.	J. Wissler	Rad.	11,700	3,900	80	.....	7/1	3	50.00
†Doctors Hospital*	Washington, D. C.	R. C. Christie	Rad.	25,663	10,527	211	7	.....	3	.....
†Gallinger Municipal Hospital*	Washington, D. C.	H. R. Reed	Rad.	27,877	1,139	23	2	7/1	1	.....
†Garfield Memorial Hospital*	Washington, D. C.	A. O. Hampton	Rad.	.....	.....	.....	5	.....	2	.....
†Georgetown University Hospital*	Washington, D. C.	M. M. Copeland	Rad.	11,339	3,890	28	5	.....	2	.....
†George Washington University Hospital*	Washington, D. C.	W. W. Stanbro	Rad.	4,486	1,015	10	3	7/1	1	50.00
†Sibley Memorial Hospital*	Washington, D. C.	W. M. Clifton	Rad.	9,777	1,926	64	2	7/1	3	100.00
†James M. Jackson Memorial Hospital*	Miami, Fla.	M. M. Greenfield	Rad.	19,906	6,861	20	0	7/1	2	.....
†Grady Memorial Hospital*	Atlanta, Ga.	A. V. Hallum	Rad.	31,788	8,272	167	4	7/1	3	.....
†Piedmont Hospital*	Atlanta, Ga.	G. Hrdlicka	Rad.	4,808	895	0	1	7/1	3	75.00
†University Hospital*	Augusta, Ga.	L. P. Holmes	Rad.	41,348	4,585	2	1	.....	3	.....
†Emory University Hospital*	Emory University, Ga.	T. F. Leigh	Rad.	9,183	6,410	161	4	7/1	1	50.00
†Alexian Brothers' Hospital*	Chicago	M. Indovina	Roent.	11,564	1,960	.....	1	7/1	1	100.00
†Augustana Hospital*	Chicago	D. S. Bellin	Rad.	8,992	9,442	0	2	11/1	3	60.00
†Cook County Hospital*	Chicago	G. Landau	Rad.	84,624	21,774	134	7	.....	3	.....
†Edgewater Hospital*	Chicago	N. S. Zeitlin	Roent.	10,366	1,806	1	1	.....	1	150.00

24. RADIOLOGY—Continued

Name of Hospital	Location	Chief of Service	Type of Training ¹²	Röntgeno-graphic Exami-nations	X-Ray Treatments	Radium Treatments	Asst. Res. and Residences Offered ⁸	Beginning of Service (1949)	Length of Approved Pro-gram (Years)	Beginning Stel-pend (Month)
†Illinois Masonic Hospital* ¹	Chicago	J. H. Gilmore	Rad.	10,177	397	7	1	.....	1	.....
†Lutheran Deaconess Home and Hospital* ¹	Chicago	F. L. Hussey	Rönt.	11,955	1,312	4	1	.....	1	.....
†Mercy Hospital—Loyola University Clinics*	Chicago	W. L. Furey	Rad.	14,110	11,840	257	3	.....	1	\$ 25.00
Michael Reese Hospital* ¹	Chicago	R. A. Arens	Rad.	48,241	16,420	3,145	3	.....	3	50.00
Mount Sinai Hospital* ¹	Chicago	J. A. Arendt	Rönt.	10,905	2,744	...	2	7/1	2	75.00
Passavant Memorial Hospital* ¹	Chicago	R. B. Lewis	Rad.	6,875	793	25	3	.....	3	.....
Presbyterian Hospital* ¹	Chicago	F. H. Squire	Rad.	28,030	6,706	148	3	.....	3	25.00
Provident Hospital* ¹	Chicago	W. P. Quinn	Rad.	5,359	2,414	29	3	.....	2	.....
†Ravenswood Hospital* ¹	Chicago	D. L. Jenkinson	Rad.	9,262	1,933	...	2	2/1	1	60.00
Research and Educational Hospitals* ¹	Chicago	R. A. Harvey	Rad.	28,202	12,941	2,291	6	7/1	3	55.00
†St. Bernard's Hospital* ¹	Chicago	B. C. Cushman	Rad.	...	...	...	1	.....	1	.....
†St. Joseph Hospital* ¹	Chicago	W. E. Anspach	Rönt.	6,470	1,081	0	1	5	1	.....
St. Luke's Hospital* ¹	Chicago	E. L. Jenkinson	Rad.	31,100	7,791	27	0	.....	3	.....
University of Chicago Clinics* ¹	Chicago	P. C. Hodges	Rad.	24,342	5,042	175	7	7/1	3	25.00
Wesley Memorial Hospital* ¹	Chicago	E. E. Barth	Rad.	25,348	2,066	...	4	.....	2	25.00
†Woodlawn Hospital* ¹	Chicago	H. A. Olin	Rönt.	4,238	1,263	11	1	.....	1	.....
†Evanston Hospital* ¹	Evanston, Ill.	R. G. Willy	Rad.	20,521	2,278	...	3	.....	3	50.00
†St. Francis Hospital* ¹	Evanston, Ill.	A. C. Ledoux	Rad.	18,781	1,645	35	1	7	1	75.00
†Little Company of Mary Hospital* ¹	Evergreen Park, Ill.	W. V. Furey	D.R.	15,171	2,216	49	1	.....	1	.....
†Ryburn Memorial Hospital ¹²	Ottawa, Ill.	R. J. Bailey	Ther Rad.	...	...	...	1	.....	1	.....
†Methodist Hospital of Central Illinois*	Peoria, Ill.	F. H. Decker	Rad.	8,361	2,938	116	1	7/1	1	150.00
St. Francis Hospital* ¹	Peoria, Ill.	P. R. Dirkse	Rad.	12,515	3,979	10	1	7	2	150.00
†Clinic Hospital ¹	Bluffton, Ind.	W. S. Tirman	Rad.	15,462	5,040	23	1	.....	1	.....
†St. Mary's Mercy Hospital*	Gary, Ind.	C. P. Galanti	Rönt.	...	...	...	1	.....	1	.....
†St. Margaret Hospital*	Hammond, Ind.	C. W. Rauschenbach	Rönt.	6,626	979	14	3	4/1	2	200.00
†Indianapolis General Hospital*	Indianapolis	L. A. Smith	Rad.	19,707	6,742	61	3	7/1	3	103.00
†Indiana University Medical Center* ¹	Indianapolis	J. A. Campbell	Rad.	24,116	13,001	399	5	.....	3	.....
Methodist Hospital* ¹	Indianapolis	H. C. Ochsner	Rad.	22,534	6,698	43	1	7/1	3	203.00
†St. Elizabeth Hospital*	LaFayette, Ind.	R. W. Currie	Rad.	...	...	...	1	10/1	1	100.00
†Ball Memorial Hospital* ¹	Muncie, Ind.	B. W. Stocking	Rönt.	9,518	2,645	24	1	7/1	1	100.00
†Iowa Methodist Hospital* ¹	Des Moines, Iowa	T. A. Burcham	Rad.	7,436	440	21	1	.....	3	.....
University Hospitals* ¹	Iowa City	H. D. Kerr	Rad.	41,082	18,602	21	10	7/1	3	50.00
University of Kansas Medical Center*	Kansas City, Kan.	G. Tice	Rad.	3,069	9,410	229	2	.....	3	.....
†Louisville General Hospital*	Louisville, Ky.	E. L. Pirkey	Rad.	22,702	3,094	25	3	7/1	1	45.00
†St. Joseph Infirmary*	Louisville, Ky.	S. E. Johnson	Rad.	11,439	7,172	109	2	.....	1	75.00
†Baptist Hospital*	Alexandria, La.	H. O. Barker	Rad.	...	...	...	1	.....	1	.....
†Charity Hospital of Louisiana* ¹	New Orleans	L. Menville	Rad.	94,826	63,955	466	10	7/1	3	25.00
†Ochsner Foundation Hospital ^{1,41}	New Orleans	E. H. Little	Rad.	39,119	2,537	...	3	1/1	1	150.00
†Southern Baptist Hospital* ¹	New Orleans	L. Bristow	Rad.	12,789	4,504	...	3	7/1	3	153.00
Touro Infirmary*	New Orleans	E. Schmidt	Rönt.	18,029	4,414	...	2	.....	3	25.00
†Shreveport Charity Hospital*	Shreveport, La.	M. L. Cooke	Rad.	11,500	7,912	80	2	.....	3	.....
†Baltimore City Hospital* ¹	Baltimore	S. H. Macht	Rad.	17,912	1,294	10	3	7/1	1	15.00
†Johns Hopkins Hospital* ¹	Baltimore	R. H. Morgan	Rad.	18,773	9,129	200	3	7/1	3	41.66
†Sinai Hospital* ¹	Baltimore	H. A. Miller	Rönt.	11,276	2,352	...	1	7/1	1	25.00
†Union Memorial Hospital*	Baltimore	E. N. Broyles	Rad.	10,244	0	0	1	.....	1	.....
University Hospital* ¹	Baltimore	W. L. Kilby	Rad.	29,005	5,536	257	4	7/1	2	.....
Beth Israel Hospital* ¹	Boston	A. A. Robins	Rad.	14,936	1,910	12	3	4/1	2	41.66
Boston City Hospital* ¹	Boston	M. Ritvo	Rad.	65,819	3,639	55	4	.....	3	.....
Children's Hospital* ¹	Boston	T. Lannan	Rönt.	21,131	1,681	...	1	Varies	1	.....
Lahey Clinic	Boston	...	Rad.	...	...	...	3	.....	3	.....
Massachusetts General Hospital*	Boston	L. L. Robbins	Rad.	11,154	1,960	51	4	1/1, 4/1	3	.....
Massachusetts Memorial Hospital* ¹	Boston	G. Levene	Rönt.	25,146	1,808	...	2	7/1	1	83.33
New England Central Hospital ¹	Boston	A. Ettinger	Rad.	...	...	...	3	.....	3	.....
New England Deaconess Hospital	Boston	J. H. Marks	Rad.	12,168	5,043	137	1	.....	2	.....
Peter Bent Brigham Hospital*	Boston	M. C. Sosman	Rad.	37,615	2,613	...	3	.....	3	.....
†St. Elizabeth's Hospital*	Boston	W. S. Carey	Rönt.	5,588	0	6	1	.....	1	.....
†Mount Auburn Hospital* ¹	Cambridge, Mass.	R. Schatzki	D.R.	11,896	0	0	1	4/1	1	100.00
†Lawrence General Hospital* ¹	Lawrence, Mass.	V. C. Miller	Rad.	...	...	...	1	.....	1	.....
†Newton-Wellesley Hospital* ¹	Newton, Mass.	C. Liebman	Rönt.	10,279	1,543	...	2	7/1	2	100.00
†Quincy City Hospital*	Quincy, Mass.	W. S. Altman	Rönt.	9,573	8,457	8	1	.....	1	125.00
Salem Hospital*	Salem, Mass.	S. A. Wilson	Rad.	9,387	1,694	20	4	.....	3	50.00
†Westfield State Sanatorium	Westfield, Mass.	J. W. Turner	Rad.	10,812	5,956	56	1	7/1	1	.....
†Memorial Hospital* ¹	Worcester, Mass.	W. J. Elliott	Rad.	13,112	2,340	12	1	.....	1	102.00
St. Joseph Mercy Hospital*	Ann Arbor, Mich.	S. W. Donaldson	Rad.	15,369	2,511	36	4	7/1	3	110.00
University Hospital* ¹	Ann Arbor, Mich.	F. J. Hodges	Rad.	43,314	14,115	353	8	7/1	3	111.80
City of Detroit Receiving Hospital* ¹	Detroit	...	Rönt.	31,938	0	0	2	.....	2	.....
Grace Hospital*	Detroit	H. A. Jare	Rad.	20,718	6,553	17	3	7/1	3	75.00
†Harper Hospital*	Detroit	L. Reynolds	Rad.	25,767	20,636	492	10	7/1	3	.....
†Henry Ford Hospital*	Detroit	H. P. Doub	Rad.	47,096	6,863	275	4	.....	3	.....
†Herman Kiefer Hospital*	Detroit	C. C. Birkelo	Rönt.	40,889	183	4,485	1	7/1	1	332.00
Mount Carmel Mercy Hospital*	Detroit	J. M. Grace	D.R.	15,169	3,149	24	1	7/1	1	150.00
Providence Hospital*	Detroit	N. A. Irwin	Rad.	17,721	7,390	275	2	7/1	3	140.00
St. Mary's Hospital*	Detroit	J. E. Loftstrom	Rad.	14,486	5,124	44	1	.....	3	.....
†Wayne County General Hospital and Infirmary* ¹	Eloise, Mich.	N. R. Shippey	Rad.	25,611	5,064	46	2	7/1	1	235.00
†Hurley Hospital*	Flint, Mich.	D. R. Limbach	Rad.	20,169	4,004	161	1	.....	3	.....
†Butterworth Hospital* ¹	Grand Rapids, Mich.	R. J. McCandless	Rad.	14,331	3,040	62	2	7/1	1	100.00
†Hackley Hospital	Muskegon, Mich.	L. E. Holly	Rönt.	...	...	...	1	.....	1	.....
†St. Luke's Hospital*	Duluth, Minn.	A. L. Abraham	Rad.	...	...	...	1	.....	1	.....
St. Mary's Hospital*	Duluth, Minn.	J. R. McNutt	Rad.	7,811	3,073	33	1	.....	1	.....
†Northwestern Hospital*	Minneapolis	C. Hansen	Rönt.	...	...	...	1	10/1	1	150.00
†Swedish Hospital*	Minneapolis	G. T. Nordin	Rad.	17,450	4,762	96	1	.....	1	.....
University of Minnesota Hospitals* ¹	Minneapolis	L. G. Rigler	Rad.	30,355	11,317	669	11	.....	3	.....
Mayo Foundation	Rochester, Minn.	B. R. Kirkin	Rad.	...	...	...	15	.....	3	92.50
†St. Louis County Hospital*	Clayton, Mo.	E. W. Spinzig	Rad.	7,579	607	...	1	7/1	1	130.00
†Ellis Fischel State Cancer Hospital ¹	Columbia, Mo.	C. M. Waggoner	Rad.	4,463	16,221	...	6	7/1	1	100.00
†Kansas City General Hospital No. 1*	Kansas City, Mo.	L. Scarpellino	Rad.	...	...	...	1	.....	1	.....
†Menorah Hospital* ¹	Kansas City, Mo.	D. S. Dann	Rad.	10,055	2,465	77	3	7	1	50.00
Research Hospital*	Kansas City, Mo.	D. S. Dann	Rad.	4,053	2,399	47	1	.....	1	.....
St. Joseph Hospital*	Kansas City, Mo.	R. H. Lockwood	Rad.	81,019	3,380	612	4	7/1	3	.....
†St. Luke's Hospital* ¹	Kansas City, Mo.	C. E. Virden	Rad.	13,229	5,607	172	1	.....	3	.....
†St. Mar	Kansas City, Mo.	L. A. Scarpellino	Rad.	10,550	1,605	30	1	.....	1	.....
Barnes	Kansas City, Mo.	E. R. Deweese	Rad.	1,394	6,571	28	2	7/1	1	125.00
Homer	St. Louis	S. Moore	Rad.	46,115	15,235	249	9	7/1	3	25.00
†Jewish Hospital* ¹	St. Louis	W. E. Allen, Jr.	Rad.	18,644	1,248	47	1	7/1	3	95.00
St. Louis City Hospital* ¹	St. Louis	P. C. Schnoebelen	Rad.	...	...	...	1	7	1	50.00
St. Luke's Hospital*	St. Louis	D. O. Weir	Rad.	31,682	2,436	150	4	7/1	3	95.00
	St. Louis	O. O. Zink	Rad.	7,529	1,083	130	1	7/1	3	50.00

24. RADIOLOGY—Continued

Name of Hospital	Location	Chief of Service	Type of Training ¹	Roentgeno-Graphic Examinations	X-Ray Treatments	Radium Treatments	Asst. Res. and Residents Offered ⁸	Beginning of Service (1949)	Length of Approved Program (Years)	Beginning Stipend (Month)
St. Mary's Group of Hospitals*	St. Louis	L. Sante	Rad.	22,226	2,786	165	2	7/1	3	\$ 35.00
Creighton Memorial St. Joseph's Hospital*	Omaha	J. F. Kelly	Rad.	20,993	2,645	30	3	7/1	3	100.00
Nebraska Methodist Hospital*	Omaha	H. Hunt	Rad.	7,639	4,478	124	1	7/1	1	125.00
University of Nebraska Hospital*	Omaha	H. B. Hunt	Rad.	9,391	2,913	75	3	.....	3	.....
St. Mary's Hospital ¹	Reno, Nev.	M. J. Thorpe	Roent.	.....	.....	.....	1	.....	1	.....
Mary Hitchcock Memorial Hospital*	Hanover, N. H.	L. K. Sycamore	Rad.	15,436	4,865	130	2	7/1	2	150.00
Atlantic City Hospital*	Atlantic City, N. J.	C. B. Kaighn	Rad.	8,357	2,158	45	1	7/1	1	50.00
Jersey City Hospital*	Jersey City, N. J.	H. J. Perlberg	Rad.	33,417	6,738	147	2	.....	1	.....
Monmouth Memorial Hospital*	Long Branch, N. J.	W. G. Herrman	Rad.	4,670	229	.....	1	.....	1	.....
Newark Beth Israel Hospital*	Newark, N. J.	N. J. Furst	Rad.	6,810	4,290	1,575	1	7/1	1	100.00
Newark City Hospital*	Newark, N. J.	P. Santora	Rad.	36,890	3,139	23	2	3, 6	1	.....
Orange Memorial Hospital*	Orange, N. J.	W. H. Seward	Rad.	12,186	8,379	37	1	7/1	1	100.00
Newcomb Hospital	Vineland, N. J.	J. G. Cohen	D.R.	.....	.....	.....	1	.....	1	.....
Albany Hospital*	Albany, N. Y.	W. P. Howard	Roent.	20,518	2,857	246	2	7/1	1	41.67
Beth-El Hospital*	Brooklyn	M. Dunnenberg	Roent.	7,552	1,032	62	2	.....	1	.....
Brooklyn	Brooklyn	S. W. Westing	Rad.	7,362	927	500	4	.....	2	.....
Brooklyn	Brooklyn	J. Pepe	Rad.	24,256	1,961	.....	2	7/1	2	25.00
Jewish Hospital*	Brooklyn	M. G. Wasch	Rad.	15,241	3,176	78	3	7	3	.....
Kings County Hospital*	Brooklyn	B. Ehrenpreis	{D.R. Ther. Rad.}	{91,098 17,025}	{17,939 3,574}	{271 71}	{4 4}	{1/1, 7/1 7/1}	{3 3}	{80.00 25.00}
Long Island College Hospital*	Brooklyn	A. L. L. Bell	Rad.	17,025	3,574	71	4	7/1	3	25.00
Maimonides Hospital ¹	Brooklyn	L. A. Held	Roent.	3,546	420	17	1	7/1	1	100.00
Methodist Hospital*	Brooklyn	G. W. Cramp	Rad.	9,638	1,166	132	2	7/1	2	.....
Edward J. Meyer Memorial Hospital*	Buffalo	E. G. Eschner	Rad.	28,698	2,834	21	5	7/1	2	100.00
Clifton Springs Sanitarium and Clinic ¹	Clifton Springs, N. Y.	G. S. Schwarz	D.R.	5,057	1,255	122	1	.....	1	.....
Meadowbrook Hospital*	Hempstead, N. Y.	G. L. Carr	Rad.	8,174	3,403	24	2	.....	2	.....
Queens General Hospital*	Jamaica, N. Y.	I. S. Startz	Rad.	42,797	52	6,417	2	7/1	2	80.00
Charles S. Wilson Memorial Hospital*	Johnston City, N. Y.	B. D. Jay	Roent.	13,133	1,697	207	1	7/1	1	.....
Mount Vernon Hospital*	Mount Vernon, N. Y.	L. M. Bond	Rad.	6,848	1,228	12	1	.....	1	.....
Bellevue Hospital	New York City	I. M. Kaplan	.....	102,004	8,530	479	.....	.....	.....	100.00
Div. III—N. Y. Univ.* ¹	New York City	.....	Ther. Rad.	.....	.....	.....	5	.....	1	.....
Div. IV—Open Div.* ¹	New York City	.....	D.R.	.....	.....	.....	5	.....	1	.....
Beth Israel Hospital*	New York City	A. J. Bendick	Rad.	10,005	2,082	24	2	7/1	3	50.00
Bronx Hospital*	New York City	W. Snow	Rad.	10,578	2,596	43	2	7/1	2	75.00
Doctors Hospital ¹	New York City	A. J. Tillinghast	Roent.	5,941	1,234	.....	1	1, 7/1	1	200.00
Flower and Fifth Avenue Hospitals*	New York City	F. Borrelli	Rad.	12,758	2,026	35	2	7/1	3	.....
French Hospital*	New York City	E. M. Clalborne	Rad.	13,246	1,679	.....	1	.....	2	.....
Goldwater Memorial Hospital*	New York City	H. K. Taylor	Roent.	12,420	126	.....	1	7/1	2	130.00
Hospital for Joint Diseases*	New York City	M. M. Pomeranz	Rad.	20,252	2,239	26	1	1/1	3	40.00
Lenox Hill Hospital*	New York City	F. H. Ghiselin	Roent.	21,874	3,420	28	3	Varies	2	50.00
Lincoln Hospital*	New York City	E. Kraft	Rad.	31,149	1,230	20	2	.....	1	.....
Memorial Hospital	New York City	R. S. Sherman	D.R.	31,029	48,280	701	2	.....	1	.....
Metropolitan Hospital*	New York City	T. B. Weinberg	Rad.	24,437	.....	.....	2	.....	2	.....
Montefiore Hospital for Chronic Diseases*	New York City	S. Fineman	Rad.	18,661	6,513	95	4	1/1, 7/1	2	50.00
Morrisania City Hospital*	New York City	S. F. Weltzner	Rad.	.....	3,591	56	1	7/1	2	80.00
Mount Sinai Hospital*	New York City	M. L. Sussman	Rad.	33,125	7,774	90	5	.....	3	50.00
New York City Hospital*	New York City	C. Gottlieb	D.R.	14,203	152	.....	3	7/1	1	130.00
New York Hospital*	New York City	H. Temple	Rad.	73,301	13,432	160	5	7/1	3	25.00
New York Polyclinic Medical School and Hospital*	New York City	W. H. Shehadi	Rad.	8,556	2,401	22	2	7/1	2	50.00
Presbyterian Hospital*	New York City	R. Golden	Rad.	84,939	18,632	412	10	.....	3	41.66
Roosevelt Hospital*	New York City	O. Smith	Rad.	25,487	2,250	.....	4	7/1	3	70.00
St. Luke's Hospital*	New York City	E. E. Smith	Rad.	25,045	4,652	.....	3	7	2	50.00
St. Vincent's Hospital*	New York City	W. W. Mavor and C. Oderr	Rad.	23,756	3,153	74	2	7/1	1	50.00
Sydenham Hospital*	New York City	A. S. Unger	Roent.	6,559	493	.....	1	7	1	35.00
University Hospital*	New York City	S. L. Braunbaum	Rad.	15,821	3,219	547	4	.....	2	.....
Genesee Hospital*	Rochester, N. Y.	G. Barron	Roent.	15,897	1,053	30	1	1	1	20.53
Rochester General Hospital*	Rochester, N. Y.	E. F. Merrill	Rad.	18,647	3,190	31	2	7/1	3	70.00
St. Mary's Hospital*	Rochester, N. Y.	V. Winchell and H. Forsyth	Rad.	7,846	2,123	14	1	7/1	1	125.00
Strong Memorial—Rochester Municipal Hospitals*	Rochester, N. Y.	C. H. Ramsey	Rad.	22,554	7,048	335	9	.....	3	45.00
Ellis Hospital*	Schenectady, N. Y.	K. L. Mitton	Roent.	10,053	1,434	.....	2	.....	1	.....
Sea View Hospital ¹	Staten Island, N. Y.	A. V. Shapiro	D.R.	18,030	.....	.....	2	.....	1	.....
Crouse-Irving Hospital*	Syracuse, N. Y.	C. F. Potter	Roent.	5,500	488	.....	1	.....	1	.....
Grasslands Hospital*	Valhalla, N. Y.	A. G. Debbie	Rad.	15,242	4,392	71	3	7	3	125.00
Charlotte Memorial Hospital*	Charlotte, N. C.	W. C. A. Sternbergh	Rad.	14,748	1,903	113	1	7/1	1	75.00
Duke Hospital*	Durham, N. C.	R. J. Reeves	Rad.	40,914	11,630	444	7	7/1	3	85.33
Watts Hospital*	Durham, N. C.	W. W. Vaughan	Rad.	24,683	7,471	97	1	7/1	3	50.00
City Memorial Hospital*	Winston-Salem, N. C.	J. Selman	Roent.	19,715	2,029	14	1	.....	1	.....
North Carolina Baptist Hospital*	Winston-Salem, N. C.	J. P. Rousseau	Rad.	17,370	11,637	73	3	4/1	3	.....
Bismarck Evangelical Hospital	Bismarck, N. D.	H. M. Berg	Rad.	16,250	3,125	30	1	.....	1	115.00
City Hospital*	Akron, Ohio	F. T. Moore	Rad.	20,094	8,770	89	2	7/1	3	100.00
Peoples Hospital*	Akron, Ohio	E. L. Voke	Rad.	9,561	6,272	39	2	.....	1	100.00
Mersey Hospital*	Canton, Ohio	T. J. Dodd	Rad.	16,345	3,062	50	1	7/1	1	100.00
Cincinnati General Hospital*	Cincinnati	H. G. Reineke and B. Felson	Rad.	35,958	7,091	41	7	7/1	3	.....
Jewish Hospital*	Cincinnati	S. Brown	Rad.	1,674	2,241	99	1	7/1	3	75.00
City Hospital*	Cleveland	H. Hauser	Rad.	28,259	6,203	110	4	.....	3	.....
Cleveland Clinic Hospital ¹	Cleveland	C. R. Hughes	Rad.	74,736	8,713	273	10	7/1	3	100.00
Lutheran Hospital*	Cleveland	J. A. Groh	Rad.	8,586	2,771	.....	3	7/1	1	.....
Mount Sinai Hospital*	Cleveland	H. A. Mahler	Rad.	10,452	2,411	21	2	.....	1	65.00
St. Alexis Hospital*	Cleveland	E. P. McNamee	Rad.	9,655	.....	30	1	.....	1	.....
St. Luke's Hospital*	Cleveland	D. D. Brannan	Rad.	22,065	4,483	8	3	6/25	3	69.00
St. Vincent's Charity Hospital*	Cleveland	E. J. O'Malley	Rad.	12,440	1,240	20	3	7/1	3	75.00
University Hospitals*	Cleveland	H. L. Friedell	Rad.	37,894	550	.....	4	7/1	3	50.00
Ohio State University Hospital*	Columbus, Ohio	H. J. Means	Rad.	21,502	4,442	49	4	7/1	3	50.00
Miami Valley Hospital*	Dayton, Ohio	G. A. Nicoll	Rad.	12,573	2,470	41	2	7/1	1	75.00
St. Vincent's Hospital*	Toledo, Ohio	C. E. Hufford	Rad.	9,452	.....	.....	1	.....	1	.....
Youngstown Hospital*	Youngstown, Ohio	E. C. Baker and J. Heberding	Rad.	22,848	9,584	31	2	7/1	1	100.00
University Hospitals*	Oklahoma City	P. E. Russo	Rad.	17,231	12,554	140	2	7/1	1	35.00
Good Samaritan Hospital*	Portland, Ore.	G. B. Isenhart	Rad.	10,086	1,437	48	1	.....	3	.....
Providence Hospital*	Portland, Ore.	S. E. Rees	Roent.	9,616	2,700	.....	1	7/1	1	75.00

24. RADIOLOGY—Continued

Name of Hospital	Location	Chief of Service	Type of Training	Röntgeno-graphic Examinations	X-Ray Treatments	Radium Treatments	Asst. Res. and Residencies Offered	Beginning of Service (1949)	Length of Approved Program (Years)	Beginning Stipend (Month)
St. Vincent's Hospital*	Portland, Ore.	S. E. Rees	Rad.	11,165	2,228	...	12	7/1	3	...
University of Oregon Medical School Hospitals and Clinics*	Portland, Ore.	W. Y. Burton	Rad.	20,332	4,662	29	4	7/1	3	\$ 75.00
Abington Memorial Hospital*	Abington, Pa.	J. D. Zulick	Rad.	16,047	3,181	105	2	7/1	3	50.00
Bryn Mawr Hospital*	Bryn Mawr, Pa.	R. S. Bromer	Rad.	16,166	4,352	152	12	7/1	3	...
Geo. F. Gelsinger Memorial Hospital*	Danville, Pa.	C. L. Hinkel	Rad.	11,318	2,273	48	2	7/1	3	75.00
St. Vincent's Hospital*	Erie, Pa.	B. S. Putts and R. Bacon	Rad.	8,322	667	39	...	7/1	1	...
†American Oncologic Hospital ¹	Philadelphia	W. S. Newcomet	Ther.Rad.	1,957	9,003	355	1	7/1	1	150.00
Episcopal Hospital*	Philadelphia	D. A. Sampson	Rad.	11,488	2,640	29	12	7/1	3	50.00
†Frankford Hospital*	Philadelphia	M. T. Woodruff	Rad.	...	...	...	1	7	1	50.00
†Germantown Dispensary and Hospital*	Philadelphia	B. R. Young	Rad.	15,638	940	50	1	7	1	50.00
Graduate Hospital of the University of Pennsylvania*	Philadelphia	A. Finklestein	Rad.	18,524	4,800	172	8	7/1	3	...
Hahnemann Hospital*	Philadelphia	J. W. Frank	Rad.	16,816	2,657	326	12	7/1	3	25.00
Hospital of the University of Pennsylvania*	Philadelphia	E. P. Pendergrass	Rad.	90,512	26,570	90	21	Varies	3	...
Jeanes Hospital ¹	Philadelphia	E. E. Lane	Ther.Rad.	3,916	238	31	1	3/1	3	90.00
Jefferson Medical College Hospital*	Philadelphia	P. C. Swenson	Rad.	36,022	9,459	7,734	8	7/1	3	...
Jewish Hospital*	Philadelphia	L. Solis-Cohen	Rad.	18,460	5,732	104	3	7	3	75.00
Lankenau Hospital*	Philadelphia	M. M. Meyers	Rad.	8,952	2,974	52	12	...	3	...
Mount Sinai Hospital*	Philadelphia	L. Edekin and G. Rosenbaum	Rad.	9,958	745	97	12	6/21	3	50.00
†Nazareth Hospital*	Philadelphia	J. S. Fetter	Roent.	10,068	2,594	27	1	7/1	1	100.00
Pennsylvania Hospital*	Philadelphia	P. A. Bishop	Rad.	13,802	2,158	193	12	6/1, 10/1	3	20.00
Philadelphia General Hospital*	Philadelphia	B. P. Widmann	Rad.	64,068	14,421	151	6	7/1	3	70.00
Presbyterian Hospital*	Philadelphia	E. L. Lame	Rad.	8,306	2,686	24	12	7/1	3	25.00
Temple University Hospital*	Philadelphia	W. E. Chamberlain	Rad.	30,272	6,300	77	5	7/1	3	...
Mersey Hospital*	Pittsburgh	J. A. L. McCullough	Rad.	26,482	5,117	146	1	9/1	1	100.00
Montefiore Hospital*	Pittsburgh	M. Goldsmith	Rad.	9,445	2,221	...	1	7/1	3	50.00
†St. Francis Hospital*	Pittsburgh	L. H. Osmond	Rad.	39,778	1,045	51	1	7/1	1	100.00
University of Pittsburgh Medical Center	Pittsburgh	G. W. Grier	Rad.	...	...	...	12	...	3	...
Western Pennsylvania Hospital*	Pittsburgh	R. G. Alley and E. J. Euphrat	Rad.	13,627	6,541	135	2	10/1	3	...
†Reading Hospital*	Reading, Pa.	G. W. Chamberlain	Rad.	11,715	4,718	5	2	7/1	1	150.00
Robert Packer Hospital*	Sayre, Pa.	S. P. Perry	Rad.	15,717	5,801	26	12	7/1	3	150.00
†Chester County Hospital*	West Chester, Pa.	J. Gershon-Cohen	Roent.	...	...	...	1	...	1	...
†Columbia Hospital	Wilkinsburg, Pa.	...	Roent.	...	...	...	1	...	1	...
†Rhode Island Hospital*	Providence, R. I.	L. A. Martineau	Rad.	24,543	3,121	...	2	...	1	50.00
Roper Hospital*	Charleston, S. C.	H. Rudisill, Jr.	Rad.	12,862	3,089	37	4	7/1	3	25.00
†Columbia Hospital*	Columbia, S. C.	G. W. Smith	Roent.	7,072	21,012	...	1	...	1	...
Baptist Memorial Hospital*	Memphis, Tenn.	J. E. Whiteleather	Rad.	12,474	2,895	263	2	7/1	3	75.00
John Gaston Hospital*	Memphis, Tenn.	D. Carroll	Rad.	21,592	3,285	46	2	...	3	...
Methodist Hospital*	Memphis, Tenn.	J. O. King	Rad.	12,741	5,044	...	4	7/1	3	75.00
†Geo. W. Hubbard Hospital of Meharry Medical College*	Nashville, Tenn.	Johnson	Rad.	3,095	1,187	15	1	7/1	1	75.00
Vanderbilt University Hospital*	Nashville, Tenn.	C. C. McClure	Rad.	16,041	4,083	79	3	7/1	3	35.41
Baylor University Hospital*	Dallas, Texas	F. M. Windrow	Rad.	12,369	419	20	1	7/1	3	50.00
†Methodist Hospital*	Dallas, Texas	M. L. Mazer	D.R.	7,649	924	54	1	7/1	1	75.00
Parkland Hospital*	Dallas, Texas	J. E. Miller	Rad.	2,771	2,771	82	2	7/1	3	50.00
University of Texas Medical Branch Hosps.*	Galveston, Texas	M. Schneider	Roent.	27,699	3,851	40	6	7	3	50.00
†Methodist Hospital*	Houston, Texas	C. H. Burge	Roent.	8,837	1,951	18	1	...	1	...
†St. Joseph's Infirmary*	Houston, Texas	P. E. Wigby	Rad.	8,609	5,164	60	1	...	1	...
†Santa Rosa Hospital*	San Antonio, Texas	M. Davis	D.R.	15,528	1,329	10	1	...	1	...
Scott and White Hospital*	Temple, Texas	...	Rad.	47,169	6,803	...	4	...	3	150.00
†Wichita Falls Clinic Hospital*	Wichita Falls, Texas	C. D. Wilson	Rad.	15,321	2,796	12	1	7/1	1	400.00
†Salt Lake County General Hospital*	Salt Lake City	H. P. Plenk	D.R.	7,004	1,950	...	2	7/1	1	50.00
Mary Fletcher Hospital*	Burlington, Vt.	O. S. Peterson, Jr. and A. B. Soule, Jr.	Rad.	9,503	3,712	169	4	2/1	1	83.30
University of Virginia Hospital*	Charlottesville, Va.	V. W. Archer	Rad.	30,148	6,916	100	6	...	3	...
†De Paul Hospital*	Norfolk, Va.	W. Whitmore	Roent.	6,420	1,413	48	1	7/1	1	150.00
†Norfolk General Hospital*	Norfolk, Va.	F. B. Parsons and L. B. Waters	Rad.	17,651	6,169	170	1	7/1	1	100.00
Medical College of Virginia, Hospital Division*	Richmond, Va.	P. B. Manderville	Rad.	22,553	6,350	101	4	7/1	3	46.50
†Swedish Hospital (Tumor Clinic)*	Seattle, Wash.	T. Blake	Ther.Rad.	...	5,373	206	2	...	1	...
†Virginia Mason Hospital*	Seattle, Wash.	T. Carlie	Rad.	19,905	4,101	83	1	...	3	75.00
†Sacred Heart Hospital*	Spokane, Wash.	M. Harris	Rad.	...	...	...	1	...	1	...
Methodist Hospital*	Madison, Wis.	W. Waskow	D.R.	...	...	...	...	...	1	...
State of Wisconsin General Hospital*	Madison, Wis.	E. A. Poble	Rad.	35,329	8,091	179	6	7	3	25.00
Columbia Hospital*	Milwaukee	S. A. Morton and R. W. Byrne	Rad.	29,446	2,761	...	1	...	3	...
†Evangelical Deaconess Hospital*	Milwaukee	A. M. Melamed	D.R.	9,804	1,750	24	1	...	1	150.00
†Milwaukee County Hospital*	Milwaukee	J. L. Marks	D.R.	27,718	1,634	31	3	Varies	1	158.02
†Milwaukee Hospital*	Milwaukee	H. Hefke	Rad.	12,416	17,901	85	1	...	1	...
†Queen's Hospital*	Honolulu, Hawaii	L. L. Buzaid	Rad.	11,348	2,940	25	1	7	1	75.00

25. SURGERY

The services listed below are approved by the Council and the American Board of Surgery until July 1, 1950, as previously announced (Internship and Residency Number, The Journal, May 1, 1948). These services presently are being re-appraised in accordance with a plan of residency training to be announced by the American Board of Surgery.

A revised list of approved residencies in Surgery will appear in the Educational Number of The Journal, scheduled for publication in the early fall. Physicians planning to apply for residency training in surgery to begin on or after July 1, 1950, should consult this list in making application for appointment.

Hospitals, 562; Assistant Residencies and Residencies, 3,543

Name of Hospital	Location	Chief of Service	Inpatients Treated	Outpatient Visits	Deaths	Autopsies	Asst. Res. and Residencies Offered	Beginning of Service (1949)	Beginning Stipend (Month)
United States Army									
Letterman General Hospital*	San Francisco	L. D. Heaton	1,411	2,656	22	18	9	...	n
Fitzsimons General Hospital*	Denver	J. H. Forsee	1,594	1,952	40	26	9	...	...
Walter Reed General Hospital*	Washington, D. C.	F. E. Hamilton	813	5,882	18	16	10	1,7	...

24. RADIOLOGY—Continued

Name of Hospital	Location	Chief of Service	Type of Training	Roentgenographic Examinations	X-Ray Treatments	Radium Treatments	Asst. Res. and Residencies Offered	Beginning of Service (1949)	Length of Approved Program (Years)	Beginning Salary (Month)
St. Mary's Group of Hospitals*	St. Louis.....	L. Santo.....	Rad.	22,226	2,786	165	2	7/1	3	\$ 33.00
Creighton Memorial St. Joseph's Hospital* ¹	Omaha.....	J. P. Kelly.....	Rad.	20,903	2,645	39	3	7/1	3	100.00
†Nebraska Methodist Hospital* ¹	Omaha.....	H. Hunt.....	Rad.	7,639	4,478	124	1	.....	1	125.00
University of Nebraska Hospital* ¹	Omaha.....	H. B. Hunt.....	Rad.	9,291	2,913	75	3	.....	3	.....
†St. Mary's Hospital ¹	Reno, Nev.....	M. J. Thorpe.....	Roent.	.....	.....	.....	1	.....	1	.....
Mary Hitchcock Memorial Hospital* ¹	Hanover, N. H.....	L. K. Sycamore.....	Rad.	15,426	4,865	130	2	7/1	2	150.00
†Atlantic City Hospital* ¹	Atlantic City, N. J.....	C. B. Kaighn.....	Rad.	8,357	2,158	45	1	7/1	1	50.00
†Jersey City Hospital* ¹	Jersey City, N. J.....	H. J. Perlberg.....	Rad.	33,417	6,738	147	2	.....	1	.....
†Monmouth Memorial Hospital* ¹	Long Branch, N. J.....	W. G. Herrman.....	Rad.	4,670	229	.....	1	.....	1	.....
Newark Beth Israel Hospital*	Newark, N. J.....	N. J. Furst.....	Rad.	6,819	4,230	1,575	1	7/1	1	100.00
†Newark City Hospital* ¹	Newark, N. J.....	P. Santora.....	Rad.	36,899	3,139	23	2	3, 6	1	.....
†Orange Memorial Hospital*	Orange, N. J.....	W. H. Seward.....	Rad.	12,186	8,379	37	1	7/1	1	100.00
†Newcomb Hospital.....	Vineeland, N. J.....	J. G. Cohen.....	D.R.	.....	.....	.....	1	.....	1	.....
†Albany Hospital* ¹	Albany, N. Y.....	W. P. Howard.....	Roent.	20,518	2,857	246	2	7/1	1	41.67
†Beth-El Hospital* ¹	Brooklyn.....	M. Dannenbergh.....	Roent.	7,552	1,032	62	2	.....	1	.....
†Brooklyn Cancer Hospital.....	Brooklyn.....	S. W. Westing.....	Rad.	7,562	927	600	4	.....	1	.....
†Brooklyn Hospital* ¹	Brooklyn.....	J. Pepe.....	Rad.	24,256	1,961	.....	2	7/1	2	25.00
Jewish Hospital* ¹	Brooklyn.....	M. G. Wasch.....	Rad.	15,241	3,178	78	3	.....	3	.....
Kings County Hospital* ¹	Brooklyn.....	B. Ehrenpreis.....	{D.R. {Ther. Rad.	91,698	17,939	271	4	1/1, 7/1	3	50.00
Long Island College Hospital* ¹	Brooklyn.....	A. L. L. Bell.....	Rad.	17,025	3,574	71	4	7/1	3	25.00
Maimonides Hospital ¹	Brooklyn.....	L. A. Held.....	Roent.	3,546	420	17	1	7/1	1	100.00
†Beth Moses Division* ¹	Brooklyn.....	G. W. Cramp.....	Rad.	9,538	1,186	132	2	7/1	2	.....
Methodist Hospital* ¹	Brooklyn.....	E. G. Eschner.....	Rad.	28,638	2,834	21	5	7/1	3	100.00
Edward J. Meyer Memorial Hospital* ¹	Clifton Springs, N. Y.....	G. S. Schwarz.....	D.R.	5,657	1,255	122	1	.....	1	.....
†Clifton Springs Sanitarium and Clinic ¹	Clifton Springs, N. Y.....	G. L. Carr.....	Rad.	8,174	3,403	24	2	.....	2	.....
Meadowbrook Hospital*	Hempstead, N. Y.....	I. S. Starz.....	Rad.	42,797	52	6,417	2	7/1	2	80.00
Queens General Hospital* ¹	Jamaica, N. Y.....	B. D. Jay.....	Roent.	18,133	1,667	207	1	7/1	1	.....
†Charles S. Wilson Memorial Hospital* ¹	Johnston City, N. Y.....	L. M. Bond.....	Rad.	6,848	1,228	12	1	.....	1	.....
†Mount Vernon Hospital*	Mount Vernon, N. Y.....	I. M. Kaplan.....	Ther. Rad.	102,004	8,330	470	5	.....	1	100.00
Bellevue Hospital.....	New York City.....	.....	.....	.....	.....	.....	5	.....	1	.....
Div. III—N. Y. Univ.* ¹	New York City.....	.....	D.R.	.....	.....	.....	5	.....	1	.....
Div. IV—Open Div.* ¹	New York City.....	.....	.....	.....	.....	.....	5	.....	1	.....
Beth Israel Hospital* ¹	New York City.....	A. J. Bendick.....	Rad.	10,008	2,682	24	2	7/1	3	50.00
Bronx Hospital* ¹	New York City.....	W. Snow.....	Rad.	10,578	2,636	43	2	7/1	2	75.00
†Doctors Hospital ¹	New York City.....	A. J. Tillinghast.....	Roent.	6,941	1,234	.....	1	1, 7/1	1	200.00
Flower and Fifth Avenue Hospitals* ¹	New York City.....	F. Borrelli.....	Rad.	12,758	2,026	35	2	7/1	3	.....
French Hospital*	New York City.....	E. M. Claiborne.....	Rad.	13,246	1,679	.....	1	.....	2	.....
Goldwater Memorial Hospital* ¹	New York City.....	H. K. Taylor.....	Roent.	12,420	126	.....	1	7/1	2	130.00
Hospital for Joint Diseases* ¹	New York City.....	M. M. Pomeranz.....	Rad.	20,252	2,239	26	1	1/1	3	40.00
Lenox Hill Hospital* ¹	New York City.....	E. H. Ghiselin.....	Roent.	21,874	3,420	28	3	Varies	2	50.00
Lincoln Hospital* ¹	New York City.....	E. Kraft.....	Rad.	31,149	1,230	20	2	.....	1	.....
Memorial Hospital*	New York City.....	R. S. Sherman.....	D.R.	31,029	48,280	701	2	.....	1	.....
Metropolitan Hospital* ¹	New York City.....	T. B. Weinberg.....	Rad.	24,437	.....	.....	2	.....	2	.....
Montefiore Hospital for Chronic Diseases* ¹	New York City.....	S. Fineman.....	Rad.	18,061	6,513	65	4	1/1, 7/1	2	50.00
Morrisania City Hospital* ¹	New York City.....	S. F. Weltzner.....	Rad.	.....	3,591	56	1	7/1	2	80.00
Mount Sinai Hospital* ¹	New York City.....	M. L. Sussman.....	Rad.	33,125	7,774	99	5	.....	3	50.00
New York City Hospital* ¹	New York City.....	C. Gottlieb.....	D.R.	14,203	152	.....	3	7/1	1	130.00
New York Hospital*	New York City.....	H. Temple.....	Rad.	73,301	13,432	160	5	7/1	3	25.00
New York Polyclinic Medical School and Hospital*	New York City.....	W. H. Shehadi.....	Rad.	8,550	2,401	22	2	7/1	2	50.00
Presbyterian Hospital* ¹	New York City.....	R. Golden.....	Rad.	84,939	18,632	412	10	.....	3	41.66
Roosevelt Hospital* ¹	New York City.....	C. Smith.....	Rad.	25,487	2,250	.....	4	7/1	3	70.00
St. Luke's Hospital*	New York City.....	E. E. Smith.....	Rad.	25,045	4,652	.....	3	7	2	50.00
†St. Vincent's Hospital* ¹	New York City.....	W. W. Mavor and C. Odert.....	Rad.	23,756	3,138	74	2	7/1	1	50.00
Sydenham Hospital* ¹	New York City.....	A. S. Unger.....	Roent.	6,550	483	.....	1	7	1	35.00
University Hospital*	New York City.....	S. L. Beranbaum.....	Rad.	15,821	8,219	517	4	.....	2	.....
Genesee Hospital* ¹	Rochester, N. Y.....	G. Baron.....	Roent.	15,807	1,053	30	1	1	1	20.53
Rochester General Hospital* ¹	Rochester, N. Y.....	E. F. Merrill.....	Rad.	18,647	3,190	31	2	7/1	3	70.00
†St. Mary's Hospital* ¹	Rochester, N. Y.....	V. Winchell and H. Forsyth.....	Rad.	7,846	2,123	14	1	7/1	1	125.00
Strong Memorial—Rochester Municipal Hospitals* ¹	Rochester, N. Y.....	C. H. Ramsey.....	Rad.	22,554	7,048	335	9	.....	3	45.00
Ellis Hospital* ¹	Schenectady, N. Y.....	K. L. Mitton.....	Roent.	10,053	1,431	.....	1	.....	1	.....
Sea View Hospital ¹	Staten Island, N. Y.....	A. V. Shapiro.....	D.R.	18,030	.....	.....	2	.....	1	.....
†Crouse-Irving Hospital* ¹	Syracuse, N. Y.....	C. F. Potter.....	Roent.	5,500	488	.....	1	.....	1	.....
Grasslands Hospital* ¹	Valhalla, N. Y.....	A. G. Debbie.....	Rad.	15,242	4,392	71	3	7	3	125.00
Charlotte Memorial Hospital*	Charlotte, N. C.....	W. C. A. Sternbergh.....	Rad.	14,748	1,933	113	1	7/1	1	75.00
Duke Hospital* ¹	Durham, N. O.....	R. J. Reeves.....	Rad.	40,014	11,630	444	7	7/1	3	83.23
Watts Hospital*	Durham, N. C.....	W. W. Vaughan.....	Rad.	24,083	7,471	97	1	7/1	3	50.00
†City Memorial Hospital* ¹	Winston-Salem, N. C.....	J. Selman.....	Roent.	19,715	2,029	14	1	.....	1	.....
North Carolina Baptist Hospital* ¹	Winston-Salem, N. C.....	J. P. Rousseau.....	Rad.	17,370	11,637	73	3	4/1	3	.....
†Bismarck Evangelical Hospital.....	Bismarck, N. D.....	H. M. Berg.....	Rad.	16,250	3,125	30	1	.....	1	115.00
City Hospital*	Akron, Ohio.....	F. T. Moore.....	Rad.	28,394	8,770	89	2	7/1	2	100.00
†Peoples Hospital*	Akron, Ohio.....	E. L. Voke.....	Rad.	9,564	6,272	39	2	.....	1	100.00
†Mercy Hospital*	Canton, Ohio.....	T. J. Dodd.....	Rad.	16,345	3,062	50	1	7/1	1	100.00
Cincinnati General Hospital* ¹	Cincinnati.....	H. G. Reinecke and B. Felson.....	Rad.	35,938	7,691	41	7	7/1	3	.....
Jewish Hospital*	Cincinnati.....	S. Brown.....	Rad.	1,674	2,241	99	1	7/1	3	75.00
City Hospital* ¹	Cleveland.....	H. Hauser.....	Rad.	28,289	6,208	110	4	.....	3	.....
Cleveland Clinic Hospital ¹	Cleveland.....	C. R. Hughes.....	Rad.	74,736	8,713	273	10	7/1	3	100.00
†Lutheran Hospital* ¹	Cleveland.....	J. A. Groh.....	Rad.	8,586	2,771	.....	3	7/1	1	.....
†Mount Sinai Hospital*	Cleveland.....	H. A. Mabrer.....	Rad.	10,452	2,411	21	2	.....	1	65.00
†St. Alexis Hospital* ¹	Cleveland.....	E. P. McNamee.....	Rad.	9,655	.....	30	1	.....	1	.....
St. Luke's Hospital*	Cleveland.....	D. D. Brannan.....	Rad.	22,065	4,463	8	3	6/25	3	69.00
St. Vincent's Charity Hospital*	Cleveland.....	E. J. O'Malley.....	Rad.	12,440	1,246	20	3	7/1	3	75.00
University Hospitals* ¹	Cleveland.....	H. L. Friedell.....	Rad.	37,804	550	.....	4	7/1	3	25.00
Ohio State University Hospital* ¹	Columbus, Ohio.....	H. J. Means.....	Rad.	21,502	4,442	49	4	7/1	3	50.00
†Miami Valley Hospital*	Dayton, Ohio.....	G. A. Nicoll.....	Rad.	12,573	2,470	41	2	7/1	1	75.00
†St. Vincent's Hospital* ¹	Toledo, Ohio.....	C. E. Hufford.....	Rad.	9,452	.....	.....	1	.....	1	.....
†Youngstown Hospital*	Youngstown, Ohio.....	E. C. Baker and J. Heberding.....	Rad.	22,848	9,584	31	2	7/1	1	100.00
University Hospitals*	Oklahoma City.....	P. E. Russo.....	Rad.	17,231	12,551	140	2	7/1	1	25.00
Good Samaritan Hospital*	Portland, Ore.....	G. B. Isenbart.....	Rad.	10,056	1,437	48	1	.....	3	.....
†Providence Hospital*	Portland, Ore.....	S. E. Rees.....	Roent.	9,616	2,700	.....	1	7/1	1	75.00

24. RADIOLOGY—Continued

Name of Hospital	Location	Chief of Service	Type of Training	Roentgeno-graphic Examinations	X-Ray Treatments	Radium Treatments	Asst. Res. and Residencies Offered	Beginning of Service (1949)	Length of Approved Program (Years)	Beginning Stipend (Month)
St. Vincent's Hospital*	Portland, Ore.	S. E. Rees.	Rad.	11,165	2,228	...	2	...	2	...
University of Oregon Medical School Hospitals and Clinics*	Portland, Ore.	W. Y. Burton.	Rad.	20,332	4,662	29	4	7/1	3	\$ 75.00
Abington Memorial Hospital*	Abington, Pa.	J. D. Zulick.	Rad.	16,047	3,181	105	...	7/1	...	50.00
Bryn Mawr Hospital*	Bryn Mawr, Pa.	R. S. Bromer.	Rad.	16,166	4,352	152	...	...	...	...
Geo. F. Gelsinger Memorial Hospital*	Danville, Pa.	C. L. Hinkel.	Rad.	11,318	2,273	48	...	7/1	...	75.00
St. Vincent's Hospital*	Erle, Pa.	H. S. Putts and R. Bacon	Rad.	8,322	667	29	...	...	1	...
†American Oncologic Hospital	Philadelphia	W. S. Newcomet.	Ther. Rad.	1,937	9,003	353	1	7/1	1	150.00
†Episcopal Hospital*	Philadelphia	D. A. Sampson.	Rad.	11,488	2,640	29	2	7/1	2	50.00
†Frankford Hospital*	Philadelphia	M. T. Woodruff.	Rad.	...	...	...	1	...	1	...
†Germantown Dispensary and Hospital*	Philadelphia	B. R. Young.	Rad.	15,633	940	50	1	7	1	50.00
Graduate Hospital of the University of Pennsylvania*	Philadelphia	A. Finkelshtein	Rad.	18,524	4,800	172	8	7/1	3	...
Hahnemann Hospital*	Philadelphia	J. W. Frank.	Rad.	16,816	2,657	326	2	...	2	25.00
Hospital of the University of Pennsylvania*	Philadelphia	E. P. Pendergrass.	Rad.	90,432	26,570	90	21	Varies	3	...
Jeane's Hospital	Philadelphia	E. E. Lane.	Ther. Rad.	3,916	238	31	1	3/1	2	90.00
Jefferson Medical College Hospital*	Philadelphia	P. C. Swenson.	Rad.	36,622	9,459	7,734	8	7/1	3	...
Jewish Hospital*	Philadelphia	L. Solis-Cohen	Rad.	18,460	5,732	104	3	7	3	75.00
Lankenau Hospital*	Philadelphia	M. M. Meyers	Rad.	8,932	2,974	52	2	...	2	...
Mount Sinai Hospital*	Philadelphia	L. Edokin and G. Rosenbaum	Rad.	9,958	745	97	2	6/21	3	50.00
†Nazareth Hospital*	Philadelphia	J. S. Pette.	Roent.	10,065	2,594	27	1	7/1	1	100.00
Pennsylvania Hospital*	Philadelphia	P. A. Bishop.	Rad.	18,802	2,158	193	2	6/1, 10/1	3	20.00
Philadelphia General Hospital*	Philadelphia	B. P. Widmann.	Rad.	64,068	14,421	151	6	7/1	2	70.00
Presbyterian Hospital*	Philadelphia	E. L. Lame.	Rad.	8,306	2,686	24	2	...	2	25.00
Temple University Hospital*	Philadelphia	W. E. Chamberlain.	Rad.	30,272	6,300	77	5	7/1	3	...
Mercy Hospital*	Pittsburgh	J. A. L. McCullough.	Rad.	26,482	5,117	146	1	9/1	1	100.00
Montefiore Hospital*	Pittsburgh	M. Goldsmith	Rad.	9,445	2,221	...	1	7/1	3	50.00
†St. Francis Hospital*	Pittsburgh	L. H. Osmond.	Rad.	39,778	1,045	51	1	7/1	1	100.00
University of Pittsburgh Medical Center	Pittsburgh	G. W. Grier.	Rad.	...	...	...	2	...	3	...
Western Pennsylvania Hospital*	Pittsburgh	R. G. Alley and E. J. Euphrat.	Rad.	13,627	6,541	135	2	10/1	3	...
†Reading Hospital*	Reading, Pa.	G. W. Chamberlain.	Rad.	11,715	4,718	5	2	7/1	1	150.00
Robert Packer Hospital*	Sayre, Pa.	S. P. Perry.	Rad.	15,717	3,801	26	2	7/1	3	150.00
†Chester County Hospital*	West Chester, Pa.	J. Gershon-Cohen	Roent.	...	...	...	1	...	1	...
†Columbia Hospital	Wilkesburg, Pa.	...	Roent.	...	...	...	1	...	1	...
†Rhode Island Hospital*	Providence, R. I.	L. A. Martineau.	Rad.	24,543	3,121	...	2	...	1	50.00
†Roper Hospital*	Charleston, S. C.	H. Rudisill, Jr.	Rad.	12,562	3,639	37	4	7/1	3	25.00
†Columbia Hospital*	Columbia, S. C.	G. W. Smith.	Roent.	7,072	21,012	...	1	...	1	...
Baptist Memorial Hospital*	Memphis, Tenn.	J. E. Whiteleather.	Rad.	12,474	2,595	263	2	7/1	3	75.00
John Gaston Hospital*	Memphis, Tenn.	D. Carroll	Rad.	21,592	3,285	46	2	...	3	...
Methodist Hospital*	Memphis, Tenn.	J. C. King.	Rad.	12,741	5,044	...	4	7/1	3	75.00
†Geo. W. Hubbard Hospital of Meharry Medical College*	Nashville, Tenn.	Johnson	Rad.	3,095	1,187	15	1	7/1	1	75.00
Vanderbilt University Hospital*	Nashville, Tenn.	C. C. McClure.	Rad.	16,041	4,038	79	3	7/1	3	35.41
Baylor University Hospital*	Dallas, Texas.	F. M. Windrow.	Rad.	12,369	419	20	1	7/1	3	50.00
†Methodist Hospital*	Dallas, Texas.	M. L. Mazer.	D.R.	7,649	924	54	1	7/1	1	75.00
†Parkland Hospital*	Dallas, Texas.	J. E. Miller.	Rad.	2,771	2,771	82	2	7/1	3	50.00
University of Texas Medical Branch Hosps.*	Galveston, Texas.	M. Schneider	Roent.	27,869	3,851	40	6	7	3	50.00
†Methodist Hospital*	Houston, Texas.	C. H. Burge.	Roent.	8,837	1,951	18	1	...	1	...
†St. Joseph's Infirmary*	Houston, Texas.	P. E. Wigby.	Rad.	8,809	5,164	60	1	...	1	...
†Santa Rosa Hospital*	San Antonio, Texas.	M. Davis	D.R.	15,528	1,329	10	1	...	1	...
Scott and White Hospital*	Temple, Texas.	...	Rad.	47,186	6,803	...	4	...	3	150.00
†Wichita Falls Clinic Hospital*	Wichita Falls, Texas.	C. D. Wilson.	Rad.	15,521	2,796	12	1	7/1	1	400.00
†Salt Lake County General Hospital*	Salt Lake City	H. P. Plenk.	D.R.	7,004	1,980	...	2	7/1	1	50.00
Mary Fletcher Hospital*	Burlington, Vt.	O. S. Peterson, Jr. and A. B. Soule, Jr.	Rad.	9,503	3,712	189	4	2/1	1	83.30
University of Virginia Hospital*	Charlottesville, Va.	V. W. Archer.	Rad.	30,148	6,916	100	6	...	3	...
†De Paul Hospital*	Norfolk, Va.	W. Whitmore	Roent.	6,420	1,413	48	1	7/1	1	150.00
†Norfolk General Hospital*	Norfolk, Va.	P. B. Parsons and L. B. Waters	Rad.	17,651	6,169	179	1	7/1	1	100.00
Medical College of Virginia, Hospital Division*	Richmond, Va.	F. B. Mandeville.	Rad.	22,553	6,380	101	4	7/1	3	46.50
†Swedish Hospital (Tumor Clinic)*	Seattle, Wash.	T. Blake	Ther. Rad.	...	5,373	206	2	...	1	...
Virginia Mason Hospital*	Seattle, Wash.	T. Carlile	Rad.	19,903	4,101	83	1	...	3	75.00
†Sacred Heart Hospital*	Spokane, Wash.	M. Harris	Rad.	...	...	...	1	...	1	...
Methodist Hospital*	Madison, Wis.	W. Waskow	D.R.	...	...	...	...	...	...	...
State of Wisconsin General Hospital*	Madison, Wis.	E. A. Pohle.	Rad.	33,329	8,051	179	6	7	3	25.00
Columbia Hospital*	Milwaukee.	S. A. Morton and R. W. Byrne	Rad.	29,446	2,781	...	1	...	3	...
†Evangelical Deaconess Hospital*	Milwaukee.	A. M. Melamed.	D.R.	9,804	1,750	24	1	...	1	150.00
†Milwaukee County Hospital*	Milwaukee.	J. L. Marks.	D.R.	27,718	1,634	31	3	Varies	1	158.02
†Milwaukee Hospital*	Milwaukee.	H. Hefke	Rad.	12,416	17,901	85	1	...	1	...
†Queen's Hospital*	Honolulu, Hawaii.	L. L. Buzaid.	Rad.	11,348	2,940	23	1	7	1	75.00

25. SURGERY

The services listed below are approved by the Council and the American Board of Surgery until July 1, 1950, as previously announced (Internship and Residency Number, The Journal, May 1, 1948). These services presently are being re-appraised in accordance with a plan of residency training to be announced by the American Board of Surgery.

A revised list of approved residencies in Surgery will appear in the Educational Number of The Journal, scheduled for publication in the early fall. Physicians planning to apply for residency training in surgery to begin on or after July 1, 1950, should consult this list in making application for appointment.

Hospitals, 562; Assistant Residencies and Residencies, 3,543

Name of Hospital	Location	Chief of Service	Inpatients Treated	Outpatient Visits	Deaths	Autopsies	Asst. Res. and Residencies Offered	Beginning of Service (1949)	Beginning Stipend (Month)
Letterman General Hospital*	San Francisco.	L. D. Heaton.	1,411	2,656	22	18	9	...	n
Fitzsimons General Hospital*	Denver.	J. H. Forsee.	1,694	1,952	40	26	9	...	n
Walter Reed General Hospital*	Washington, D. C.	F. E. Hamilton.	813	5,582	18	16	16	1, 7	n

24. RADIOLOGY—Continued

Name of Hospital	Location	Chief of Service	Type of Training ¹²	Röntgeno-graphic Examinations	X-Ray Treatments	Radium Treatments	Asst. Res. and Residencies Offered ¹³	Beginning of Service (1949)	Length of Approved Program (Years)	Beginning Stipend (Month)
St. Mary's Group of Hospitals*	St. Louis	L. Santo	Rad.	22,226	2,786	165	2	7/1	3	\$ 35.00
Creighton Memorial St. Joseph's Hospital* ¹	Omaha	J. F. Kelly	Rad.	20,933	2,645	39	3	7/1	3	100.00
Nebraska Methodist Hospital* ¹	Omaha	H. Hunt	Rad.	7,039	4,478	124	1	.....	1	125.00
University of Nebraska Hospital* ¹	Omaha	H. B. Hunt	Rad.	9,391	2,913	75	3	.....	1	.....
St. Mary's Hospital ¹	Reno, Nev.	M. J. Thorpe	Roent.	.....	.....	.....	1	.....	1	.....
Mary Hitchcock Memorial Hospital* ¹	Hanover, N. H.	L. K. Sycamore	Rad.	15,436	4,865	130	2	7/1	2	150.00
Atlantic City Hospital* ¹	Atlantic City, N. J.	C. B. Kaighn	Rad.	8,357	2,158	45	1	7/1	1	50.00
Jersey City Hospital* ¹	Jersey City, N. J.	H. J. Periberg	Rad.	33,417	6,738	147	2	.....	1	.....
Monmouth Memorial Hospital* ¹	Long Branch, N. J.	W. G. Herrman	Rad.	6,670	220	.....	1	.....	1	.....
Newark Beth Israel Hospital*	Newark, N. J.	N. J. Purst	Rad.	6,800	4,230	1,575	1	7/1	1	100.00
Newark City Hospital* ¹	Newark, N. J.	P. Santora	Rad.	30,899	3,139	23	2	3, 6	1	.....
Orange Memorial Hospital*	Orange, N. J.	W. H. Seward	Rad.	12,166	8,379	37	1	7/1	1	100.00
Newcomb Hospital	Vineland, N. J.	J. G. Cohen	D.R.	.....	.....	.....	1	.....	1	.....
Albany Hospital* ¹	Albany, N. Y.	W. P. Howard	Roent.	20,518	2,857	246	2	7/1	1	41.67
Beth-El Hospital* ¹	Brooklyn	M. Dannenberg	Roent.	7,532	1,032	62	2	.....	1	.....
Brooklyn Cancer Hospital	Brooklyn	S. W. Westing	Rad.	7,362	927	500	4	.....	1	.....
Brooklyn Hospital* ¹	Brooklyn	J. Pepe	Rad.	24,256	1,961	.....	2	7/1	2	25.00
Jewish Hospital* ¹	Brooklyn	M. G. Wasch	Rad.	15,241	3,178	78	3	7	3	.....
Kings County Hospital* ¹	Brooklyn	B. Ehrenpreis	Ther. Rad.	101,008	17,939	271	4	1/1, 7/1	3	80.00
Long Island College Hospital* ¹	Brooklyn	A. L. L. Bell	Rad.	17,025	3,574	71	4	7/1	3	25.00
Maimonides Hospital ¹	Brooklyn	L. A. Held	Roent.	3,546	420	17	1	7/1	1	100.00
Beth Moses Division* ¹	Brooklyn	G. W. Cramp	Rad.	9,538	1,186	132	2	7/1	2	.....
Methodist Hospital* ¹	Buffalo	E. G. Eshner	Rad.	28,038	2,831	21	5	7/1	3	100.00
Edward J. Meyer Memorial Hospital* ¹	Clifton Springs, N. Y.	G. S. Schwarz	D.R.	5,057	1,255	122	1	.....	1	.....
Clifton Springs Sanitarium and Clinic ¹	Hempstead, N. Y.	G. L. Carr	Rad.	8,174	3,403	24	2	.....	2	.....
Meadowbrook Hospital*	Jamaica, N. Y.	I. S. Startz	Rad.	42,797	52	6,417	2	7/1	2	80.00
Queens General Hospital* ¹	Johnston City, N. Y.	B. D. Jay	Roent.	13,133	1,667	207	1	7/1	1	.....
Charles S. Wilson Memorial Hospital* ¹	Mount Vernon, N. Y.	L. M. Bond	Rad.	6,848	1,228	12	1	.....	1	.....
Mount Vernon Hospital*	New York City	I. M. Kaplan	Ther. Rad.	102,004	8,330	470	.....	.....	1	100.00
Bellevue Hospital	New York City	.....	.....	.....	.....	.....	5	.....	1	.....
Div. III—N. Y. Univ.* ¹	New York City	.....	D.R.	.....	.....	.....	5	.....	1	.....
Div. IV—Open Div.* ¹	New York City	A. J. Bendick	Rad.	10,003	2,632	24	2	7/1	3	50.00
Beth Israel Hospital* ¹	New York City	W. Snow	Rad.	10,578	2,596	43	2	7/1	2	75.00
Bronx Hospital* ¹	New York City	A. J. Tillinghast	Roent.	5,911	1,234	.....	1	7/1	1	200.00
Doctors Hospital ¹	New York City	F. Borrelli	Rad.	12,758	2,026	35	2	7/1	3	.....
Flower and Fifth Avenue Hospitals* ¹	New York City	E. M. Olaiborne	Rad.	13,246	1,679	.....	1	.....	2	.....
French Hospital*	New York City	H. K. Taylor	Roent.	12,420	126	.....	1	7/1	2	130.00
Goldwater Memorial Hospital* ¹	New York City	M. M. Pomeranz	Rad.	20,252	2,239	26	1	1/1	3	40.00
Hospital for Joint Diseases* ¹	New York City	F. H. Ghiselin	Roent.	21,874	3,420	28	3	Varies	2	50.00
Lenox Hill Hospital* ¹	New York City	E. Kraft	Rad.	31,149	1,230	20	2	.....	1	.....
Lincoln Hospital* ¹	New York City	R. S. Sherman	D.R.	31,029	48,280	701	2	.....	1	.....
Memorial Hospital	New York City	T. B. Weinberg	Rad.	24,437	.....	.....	2	.....	2	.....
Metropolitan Hospital* ¹	New York City	S. Fineman	Rad.	18,601	6,513	95	4	1/1, 7/1	2	50.00
Montefiore Hospital for Chronic Diseases* ¹	New York City	S. F. Weltzner	Rad.	.....	3,591	56	1	7/1	2	80.00
Morrisania City Hospital* ¹	New York City	M. L. Sussman	Rad.	33,125	7,774	99	5	.....	3	50.00
Mount Sinai Hospital* ¹	New York City	C. Gottlieb	D.R.	14,203	152	.....	3	7/1	1	130.00
New York City Hospital* ¹	New York City	H. Temple	Rad.	73,301	13,432	160	5	7/1	3	25.00
New York Polyclinic Medical School and Hospital*	New York City	W. H. Shehadl	Rad.	8,556	2,401	22	2	7/1	2	50.00
Presbyterian Hospital* ¹	New York City	R. Golden	Rad.	84,930	18,632	412	10	.....	3	41.66
Roosevelt Hospital* ¹	New York City	O. Smith	Rad.	25,487	2,250	.....	4	7/1	3	70.00
St. Luke's Hospital*	New York City	E. E. Smith	Rad.	25,045	4,632	.....	3	7	2	50.00
St. Vincent's Hospital* ¹	New York City	W. W. Mavor and O. Oeder	Rad.	23,756	3,138	74	2	7/1	1	50.00
Sydenham Hospital* ¹	New York City	A. S. Unger	Roent.	6,559	483	.....	1	7	1	35.00
University Hospital*	New York City	S. L. Beranbaum	Rad.	15,821	8,215	547	4	.....	2	.....
Genesee Hospital*	Rochester, N. Y.	G. Baron	Roent.	15,807	1,063	30	1	1	1	20.83
Rochester General Hospital*	Rochester, N. Y.	E. F. Merrill	Rad.	18,647	3,190	31	2	7/1	3	70.00
St. Mary's Hospital* ¹	Rochester, N. Y.	V. Winchell and H. Forsyth	Rad.	7,846	2,123	14	1	7/1	1	125.00
Strong Memorial—Rochester Municipal Hospitals* ¹	Rochester, N. Y.	C. H. Ramsey	Rad.	22,554	7,048	335	9	.....	3	45.00
Ellis Hospital* ¹	Schenectady, N. Y.	K. L. Mitton	Roent.	10,033	1,434	.....	1	.....	1	.....
Sea View Hospital ¹	Staten Island, N. Y.	A. V. Shapiro	D.R.	18,030	.....	.....	2	.....	1	.....
Crouse-Irving Hospital* ¹	Syracuse, N. Y.	C. F. Potter	Roent.	5,560	488	.....	1	.....	1	.....
Grasslands Hospital* ¹	Valhalla, N. Y.	A. G. Debbie	Rad.	15,242	4,392	71	3	7	3	125.00
Charlotte Memorial Hospital*	Charlotte, N. C.	W. C. A. Sternbergh	Rad.	14,748	1,933	113	1	7/1	1	75.00
Duke Hospital* ¹	Durham, N. C.	R. J. Reeves	Rad.	40,914	11,630	444	7	7/1	3	83.33
Watts Hospital*	Durham, N. C.	W. W. Vaughan	Rad.	24,683	7,471	97	1	7/1	3	50.00
City Memorial Hospital* ¹	Winston-Salem, N. C.	J. Selman	Roent.	19,715	2,029	14	1	.....	1	.....
North Carolina Baptist Hospital* ¹	Winston-Salem, N. C.	P. P. Rousseau	Rad.	17,370	11,637	73	3	4/1	3	.....
Bismarck Evangelical Hospital	Bismarck, N. D.	H. M. Berg	Rad.	16,250	3,125	30	1	.....	1	115.00
City Hospital*	Akron, Ohio	F. T. Moore	Rad.	26,094	8,770	89	2	7/1	3	100.00
Peoples Hospital*	Akron, Ohio	E. L. Voke	Rad.	9,564	6,272	39	2	.....	1	109.00
Mersey Hospital*	Canton, Ohio	T. J. Dodd	Rad.	16,345	3,002	50	1	7/1	1	100.00
Cincinnati General Hospital* ¹	Cincinnati	H. G. Reinecke and B. Felson	Rad.	35,938	7,091	41	7	7/1	3	.....
Jewish Hospital*	Cincinnati	S. Brown	Rad.	1,674	2,241	99	1	7/1	3	75.00
City Hospital* ¹	Cleveland	H. Hauser	Rad.	28,289	6,203	110	4	.....	3	.....
Cleveland Clinic Hospital ¹	Cleveland	C. R. Hughes	Rad.	74,736	8,713	273	10	7/1	3	100.00
Lutheran Hospital* ¹	Cleveland	J. A. Groh	Rad.	8,586	2,771	.....	3	7/1	1	.....
Mount Sinai Hospital*	Cleveland	H. A. Mahler	Rad.	10,452	2,411	21	2	.....	1	65.00
St. Alexis Hospital*	Cleveland	E. P. McNamee	Rad.	9,655	.....	30	1	.....	1	.....
St. Luke's Hospital*	Cleveland	D. D. Brannan	Rad.	22,065	4,483	8	3	6/25	3	69.00
St. Vincent's Charity Hospital*	Cleveland	E. J. O'Malley	Rad.	12,440	1,246	20	3	7/1	3	75.00
University Hospitals* ¹	Cleveland	H. L. Friedell	Rad.	37,894	550	.....	4	7/1	3	25.00
Ohio State University Hospital* ¹	Columbus, Ohio	H. J. Means	Rad.	21,502	4,442	49	4	7/1	3	50.00
Miami Valley Hospital*	Dayton, Ohio	G. A. Nicoll	Rad.	12,573	2,470	41	2	7/1	1	75.00
St. Vincent's Hospital* ¹	Toledo, Ohio	C. E. Hufford	Rad.	9,452	.....	.....	1	.....	1	.....
Youngstown Hospital*	Youngstown, Ohio	E. C. Baker and J. Heberding	Rad.	22,848	9,584	31	2	7/1	1	100.00
University Hospitals*	Oklahoma City	P. E. Russo	Rad.	17,231	12,554	140	2	7/1	1	35.00
Good Samaritan Hospital*	Portland, Ore.	G. B. Isenhardt	Rad.	10,086	1,437	48	1	.....	3	.....
Providence Hospital*	Portland, Ore.	S. E. Rees	Roent.	9,616	2,700	.....	1	7/1	1	75.00

24. RADIOLOGY—Continued

Name of Hospital	Location	Chief of Service	Type of Training ¹²	Röntgeno- graphic Exami- nations	X-Ray Treatments	Radium Treatments	Asst. Res. and Residencies Offered ⁸	Beginning of Service (1949)	Length of Approved Pro- gram (Years)	Beginning Stipend (Month)
St. Vincent's Hospital*	Portland, Ore.	S. E. Rees	Rad.	11,165	2,228	...	12	...	3	...
University of Oregon Medical School Hospitals and Clinics* ¹¹	Portland, Ore.	W. Y. Burton	Rad.	20,332	4,662	29	4	7/1	3	\$ 75.00
Abington Memorial Hospital*	Abington, Pa.	J. D. Zulick	Rad.	16,047	3,181	105	12	7/1	3	50.00
Bryn Mawr Hospital*	Bryn Mawr, Pa.	R. S. Bromer	Rad.	16,166	4,352	152	12	7/1	3	...
Geo. F. Gelsing Memorial Hospital*	Danville, Pa.	C. L. Hinkel	Rad.	11,318	2,273	48	12	7/1	3	75.00
St. Vincent's Hospital*	Erie, Pa.	B. S. Putts and R. Bacon	Rad.	8,322	667	39	...	...	1	...
American Oncologic Hospital ¹	Philadelphia	W. S. Newcomet	Ther.Rad.	1,957	9,003	355	1	7/1	1	150.00
Episcopal Hospital* ¹¹	Philadelphia	D. A. Sampson	Rad.	11,488	2,640	29	12	7/1	3	50.00
Frankford Hospital*	Philadelphia	M. T. Woodruff	Rad.	...	...	...	1	...	3	...
Germantown Dispensary and Hospital*	Philadelphia	B. R. Young	Rad.	15,638	940	50	1	7	1	50.00
Graduate Hospital of the University of Penn- sylvania*	Philadelphia	A. Finklestein	Rad.	18,524	4,800	172	8	7/1	3	...
Hahnemann Hospital* ¹¹	Philadelphia	J. W. Frank	Rad.	16,816	2,657	526	12	...	2	25.00
Hospital of the University of Pennsylvania* ¹¹	Philadelphia	E. P. Pendergrass	Rad.	90,512	20,570	90	21	Varies	3	...
Jeanes Hospital ¹	Philadelphia	E. E. Lane	Ther.Rad.	3,916	238	31	1	3/1	2	90.00
Jefferson Medical College Hospital*	Philadelphia	P. C. Swenson	Rad.	36,022	9,459	7,734	8	7/1	3	...
Jewish Hospital* ¹¹	Philadelphia	L. Solis-Cohen	Rad.	18,460	5,732	104	3	7	3	75.00
Lankenau Hospital*	Philadelphia	M. M. Meyers	Rad.	8,952	2,974	52	2	...	2	...
Mount Sinai Hospital* ¹¹	Philadelphia	L. Edekin and G. Rosenbaum	Rad.	9,988	745	97	2	6/21	3	50.00
Nazareth Hospital*	Philadelphia	J. S. Fetter	Roent.	10,068	2,894	27	1	7/1	1	100.00
Pennsylvania Hospital*	Philadelphia	P. A. Bishop	Rad.	13,802	2,158	193	2	6/1, 10/1	3	20.00
Philadelphia General Hospital* ¹¹	Philadelphia	B. P. Widmann	Rad.	64,068	14,421	151	6	7/1	2	70.00
Presbyterian Hospital*	Philadelphia	E. L. Lame	Rad.	8,306	2,086	24	2	...	2	25.00
Temple University Hospital* ¹¹	Philadelphia	W. E. Chamberlain	Rad.	30,272	6,300	77	5	7/1	3	...
Mercy Hospital* ¹¹	Pittsburgh	J. A. L. McCullough	Rad.	26,482	5,117	146	1	9/1	1	100.00
Montefiore Hospital*	Pittsburgh	M. Goldsmith	Rad.	9,445	2,221	...	1	7/1	3	50.00
St. Francis Hospital*	Pittsburgh	L. H. Osmond	Rad.	39,778	1,045	51	1	7/1	1	100.00
University of Pittsburgh Medical Center	Pittsburgh	G. W. Grier	Rad.	...	...	...	2	...	3	...
Western Pennsylvania Hospital* ¹¹	Pittsburgh	R. G. Alley and E. J. Euphrat	Rad.	13,627	6,541	135	3	10/1	3	...
Reading Hospital* ¹¹	Reading, Pa.	G. W. Chamberlain	Rad.	11,715	4,718	5	2	7/1	1	150.00
Robert Packer Hospital*	Sayre, Pa.	S. P. Perry	Rad.	15,717	3,801	26	3	7/1	3	150.00
Chester County Hospital*	West Chester, Pa.	J. Gershon-Cohen	Roent.	...	...	...	1	...	1	...
Columbia Hospital	Wilkesburg, Pa.	...	Roent.	...	...	...	1	...	1	...
Rhode Island Hospital* ¹¹	Providence, R. I.	L. A. Martineau	Rad.	24,543	3,121	...	2	...	1	50.00
Roper Hospital* ¹¹	Charleston, S. C.	H. Rudisill, Jr.	Rad.	12,692	3,093	37	4	7/1	3	25.00
Columbia Hospital* ¹¹	Columbia, S. C.	G. W. Smith	Roent.	7,072	21,012	...	1	...	3	...
Baptist Memorial Hospital*	Memphis, Tenn.	J. E. Whiteleather	Rad.	12,474	2,895	203	2	7/1	3	75.00
John Gaston Hospital*	Memphis, Tenn.	D. Carroll	Rad.	21,592	3,285	46	2	...	3	...
Methodist Hospital* ¹¹	Memphis, Tenn.	J. O. King	Rad.	12,741	5,044	...	4	7/1	3	75.00
Geo. W. Hubbard Hospital of Meharry Medical College*	Nashville, Tenn.	Johnson	Rad.	3,095	1,187	15	1	7/1	1	75.00
Vanderbilt University Hospital* ¹¹	Nashville, Tenn.	C. C. McGura	Rad.	16,041	4,098	79	3	7/1	3	35.41
Baylor University Hospital* ¹¹	Dallas, Texas	F. M. Windrow	Rad.	12,369	419	20	1	7/1	3	50.00
Methodist Hospital*	Dallas, Texas	M. L. Mazer	D.R.	7,649	924	54	1	7/1	1	75.00
Parkland Hospital* ¹¹	Dallas, Texas	J. F. Miller	Rad.	2,771	2,771	82	2	7/1	3	50.00
University of Texas Medical Branch Hosps.* ¹¹	Galveston, Texas	M. Schneider	Roent.	27,869	3,851	40	6	7	3	50.00
Methodist Hospital* ¹¹	Houston, Texas	C. H. Burge	Roent.	5,837	1,951	18	1	...	1	...
St. Joseph's Infirmary*	Houston, Texas	P. E. Wigby	Rad.	8,809	5,164	60	1	...	1	...
Santa Rosa Hospital*	San Antonio, Texas	M. Davis	D.R.	15,528	1,329	10	1	...	1	...
Scott and White Hospital*	Temple, Texas	...	Rad.	47,186	6,803	...	4	...	3	150.00
Wichita Falls Clinic Hospital*	Wichita Falls, Texas	C. D. Wilson	Rad.	15,521	2,796	12	1	7/1	1	400.00
Salt Lake County General Hospital*	Salt Lake City	H. P. Plenk	D.R.	7,004	1,980	...	2	7/1	1	50.00
Mary Fletcher Hospital*	Burlington, Vt.	O. S. Peterson, Jr. and A. B. Soule, Jr.	Rad.	9,503	3,712	189	4	2/1	1	83.30
University of Virginia Hospital* ¹¹	Charlottesville, Va.	V. W. Archer	Rad.	30,143	6,916	100	6	...	3	...
De Paul Hospital* ¹¹	Norfolk, Va.	W. Whitmore	Roent.	6,420	1,413	48	1	7/1	1	150.00
Norfolk General Hospital*	Norfolk, Va.	P. B. Parsons and L. B. Waters	Rad.	17,651	6,169	179	1	7/1	1	100.00
Medical College of Virginia, Hospital Division* ¹¹	Richmond, Va.	F. B. Mandeville	Rad.	22,553	6,380	101	4	7/1	3	46.50
Swedish Hospital (Tumor Clinic)*	Seattle, Wash.	T. Blake	Ther.Rad.	...	5,373	206	2	...	1	...
Virginia Mason Hospital*	Seattle, Wash.	T. Carlie	Rad.	19,903	4,101	83	1	...	3	75.00
Sacred Heart Hospital*	Spokane, Wash.	M. Harris	Rad.	...	...	...	1	...	1	...
Methodist Hospital*	Madison, Wis.	W. Waskow	D.R.	...	...	...	...	...	3	...
State of Wisconsin General Hospital* ¹¹	Madison, Wis.	E. A. Pohle	Rad.	35,329	8,081	179	6	7	3	25.00
Columbia Hospital*	Milwaukee	S. A. Morton and R. W. Byrne	Rad.	29,446	2,781	...	1	...	3	...
Evangelical Deaconess Hospital*	Milwaukee	A. M. Melamed	D.R.	9,804	1,750	24	1	...	1	150.00
Milwaukee County Hospital* ¹¹	Milwaukee	J. L. Marks	D.R.	27,716	1,634	31	3	Varies	1	158.02
Milwaukee Hospital*	Milwaukee	H. Hefke	Rad.	12,416	17,901	85	1	...	1	...
Queen's Hospital* ¹¹	Honolulu, Hawaii	L. L. Buzaid	Rad.	11,348	2,940	25	1	7	1	75.00

25. SURGERY

The services listed below are approved by the Council and the American Board of Surgery until July 1, 1950, as previously announced (Internship and Residency Number, The Journal, May 1, 1948). These services presently are being re-appraised in accordance with a plan of residency training to be announced by the American Board of Surgery.

A revised list of approved residencies in Surgery will appear in the Educational Number of The Journal, scheduled for publication in the early fall. Physicians planning to apply for residency training in surgery to begin on or after July 1, 1950, should consult this list in making application for appointment.

Hospitals, 562; Assistant Residencies and Residencies, 3,543

Name of Hospital	Location	Chief of Service	Inpatients Treated	Outpatient Visits	Deaths	Autopsies	Asst. Res. and Residencies Offered ⁸	Beginning of Service (1949)	Beginning Stipend (Month)
United States Army									
Letterman General Hospital*	San Francisco	L. D. Heaton	1,411	2,656	22	18	9	...	n
Fitzsimons General Hospital*	Denver	J. H. Horsee	1,594	1,952	40	36	9	...	n
Walter Reed General Hospital*	Washington, D. C.	F. E. Hamilton	813	5,582	18	16	16	1, 7	n

25. SURGERY—Continued

Name of Hospital	Location	Chief of Service	Inpatients Treated ^a	Outpatient Visits	Deaths	Autopsies	Asst. Res. and Residencies Offered ^b	Beginning of Service (1949)	Beginning Stipend (Month)
Oliver General Hospital*	Augusta, Ga.	E. C. Lowry	1,501	378	8	8	7	1/1, 7/1	n
Brooke General Hospital*	San Antonio, Texas	S. F. Seeley	7,333	5,472	60	53	10	1/1	n
Gorgas Hospital*	Ancon, C. Z.		5,380	23,703	..	..	5	1/1	n
United States Navy									
U. S. Naval Hospital*	Long Beach, Calif.	L. L. Bean	2,794	2,199	21	20	8	Varies	n
U. S. Naval Hospital*	Oakland, Calif.	H. H. Young	..	..	..	..	5	..	n
U. S. Naval Hospital*	San Diego	T. G. Hayes	3,005	4,783	41	26	6	..	n
U. S. Naval Hospital*	Jacksonville, Fla.	..	..	..	..	..	1	..	n
U. S. Naval Hospital*	Pensacola, Fla.	O. R. Moon	346	1,926	13	4	1	..	n
U. S. Naval Hospital*	Great Lakes, Ill.	G. A. Gray	1,023	1,279	8	6	4	Varies	n
U. S. Naval Hospital*	Annapolis, Md.	P. K. Perkins	715	2,301	..	..	1	..	n
U. S. Naval Hospital*	Bethesda, Md.	H. A. Gross	3,187	639	34	9	0	..	n
U. S. Naval Hospital*	Chelsea, Mass.	M. L. Connerley	..	..	..	..	2	..	n
U. S. Naval Hospital*	Brooklyn	..	..	..	..	..	1	..	n
U. S. Naval Hospital*	St. Albans, N. Y.	J. J. Wells	2,084	120	32	20	5	..	n
U. S. Naval Hospital*	Philadelphia	L. G. Bell	5,950	5,052	65	32	6	..	n
U. S. Naval Hospital*	Newport, R. I.	..	..	..	..	..	2	..	n
U. S. Naval Hospital*	Portsmouth, Va.	..	..	..	..	..	2	..	n
United States Public Health Service									
U. S. Marine Hospital*	San Francisco	C. P. Cooper	..	11,597	26	14	8	7/1	n
U. S. Marine Hospital*	Chicago	R. W. Flynn	..	..	..	..	2	..	n
U. S. Marine Hospital*	New Orleans	O. C. Williams	2,290	4,013	15	10	5	7/1	n
U. S. Marine Hospital*	Baltimore	J. D. Lane, Jr.	2,608	6,173	16	14	8	7/1	n
U. S. Marine Hospital*	Boston	H. D. Fishburn	2,050	7,742	20	15	3	..	n
U. S. Marine Hospital*	Detroit	M. B. Noyes	1,401	2,464	20	..	4	7/1	n
U. S. Marine Hospital*	Stapleton, S. I., N. Y.	H. L. Skinner	7,314	17,385	67	39	12	7/1	n
U. S. Marine Hospital*	Cleveland	M. E. Myers	1,370	3,500	13	10	1	7/1	n
U. S. Marine Hospital*	Seattle	T. S. McGowan	2,601	12,848	35	29	6	7/1	n
Federal Security Agency									
Freedmen's Hospital* ¹	Washington, D. C.	O. R. Drew	1,327	6,638	62	10	12	7/1	n
Veterans Administration									
Veterans Admin. Center ¹	Los Angeles	F. X. Byron	3,441	7,766	2	2	21	..	n
Veterans Admin. Hospital ¹	San Francisco	H. L. Silvan	1,365	2,923	17	14	11	7/1	n
Veterans Admin. Hospital ¹	Van Nuys, Calif.	J. Weinberg	1,350	2,831	61	52	13	1/1, 7/1	n
Veterans Admin. Hospital ¹	Fort Logan, Colo.	P. M. Ireland	827	..	19	15	8	7	n
Veterans Admin. Hospital ¹	Newington, Conn.	A. Hurwitz	2,022	3,284	27	20	11	7/1	n
Veterans Admin. Hospital ¹	Washington, D. C.	J. G. Lee	932	1,933	7	33	7	7/1	n
Veterans Admin. Hospital ¹	Coral Gables, Fla.	M. H. Todd	1,151	440	7	5	9	7/1	n
Veterans Admin. Hospital ¹	Chamblee, Ga.	W. H. Proctor, Jr.	1,107	780	61	42	17	7/1	n
Veterans Admin. Hospital ¹	Hines, Ill.	O. B. Pustow	4,970	..	95	61	52	1/2, 7/1	n
Veterans Admin. Hospital ¹	Indianapolis	H. L. Egbert	1,935	..	35	29	10	1, 7	n
Veterans Admin. Center ¹	Des Moines, Iowa	L. T. Palumbo	3,577	0	47	33	19	1, 7	n
Veterans Admin. Hospital ¹	Wadsworth, Kan.	W. I. Hinkle	2,128	0	38	37	11	7, 1	n
Veterans Admin. Hospital ¹	Louisville, Ky.	J. E. Hamilton	1,633	8	..	..	18	..	n
Veterans Admin. Hospital ¹	New Orleans	L. K. Richardson	903	284	23	16	12	7/1	n
Veterans Admin. Hospital ¹	Fort Howard, Md.	J. M. Miller	1,016	678	14	8	6	Varies	n
Veterans Admin. Hospital ¹	Perry Pt., Md.	R. T. Shackelford	875	..	10	5	5	7	n
Veterans Admin. Hospital (West Roxbury) ¹	Boston	R. Warren	3,207	6,358	49	39	10	7	n
Veterans Admin. Hospital ¹	Framingham, Mass.	..	1,731	..	13	9	8	7/1	n
Veterans Admin. Hospital ¹	Dearborn, Mich.	G. S. Bates	3,015	6,280	122	79	17	7/1	n
Veterans Admin. Hospital ¹	Minneapolis	..	1,717	..	48	35	21	..	n
Veterans Admin. Hospital ¹	Jefferson Bk., Mo.	..	1,572	..	20	90	19	..	n
Veterans Admin. Hospital ¹	Lincoln, Neb.	..	955	..	30	23	5	..	n
Veterans Admin. Hospital ¹	Albuquerque, N. M.	..	429	..	1	4	5	7/1	n
Veterans Admin. Hospital ¹	Batavia, N. Y.	W. H. Sears	1,646	29	35	25	9	7/1	n
Veterans Admin. Hospital ¹	New York City	P. K. Sauer	2,441	1,350	63	43	16	1, 7	n
Veterans Admin. Hospital ¹	Staten Island, N. Y.	M. K. Smith	1,297	665	11	7	16	7/1	n
Veterans Admin. Hospital ¹	Cleveland	P. F. Partington	2,020	214	43	23	18	..	n
Veterans Admin. Center ¹	Dayton, Ohio	M. Wood	972	..	18	10	15	..	n
Veterans Admin. Hospital ¹	Oklahoma City	F. A. Quenzer	844	..	32	24	5	7	n
Veterans Admin. Hospital ¹	Portland, Ore.	R. A. Wise	1,598	..	25	19	12	1/1, 7/1	n
Veterans Admin. Hospital ¹	Aspinwall, Pa.	W. W. Fellows	1,253	..	24	13	12	7/1	n
Veterans Admin. Hospital ¹	Columbia, S. C.	K. M. Lippert	1,693	..	26	10	5	7	n
Veterans Admin. Hospital ¹	Memphis, Tenn.	R. F. Bowers	2,005	4,141	44	27	22	7/1	n
Veterans Admin. Hospital ¹	Nashville, Tenn.	R. S. McCleery	2,850	..	39	27	13	7/1	n
Veterans Admin. Hospital ¹	Dallas, Texas	L. J. Kleinsasser	581	..	14	10	6	1/1, 7/1	n
Veterans Admin. Hospital ¹	McKinney, Texas	J. P. North	..	..	..	..	14	..	n
Veterans Admin. Hospital ¹	Salt Lake City	J. A. Gubler	..	..	..	..	11	7	n
Veterans Admin. Center ¹	White River Jet., Vt.	W. B. Crandell	2,041	..	23	21	11	7/1	n
Veterans Admin. Hospital ¹	Richmond, Va.	R. F. MacDonald	1,319	..	14	10	12	7/1	n
Veterans Admin. Center ¹	Milwaukee	R. T. Cunningham	1,601	1,240	35	21	11	7/1	n
Nonfederal									
Jefferson-Hillman Hospital* ¹	Birmingham, Ala.	R. Guthrie	3,008	11,929	85	26	9	..	..
Carraway Methodist Hospital*	Birmingham, Ala.	C. N. Carraway	978	15,352	9	3	5	7/1	\$100.00
Employees' Hospital of the Tennessee Coal, Iron and Railroad Company*	Fairfield, Ala.	L. Noland and R. A. Hamrick	1,390	16,816	37	17	4	7/1	225.00
St. Joseph's Hospital*	Phoenix, Ariz.	P. T. Brown	3,203	0	42	19	1	7/1	150.00
St. Monica's Hospital*	Phoenix, Ariz.	D. A. Polson	773	..	30	23	1	9/1	200.00
St. Mary's Hospital*	Tucson, Ariz.	J. B. Littlefield	3,570	1,037	39	18	1	7/1	175.00
Tucson Medical Center*	Tucson, Ariz.	J. B. Littlefield	683	760	9	4	2	7	75.00
Arkansas Baptist Hospital*	Little Rock, Ark.	R. M. Eubanks	1,649	..	90	24	2	7	100.00
St. Vincent's Infirmary	Little Rock, Ark.	H. G. Hollenberg	4,775	..	71	22	1	6/10	50.00
University Hospital*	Little Rock, Ark.	G. Dean	813	5,130	54	27	10	7/1	50.00
Herrick Memorial Hospital*	Berkeley, Calif.	S. H. Babington	3,931	8,459	12	6	2	7/1	210.00
San Joaquin General Hospital*	French Camp, Calif.	W. Brock	3,673	..	172	113	4	7/1	231.00
General Hospital of Fresno County*	Fresno, Calif.	C. M. Vanderburgh	833	3,602	43	14	4	7/1	150.00
Senside Memorial Hospital*	Long Beach, Calif.	C. A. Lauer	6,210	..	131	57	4	7	100.00
California Hospital*	Los Angeles	W. F. Quinn	2,494	458	38	10	5	7/1	60.00
Cedars of Lebanon Hospital*	Los Angeles	..	5,050	3,086	86	37	2	..	..

25. SURGERY—Continued

Name of Hospital	Location	Chief of Service	Inpatients Treated ^a	Outpatient Visits	Deaths	Autopsies	Asst. Res. and Residencies Offered ^a	Beginning of Service (1949)	Beginning Stipend (Month)
Hospitals of the Good Samaritan* ¹	Los Angeles	P. J. Cunnane	7,646	4,580	101	33	3	7/1	\$150.00
Los Angeles County Hospital* ¹	Los Angeles	L. B. Sherry	4,785	11,528	387	154	12	Varies	165.00
Queen of Angels Hospital*	Los Angeles		2,981	115		43	3		
St. Vincent's Hospital*	Los Angeles	F. J. Breslin	4,021		27	21	2		
Santa Fe Coast Lines Hospital*	Los Angeles		1,031		21	9	2	7/1	185.00
White Memorial Hospital*	Los Angeles	C. E. Stafford	1,064	9,199	35	24	5	7/1	140.20
Highland-Alameda County Hospital* ¹	Oakland, Calif.	S. Everingham and W. W. Crane	886		54	34	3		100.00
Peralta Hospital ¹	Oakland, Calif.	G. McClure	3,659		84	32	3	7/1	125.00
Permanent Foundation Hospital* ¹	Oakland, Calif.	A. L. Baftell	1,430	20,802	37	32	1		
Samuel Merritt Hospital	Oakland, Calif.	W. Crane	1,524				3	1/18	110.00
Collis P. and Howard Huntington Memorial Hospital*	Pasadena, Calif.		1,105		10	9	2	7/1	
San Bernardino County Charity Hospital*	San Bernardino, Calif.	C. J. Clock	730	6,619	64	30	3	1/1	170.00
Mercy Hospital*	San Diego	J. J. O'Hara	6,236		33	16	2	7/1	150.00
San Diego County General Hospital*	San Diego	H. Holder	1,134	4,077	76	24	3	7/1	125.00
Children's Hospital* ¹	San Francisco	A. K. Kilgore	735	1,412			1	7/1	60.00
Franklin Hospital* ¹	San Francisco	T. F. Mullen	2,067		15	5	2	7/1	100.00
French Hospital* ¹	San Francisco	W. L. Rogers	966		12	5	2	7	105.00
Mary's Help Hospital* ¹	San Francisco	E. Carlson	1,604	8,797	36	16	2		
Mount Zion Hospital* ¹	San Francisco	F. I. Harris	943	1,671	26	22	7	7/1	50.00
St. Luke's Hospital* ¹	San Francisco	G. D. Delprat	3,594	1,480	59	24	2	7/1	100.00
St. Mary's Hospital*	San Francisco	E. Butler					6	7/1	100.00
San Francisco Hospital* ¹	San Francisco	C. Mathewson, Jr.	1,924		58	20	11		175.00
Southern Pacific General Hospital	San Francisco						4		
Stanford University Hospital* ¹	San Francisco	E. F. Holman	2,392	11,103	67	29	10	7/1	50.00
University of California Hospital* ¹	San Francisco	H. G. Bell	1,546	8,803	33	18	9	7/1, 8/1, 9/1	50.00
Santa Clara County Hospital*	San Jose, Calif.	D. Fagerstrom	3,250	1,476	24	23	3	7/1	235.00
Santa Barbara Cottage Hospital* ¹	Santa Barbara, Calif.	W. F. Jennings	941		8	8	4	7/1	100.00
St. John's Hospital*	Santa Monica, Calif.	G. Thomas					1	7	150.00
Children's Hospital	Denver	G. B. Packard	3,171	673	18	18	1	7	50.00
Presbyterian Hospital*	Denver				9	3	3		85.00
St. Joseph's Hospital*	Denver		1,350		72	38	1	7/1	50.00
St. Luke's Hospital*	Denver	G. F. Wolgast	5,528				4	7/1	50.00
University of Colorado Medical Center									
Colorado General Hospital* ¹	Denver	J. M. Foster	624	3,762	40	31	14	7/1	75.00
Denver General Hospital* ¹	Denver	G. D. Ellis	483		42	24	5	7	40.00
Corwin Hospital*	Pueblo, Colo.	S. B. Potter	1,401	10,810	17	6	1	7/1	75.00
Bridgeport Hospital*	Bridgeport, Conn.	M. L. Cheney	3,972	9,722	98	42	1	7/1	100.00
Hartford Hospital* ¹	Hartford, Conn.	W. A. Standish	4,634	841	71	45	9	7/1	50.00
St. Francis Hospital*	Hartford, Conn.	B. B. Landry	3,478	340	71	26	3	12/1	75.00
New Britain General Hospital* ¹	New Britain, Conn.	B. B. Clark	1,731		55	23	3		75.00
Grace-New Haven Community Hospital									
Grace Unit*	New Haven, Conn.	R. Nichols	1,582		38	14	4	7/1	52.00
New Haven Unit (University Service)* ¹	New Haven, Conn.	G. Lindskog	2,258	8,329	93	51	25	7/1	40.00
Hospital of St. Raphael*	New Haven, Conn.	W. F. Verdi					2	7/1	75.00
Lawrence and Memorial Associated Hospitals* ¹	New London, Conn.	F. B. Hartman	2,301		51	13	2	7/1	125.00
Norwalk Hospital*	Norwalk, Conn.	W. H. McMahon	1,449		33	12	2	7/1	155.00
Delaware Hospital*	Wilmington, Del.	L. J. Jones	4,339	12,488	99	64	2	7/1	90.00
Memorial Hospital*	Wilmington, Del.	J. G. Spackman	1,639	1,349	18	12	4	7/1	110.00
Wilmington General Hospital	Wilmington, Del.	D. J. Preston	1,207	5,216	21	12	1	7/1	150.00
Central Dispensary and Emergency Hospital* ¹	Washington, D. C.		3,129	2,534	61	28	1	7/1	150.00
Doctors Hospital*	Washington, D. C.	C. S. White	1,817		54	38	3		
Gallinger Municipal Hospital* ¹	Washington, D. C.		1,499	8,622	83	33	6	7/1	100.00
Garfield Memorial Hospital* ¹	Washington, D. C.	J. O. Warfield	1,948	2,420	84	51	4		
	Washington, D. C.	R. J. Coffey	2,718		43	18	13	7	25.00
	Washington, D. C.	B. B. Blades	457	315	3	2	6	7/1	50.00
	Washington, D. C.	P. S. Putzki and F. R. Sanderson	1,679	2,549	22	14	5		75.00
Sibley Memorial Hospital* ¹	Washington, D. C.	P. S. Putzki	4,784		50	40	7	7/1	75.00
Duval Medical Center*	Jacksonville, Fla.	E. Jelks	853		70	37	4	7/1	125.00
Riverside Hospital ¹	Jacksonville, Fla.						1	7/1	
St. Luke's Hospital*	Jacksonville, Fla.	K. A. Morris	1,126		19	4	2	7	125.00
St. Vincent's Hospital*	Jacksonville, Fla.	F. Waas		31	2		2	7/1	100.00
Jackson Memorial Hospital* ¹	Miami, Fla.	J. C. Turner	10,468	7,126	165	91	7	7/1	60.00
Crawford W. Long Memorial Hospital* ¹	Atlanta, Ga.	C. H. Rushin	3,464	239	60	21	9	7/1	75.00
Georgia Baptist Hospital* ¹	Atlanta, Ga.	T. C. Davison	1,509	920	22	8	5	7/1	75.00
Grady Memorial Hospital* ¹	Atlanta, Ga.	I. Ferguson	3,665	30,134	174	60	24	7/1	
Piedmont Hospital* ¹	Atlanta, Ga.		2,512		34	16	2	7/1	75.00
St. Joseph's Infirmary*	Atlanta, Ga.	W. P. Nicolson	2,562	1,418	65	24	3	7/1	100.00
University Hospital*	Augusta, Ga.	J. H. Sherman	2,235		63	20	7		40.00
Emory University Hospital*	Emory University, Ga.	D. C. Elkin	2,969		31	20	6	7/1	50.00
American Hospital* ¹	Chicago	M. Thorek and P. Thorek					1	7/1	50.00
Augustana Hospital*	Chicago	N. M. Percy	3,133	2,923	77	47	7	7/1	50.00
Chicago Memorial Hospital* ¹	Chicago	J. Van Prohaska	1,125	1,820	29	22	2		200.00
Children's Memorial Hospital ¹	Chicago	W. J. Potts	2,295	3,254	37	33	1	1, 7	75.00
Cook County Hospital* ¹	Chicago	K. A. Meyer	11,531	9,626	914		26	1, 7	32.00
Grant Hospital* ¹	Chicago	L. Seed	1,788	4,215	16	8	2	7/1	145.00
Henrotin Hospital* ¹	Chicago	C. B. Puestow	1,449	8,691	22	12	1		100.00
Hospital of St. Anthony de Padua*	Chicago	F. B. Olentine	2,850		17	3	1		150.00
Illinois Central Hospital* ¹	Chicago	C. C. Guy	638		10	1	2	1/1, 7/1	125.00
Illinois Masonic Hospital* ¹	Chicago	Shambaugh	1,503		63	15	2		
Lutheran Deaconess Home and Hospital* ¹	Chicago		4,209		52	19	2	1	100.00
Mercy Hospital—Loyola University Clinics*	Chicago	J. B. O'Donoghue	1,746	3,769	67	28	9		25.00
Michael Reese Hospital* ¹	Chicago	N. Crohn	2,392	4,739			5		25.00
Mount Sinai Hospital* ¹	Chicago	S. F. Strauss	1,569	2,645	22	12	3	7/1	60.00
Norwegian-American Hospital* ¹	Chicago	P. Snyder	2,471		26	8	3	?	100.00
Passavant Memorial Hospital* ¹	Chicago	L. Davis	2,667	15,842	49	33	5	7/1	
Presbyterian Hospital*	Chicago	N. C. David	2,577	3,066	56	34	5		25.00
Provident Hospital* ¹	Chicago	T. O. Ralnes	1,226	1,377	43	24	4	7/1	50.00
Ravenswood Hospital* ¹	Chicago	E. O. Helfers	2,445	2,839	60	49	3	Varies	50.00
Research and Educational Hospitals* ¹	Chicago	W. H. Cole	562	9,271			4	7/1	50.00
St. Anne's Hospital*	Chicago	F. F. Fox	1,284		54	15	2	1, 7	125.00
St. Elizabeth Hospital*	Chicago	M. G. Luken	3,241				3	1, 7	60.00
St. Joseph Hospital*	Chicago	H. McKenna	1,607	696	18	10	2	1, 7	75.00
St. Luke's Hospital*	Chicago	W. Van Hazel	4,135	1,624	102	54	8	7/1	25.00
St. Mary of Nazareth Hospital*	Chicago	T. M. Larkowski	2,336	7,316	79	29	4		100.00

25. SURGERY—Continued

Name of Hospital	Location	Chief of Service	Inpatients Treated*	Outpatient Visits	Deaths	Autopsies	Asst. Res. and Residencies Offered*	Beginning of Service (1949)	Beginning Stipend (Month)
University of Chicago Clinics* ¹	Chicago.....	L. R. Dragstedt.....	1,979	18,706	60	45	9	7/1	\$ 25.00
Wesley Memorial Hospital* ¹	Chicago.....	R. W. McNealy.....	2,593	.....	21	16	10	.....	25.00
Women's and Children's Hospital* ¹	Chicago.....	K. T. True.....	297	531	5	2	1	.....	.....
Woodlawn Hospital* ¹	Chicago.....	H. P. Jenkins.....	1,174	545	15	8	2	.....	150.00
Evanston Hospital* ¹	Evanston, Ill.....	F. Christopher.....	2,260	3,102	24	18	3	.....	50.00
St. Francis Hospital* ¹	Evanston, Ill.....	.....	3,640	.....	53	30	3	7/1	75.00
Little Company of Mary Hospital* ¹	Evergreen Park, Ill.....	E. Huntington.....	4,982	.....	32	6	1	7/1	100.00
St. Francis Hospital* ¹	Peoria, Ill.....	C. D. Branch.....	1,622	5,414	41	19	2	7/1	150.00
Indianapolis General Hospital* ¹	Indianapolis.....	F. W. Taylor.....	1,307	6,753	75	37	5	7/1	80.00
Indiana University Medical Center* ¹	Indianapolis.....	H. B. Shumacker.....	1,173	3,915	56	45	6	7/1	68.33
Methodist Hospital* ¹	Indianapolis.....	F. B. Ramsey.....	3,817	.....	101	32	7	7/1	200.00
St. Vincent's Hospital* ¹	Indianapolis.....	K. R. Ruddell.....	1,744	1,495	33	16	4	7/1	200.00
St. Elizabeth Hospital* ¹	La Fayette, Ind.....	F. Loop.....	3,062	.....	66	23	4	7/1	100.00
Ball Memorial Hospital* ¹	Muncie, Ind.....	W. C. Moore.....	3,001	.....	84	64	4	7/1	100.00
Iowa Methodist Hospital* ¹	Des Moines, Iowa.....	J. B. Priestley.....	2,252	.....	61	39	4	7/1	75.00
University Hospitals* ¹	Iowa City.....	N. Womack.....	3,429	3,512	106	65	23	7/1	50.00
St. Margaret's Hospital* ¹	Kansas City, Kan.....	M. V. Laing.....	2,088	.....	24	12	3	7/1	50.00
University of Kansas Medical Center* ¹	Kansas City, Kan.....	T. G. Orr.....	953	8,374	50	31	5	7/1	.....
St. Francis Hospital* ¹	Wichita, Kan.....	W. J. Biermann.....	3,466	.....	61	21	5	7/1	125.00
Wesley Hospital* ¹	Wichita, Kan.....	L. K. Crumpacker.....	1,505	.....	18	9	4	2	160.00
St. Joseph's Hospital* ¹	Lexington, Ky.....	F. W. Rankin.....	2,579	75	68	33	6	7/1	.....
Louisville General Hospital* ¹	Louisville, Ky.....	R. A. Griswold.....	1,193	14,137	88	38	19	7/1	45.00
Norton Memorial Infirmary* ¹	Louisville, Ky.....	R. A. Griswold.....	4,010	.....	46	22	4	7/1	75.00
St. Joseph Infirmary* ¹	Louisville, Ky.....	I. Abell.....	2,343	2,909	77	41	8	7/1	75.00
Charity Hospital of Louisiana* ¹	New Orleans.....	.....	7,245	61,749	394	99	31	7/1	25.00
Hotel Dieu, Sisters' Hospital* ¹	New Orleans.....	J. A. Danna.....	2,397	.....	40	21	5	7/1	100.00
Ochsner Foundation Hospital* ^{1,41}	New Orleans.....	A. Ochsner.....	1,273	10,771	35	30	21	Varies	150.00
Southern Baptist Hospital* ¹	New Orleans.....	J. F. Oakley.....	2,132	.....	6	..	2	7/1	150.00
Touro Infirmary* ¹	New Orleans.....	J. D. Rives.....	3,193	7,032	56	27	5	7/1	17.50
Shreveport Charity Hospital* ¹	Shreveport, La.....	J. E. Heard.....	1,985	5,795	73	35	7	7/1	60.00
Maine General Hospital* ¹	Portland, Me.....	I. M. Webber.....	1,627	2,601	55	18	6	.....	50.00
Baltimore City Hospitals* ¹	Baltimore.....	O. C. Brantigan.....	2,641	5,369	196	78	10	7/1	15.00
Bon Secours Hospital* ¹	Baltimore.....	G. Stewart.....	1,099	827	10	1	2	7/1	75.00
Church Home and Hospital* ¹	Baltimore.....	T. S. Cullen.....	3,291	932	45	32	5	7/1	35.00
Franklin Square Hospital* ¹	Baltimore.....	H. E. Wilgis.....	2,409	2,897	32	17	6	7/1	85.00
Hospital for Women* ¹	Baltimore.....	W. Riechhoff.....	820	1,534	7	1	5	7/1	85.00
Johns Hopkins Hospital* ¹	Baltimore.....	A. Blalock.....	3,651	51,166	103	70	11	7/1	41.66
Maryland General Hospital* ¹	Baltimore.....	R. F. Chenowith.....	2,782	2,267	88	23	7	7/1	50.00
Mercy Hospital* ¹	Baltimore.....	W. D. Wise.....	2,753	4,729	80	23	5	7/1	50.00
Provident Hospital and Free Dispensary* ¹	Baltimore.....	S. McLanahan.....	.....	.....	63	11	5	.....	.....
St. Agnes Hospital* ¹	Baltimore.....	G. A. Stewart.....	1,623	331	31	16	5	.....	.....
St. Joseph's Hospital* ¹	Baltimore.....	W. R. Geraghty.....	2,261	3,633	64	20	5	7/1	50.00
Sinai Hospital* ¹	Baltimore.....	H. M. Kern.....	2,477	.....	40	26	6	7/1	25.00
South Baltimore General Hospital* ¹	Baltimore.....	O. S. Lloyd.....	2,256	7,576	66	22	7	7/1	75.00
Union Memorial Hospital* ¹	Baltimore.....	J. M. T. Finney, Jr.....	3,463	6,170	79	44	9	.....	.....
University Hospital* ¹	Baltimore.....	C. R. Edwards.....	2,533	11,540	73	25	11	7/1	.....
West Baltimore General Hospital* ¹	Baltimore.....	W. F. Gilmore.....	1,353	1,544	..	..	4	.....	.....
Suburban Hospital	Bethesda, Md.....	A. L. Riddick.....	1,463	672	20	10	1	7/1	100.00
Beth Israel Hospital* ¹	Boston.....	P. Fino.....	3,054	9,781	62	42	7	7/1	79.16
Beverly Hospital* ¹	Boston.....	P. P. Johnson.....	2,188	5,386	45	35	5	.....	50.00
Boston City Hospital* ¹	Boston.....	S. Fraser.....	10,428	46,694	463	81	10	.....	.....
Carney Hospital* ¹	Boston.....	.....	2,029	7,497	67	33	5	7	.....
Children's Hospital* ¹	Boston.....	R. Gross.....	2,299	11,827	42	29	5	.....	.....
Lahey	Boston.....	.....	.....	.....	..	..	18	.....	.....
Marsac	Boston.....	E. D. Churchill.....	2,563	.....	90	57	35	.....	.....
Marsac	Boston.....	R. H. Smithwick.....	4,485	2,333	32	22	7	7/1	50.00
New England Hospital for Women and Children* ¹	Boston.....	G. E. Rochford.....	1,403	1,727	15	9	4	1/1	50.00
Peter Bent Brigham Hospital* ¹	Boston.....	F. D. Moore.....	2,950	25,381	86	53	10	.....	.....
St. Elizabeth's Hospital	Boston.....	J. W. Spelman.....	1,706	3,103	46	14	5	.....	.....
Cambridge City Hospital* ¹	Cambridge, Mass.....	H. E. Goden.....	1,433	6,810	62	21	2	7/1	58.33
Mount Auburn Hospital* ¹	Cambridge, Mass.....	S. Fraser.....	1,686	1,553	9	3	2	7/1	50.00
Truendale Hospital* ¹	Fall River, Mass.....	.....	2,212	842	38	21	4	.....	.....
Lynn Hospital* ¹	Lynn, Mass.....	.....	.....	.....	..	..	1	.....	.....
Malden Hospital	Malden, Mass.....	W. E. Garrey.....	2,391	.....	54	28	4	7/1	50.00
Newton-Wellesley Hospital* ¹	Newton, Mass.....	R. I. Smith.....	2,995	1,849	64	28	3	7/1	100.00
Cooley Dickinson Hospital* ¹	Northampton, Mass.....	T. F. Corriden.....	3,653	.....	50	10	1	7/1	50.00
Quincy City Hospital* ¹	Quincy, Mass.....	L. Hanrahan.....	2,037	.....	65	26	3	.....	100.00
Salem Hospital* ¹	Salem, Mass.....	W. G. Phippen.....	2,550	1,860	53	13	1	.....	50.00
Memorial Hospital* ¹	Worcester, Mass.....	B. H. Alton.....	3,242	879	69	33	4	7/1	100.00
St. Vincent Hospital* ¹	Worcester, Mass.....	W. F. Lynch.....	2,465	.....	47	23	7	7/1	41.67
Worcester City Hospital* ¹	Worcester, Mass.....	B. F. Andrews.....	.....	.....	..	..	2	5/1	60.00
St. Joseph's Mercy Hospital* ¹	Ann Arbor, Mich.....	H. Beebe and F. A. Callier.....	1,459	.....	29	17	4	7/1	125.00
University Hospital* ¹	Ann Arbor, Mich.....	F. A. Callier.....	2,305	14,996	101	61	44	7/1	111.80
Leila Y. Post Montgomery Hospital* ¹	Battle Creek, Mich.....	R. L. Mustard.....	984	4,819	14	3	7	.....	150.00
Alexander Blain	Detroit.....	.....	950	12,171	30	14	11	7	100.00
Charles Godwin	Detroit.....	.....	860	.....	4	1	2	7/1	250.00
City of Detroit	Detroit.....	C. B. Hartzell.....	3,571	17,397	263	126	19	7/1	188.00
Evangelical Dea	Detroit.....	G. Johnston.....	4,623	90	31	9	3	7/1	150.00
Grace Hospital* ¹	Detroit.....	E. C. Baumgarten.....	7,293	2,933	58	34	16	7/1	75.00
Harper Hospital* ¹	Detroit.....	C. Kennedy.....	4,985	3,793	75	30	24	7/1	.....
Henry Ford Hospital* ¹	Detroit.....	W. D. Barditt.....	7,936	125,263	143	67	29	7/1	200.00
Mount Carmel Mercy Hospital* ¹	Detroit.....	R. D. McClure.....	8,110	.....	100	30	6	7/1	150.00
Providence Hospital* ¹	Detroit.....	L. J. Garipey.....	5,419	.....	106	65	10	7/1	140.00
St. Mary's Hospital* ¹	Detroit.....	R. C. Anderson.....	2,224	.....	20	12	5	7/1	125.00
Woman's Hospital* ¹	Detroit.....	G. K. Glasgow.....	2,505	.....	35	16	1	7/1	125.00
Wayne County General Hospital and Infirmary* ¹	Eloise, Mich.....	W. E. Johnstone.....	3,239	8,164	154	49	8	7/1	235.00
Hurley Hospital* ¹	Flint, Mich.....	R. V. Walker.....	2,995	.....	88	27	6	7/1	135.00
Blodgett Memorial Hospital* ¹	Grand Rapids, Mich.....	A. H. Kretchmar.....	1,538	.....	34	22	3	7/1	100.00
Butterworth Hospital* ¹	Grand Rapids, Mich.....	W. R. Torgerson.....	2,289	344	61	32	5	7/1	100.00
St. Mary's Hospital* ¹	Grand Rapids, Mich.....	J. C. Foshee.....	3,533	905	100	37	4	Varies	125.00
Highland Park General Hospital* ¹	Highland Park, Mich.....	J. W. Logie.....	1,398	.....	23	11	3	.....	.....
Bronson Methodist Hospital* ¹	Kalamazoo, Mich.....	.....	2,160	2,184	59	31	3	7/1	150.00
Pontine General Hospital* ¹	Pontiac, Mich.....	M. Peelen.....	.....	.....	..	..	6	7/1	75.00
Saginaw General Hospital* ¹	Saginaw, Mich.....	C. G. Burke.....	1,314	1,683	22	10	3	7/1	75.00
St. Luke's Hospital* ¹	Duluth, Minn.....	H. M. Bishop.....	.....	.....	..	..	1	.....	.....

25. SURGERY—Continued

Name of Hospital	Location	Chief of Service	Inpatients Treated	Outpatient Visits	Deaths	Autopsies	Asst. Res. and Residencies Offered	Beginning of Service (1949)	Beginning Salary (Monthly)
St. Mary's Hospital*	Duluth, Minn.	A. J. Bianco	2,328	.....	48	28	1	7/1	\$100.00
Asbury Hospital*	Minneapolis	.....	.....	.....	.....	.....	.....	.....	.....
Lutheran Deaconess Home and Hospital*	Minneapolis	G. S. Bergh	858	.....	12	10	2	7/1	175.00
Minneapolis General Hospital*	Minneapolis	A. A. Zierold	945	6,251	98	33	11	1/1, 7/1	115.00
Northwestern Hospital*	Minneapolis	O. Yoerg	4,527	.....	23	12	2	7/1	150.00
St. Barnabas Hospital*	Minneapolis	.....	1,474	.....	17	15	2	.....	.....
Swedish Hospital*	Minneapolis	H. G. Scott	8,206	644	.....	.....	3	.....	.....
University of Minnesota Hospitals*	Minneapolis	O. H. Wangensteen	1,222	7,761	90	70	31	.....	.....
Mayo Foundation	Rochester, Minn.	J. T. Priestly	.....	.....	.....	100	.....	.....	92.50
Ancker Hospital*	St. Paul	E. M. Jones	1,063	8,862	150	104	3	1/1	91.50
Charles T. Miller Hospital*1,31	St. Paul	H. B. Zimmermann	2,162	2,219	37	6	2	.....	115.00
Mercy Hospital-Street Memorial*	Vicksburg, Miss.	A. Street	1,431	8,000	12	4	2	7	150.00
Vicksburg Hospital	Vicksburg, Miss.	W. H. Parsons	.....	.....	.....	.....	3	.....	50.00
St. Louis County Hospital*	Clayton, Mo.	L. A. Will	1,248	7,375	73	49	5	7/1	80.00
Ellis Fischel State Cancer Hospital	Columbia, Mo.	J. J. Modlin	.....	.....	.....	.....	2	7/1	100.00
Kansas City General Hospital No. 1*	Kansas City, Mo.	C. B. Schutz	1,302	4,451	97	38	10	7/1	50.00
Menorah Hospital*	Kansas City, Mo.	O. J. Printz	1,381	.....	16	10	2	.....	260.00
Research Hospital*	Kansas City, Mo.	C. J. Hunt	1,448	547	38	21	2	7/1	100.00
St. Joseph Hospital*	Kansas City, Mo.	.....	6,820	.....	82	56	3	.....	.....
St. Luke's Hospital*	Kansas City, Mo.	L. P. Engel and C. B. Schutz	2,439	.....	19	.....	1	.....	.....
St. Mary's Hospital*	Kansas City, Mo.	J. E. Castles	3,055	.....	40	23	2	7/1	125.00
Barnes Hospital*	St. Louis	F. A. Graham	2,074	8,530	68	55	44	7/1	85.00
De Paul Hospital*	St. Louis	H. A. Hasset	2,093	58	57	14	3	7/1	80.00
Homer G. Phillips Hospital*	St. Louis	R. Elman	2,207	7,018	90	18	8	7/1	95.00
Jewish Hospital*	St. Louis	.....	2,430	.....	60	20	4	7	50.00
Missouri Baptist Hospital*	St. Louis	G. F. Rendleman	2,642	.....	.....	.....	6	7/1	70.00
Missouri Pacific Hospital	St. Louis	O. B. Zeinert	.....	.....	.....	.....	4	.....	.....
St. Anthony's Hospital*	St. Louis	F. Tainter	3,433	1,752	47	19	1	7/1	125.00
St. John's Hospital*	St. Louis	W. P. Glennon	2,863	999	77	27	3	7/1	60.00
St. Louis City Hospital*	St. Louis	E. Graham, Stewart, and Kieffer	3,576	7,445	261	89	15	7/1	95.00
St. Luke's Hospital*	St. Louis	L. H. Jorgstad	2,318	.....	101	51	3	7/1	50.00
St. Mary's Group of Hospitals*	St. Louis	J. W. Stewart	2,532	9,633	51	37	7	7/1	35.00
Montana Deaconess Hospital*	Great Falls, Mont.	L. L. Howard	2,281	650	53	33	2	.....	200.00
Bishop Clarkson Memorial Hospital*	Omaha	.....	.....	.....	61	35	1	.....	100.00
Creighton Memorial St. Joseph's Hospital*	Omaha	C. McMartin	3,507	.....	12	11	1	7/1	103.00
Nebraska Methodist Hospital*	Omaha	C. McLaughlin	810	.....	20	18	9	7/1	75.00
University of Nebraska Hospital*	Omaha	J. J. Keegan	474	650	.....	.....	.....	.....	.....
Atlantic City Hospital*	Atlantic City, N. J.	D. B. Allman	2,258	19,609	77	14	1	.....	.....
Cooper Hospital*	Camden, N. J.	I. E. Delbert	2,405	4,274	116	69	3	7/1	83.33
West Jersey Hospital*	Camden, N. J.	H. W. Jack	.....	.....	.....	.....	3	7/1	125.00
Hackensack Hospital*	Hackensack, N. J.	A. I. Mader, Jr.	2,374	8,090	86	.....	3	7/1	100.00
Jersey City Hospital*	Jersey City, N. J.	E. Burke	3,213	17,084	143	25	4	.....	.....
Mountainside Hospital*	Montclair, N. J.	V. B. Seider	3,766	3,414	84	31	2	.....	97.50
Burlington County Hospital	Mount Holly, N. J.	T. J. Summey	1,080	2,212	24	.....	2	7/1	106.00
Fitkin Memorial Hospital*	Neptune, N. J.	O. K. Parry	2,228	3,431	41	14	3	7/1	150.00
Hospital of St. Barnabas and for Women and Children*	Newark, N. J.	.....	.....	.....	.....	.....	3	.....	.....
Newark Beth Israel Hospital*	Newark, N. J.	C. Robbins	3,072	1,253	77	29	3	7/1	25.00
Presbyterian Hospital	Newark, N. J.	.....	4,508	128	65	17	4	1/1	200.00
Paterson General Hospital*	Paterson, N. J.	E. W. Sprague	2,769	1,282	96	26	1	.....	.....
St. Francis Hospital*	Trenton, N. J.	.....	4,976	1,867	105	21	2	10/1, 7/1	100.00
Albany Hospital*	Albany, N. Y.	E. H. Campbell	2,833	3,605	68	34	5	7/1	41.67
Binghamton City Hospital*	Binghamton, N. Y.	C. I. Pope	2,693	.....	67	33	7	7/1	60.00
Brooklyn Cancer Institute	Brooklyn	.....	.....	.....	.....	.....	.....	.....	.....
Brooklyn Hospital*	Brooklyn	W. H. Field	2,598	5,471	.....	.....	5	7/1	25.00
Coney Island Hospital*	Brooklyn	J. E. Hummett	2,294	15,024	119	23	5	1/1, 7/1	80.00
Cumberland Hospital*	Brooklyn	J. J. Gainey	2,617	14,818	85	7	3	7/1	70.00
Greenpoint Hospital*	Brooklyn	J. Smith, Jr.	1,368	10,431	71	17	2	7/1	130.00
Jewish Hospital*	Brooklyn	.....	2,744	2,664	39	12	4	8	20.00
Kings County Hospital*	Brooklyn	J. Tenopyr and B. Cissel	1,025	43,339	620	113	8	1/1, 7/1	130.00
Long Island College Hospital*	Brooklyn	E. J. Browder	2,494	9,388	45	9	4	7/1	25.00
Maimonides Hospital, Beth Moses Division*	Brooklyn	L. E. Siris	.....	.....	.....	.....	2	7/1	75.00
Methodist Hospital*	Brooklyn	H. M. Rabinowitz	1,692	1,944	59	18	2	.....	.....
.....	.....	S. Clark and A. Renaud	2,271	5,461	62	26	5	7/1	.....
Norwegian Lutheran Deaconesses' Home and Hospital*	Brooklyn	R. Tate	1,573	2,640	42	.....	22	7/1	35.00
St. Catherine's Hospital*	Brooklyn	.....	3,265	4,642	42	13	3	7/1	75.00
St. John's Hospital*	Brooklyn	M. N. Foote	1,622	.....	49	20	3	7/1	95.00
St. Mary's Hospital*	Brooklyn	T. M. Brennan	1,139	3,525	41	12	1	7/1	60.00
Buffalo General Hospital*	Buffalo	J. R. Paine	2,714	2,321	86	34	10	7/1	25.00
Children's Hospital	Buffalo	W. L. Machemer	673	.....	6	.....	2	.....	50.00
Deaconess Hospital*	Buffalo	.....	4,686	1,474	87	27	9	7/1	60.00
Edward J. Meyer Memorial Hospital*	Buffalo	J. D. Stewart	1,246	2,766	111	56	12	7/1	100.00
Millard Fillmore Hospital*	Buffalo	H. N. Kenwell	2,316	.....	53	29	7	7/1	50.00
Sisters of Charity*	Buffalo	J. C. Brady	2,324	.....	79	24	2	7/1	150.00
Mary McClellan Hospital	Cambridge, N. Y.	.....	902	4,403	22	7	1	7/1	.....
Clifton Springs Sanitarium and Clinic	Clifton Springs, N. Y.	W. C. Eikner	986	3,334	30	19	2	.....	.....
Mary Imogene Bassett Hospital*	Cooperstown, N. Y.	M. A. Melver	723	5,849	22	15	2	7/1	83.33
Meadowbrook Hospital*	Hempstead, N. Y.	A. S. Warriner	971	.....	67	41	2	1, 7	115.00
Jamaica Hospital*	Jamaica, N. Y.	J. D. Hallinan	3,322	8,065	37	24	2	7/1	175.00
Mary Immaculate Hospital*	Jamaica, N. Y.	.....	10,522	4,629	66	9	2	7/1	75.00
Queens General Hospital*	Jamaica, N. Y.	C. L. Davidson	2,965	19,505	307	134	4	7/1	80.00
Charles S. Wilson Memorial Hospital*	Johnson City, N. Y.	F. G. Moore	3,560	.....	37	14	6	7/1	.....
Nassau Hospital*	Mineola, N. Y.	.....	2,164	.....	9	.....	1	.....	.....
Mount Vernon Hospital*	Mount Vernon, N. Y.	N. W. Cornell	1,751	548	51	18	2	7/1	125.00
New Rochelle Hospital*	New Rochelle, N. Y.	G. C. Adie	2,270	2,043	70	24	4	.....	.....
Bellerue Hospital	New York City	.....	10,149	28,501	309	125	29	.....	93.00
Div. I—Columbia University*	New York City	F. Berry	.....	.....	.....	.....	.....	.....	.....
Div. II—Cornell University*	New York City	C. S. Dudley	.....	.....	.....	.....	.....	.....	.....
Div. III—New York University*	New York City	J. Mulholland	.....	.....	.....	.....	.....	.....	.....
Div. IV—Open Division*	New York City	A. McQuillan	.....	.....	.....	.....	.....	.....	.....
Beth Israel Hospital*	New York City	L. Glazburg	1,714	3,471	33	12	3	7/1	59.00
Bronx Hospital*	New York City	J. A. Landy	4,240	16,459	82	23	5	7/1	75.00

25. SURGERY—Continued

Name of Hospital	Location	Chief of Service	Inpatients Treated	Outpatient Visits	Deaths	Autopsies	Asst. Res. and Residencies Offered	Beginning of Service (1949)	Beginning Stipend (Month)
Swedish Hospital*	Seattle	R. L. Loe	1,749	.....	21	11	1	8/1	\$100.00
Virginia Mason Hospital*	Seattle	J. W. Baker	3,781	.....	79	51	6	.....	75.00
St. Luke's Hospital*	Spokane	C. P. Schlicke	995	129	63	50	1	.....	.....
Beckley Hospital	Beckley, W. Va.	.....	2,346	15,877	39	15	4	.....	.....
Charleston General Hospital*	Charleston, W. Va.	J. E. Cannaday and H. A. Bailey	2,365	2,755	28	9	2	7/1	100.00
Chesapeake and Ohio Hospital*	Huntington, W. Va.	R. J. Wilkinson	.....	.....	.....	.....	.....	.....	.....
St. Mary's Hospital*	Huntington, W. Va.	J. R. Brown	1,750	3,304	42	15	.....	7/1	100.00
Laird Memorial Hospital	Montgomery, W. Va.	W. R. Laird	2,604	11,514	57	13	.....	1/1	150.00
St. Joseph's Hospital*	Parkersburg, W. Va.	T. L. Harris	2,247	.....	31	21	.....	7/1	150.00
Myers Clinic Hospital	Philippi, W. Va.	H. C. Myers	1,262	7,410	29	12	.....	7/1	200.00
La Crosse Hospital*	La Crosse, Wis.	S. Gundersen	.....	.....	.....	.....	1	7	150.00
Madison Hospital	Madison, Wis.	H. L. Greene	1,214	.....	30	21	2	7/1	50.00
Methodist Hospital	Madison, Wis.	.....	.....	.....	.....	.....	.....	.....	.....
St. Mary's Hospital*	Madison, Wis.	J. C. Dean	2,722	.....	51	21	1	7/1	100.00
State of Wisconsin General Hospital*	Madison, Wis.	E. R. Schmidt	1,083	4,547	61	42	11	7	25.00
Columbia Hospital*	Milwaukee	F. Raife	1,013	.....	32	19	4	.....	.....
Evangelical Deaconess Hospital*	Milwaukee	P. M. Currer	2,553	.....	44	17	3	.....	150.00
Milwaukee Children's Hospital	Milwaukee	A. A. Schaefer	.....	.....	.....	.....	.....	.....	.....
Milwaukee County Hospital*	Milwaukee	C. F. Conroy	3,689	11,359	70	8	15	Varies	158.02
Milwaukee Hospital*	Milwaukee	T. S. O'Malley	6,768	.....	29	22	5	7	75.00
Mount Sinai Hospital*	Milwaukee	J. B. Willet	1,649	613	26	10	5	7/1	75.00
St. Joseph's Hospital*	Milwaukee	P. Stratton	4,725	.....	137	32	4	7	75.00
St. Luke's Hospital*	Milwaukee	J. Garland	1,818	144	31	12	2	7	150.00
St. Mary's Hospital*	Milwaukee	D. Witte	1,670	.....	53	31	1	7/1	.....
Queen's Hospital*	Honolulu, Hawaii	J. Sirode	1,201	1,719	13	8	6	7	75.00

26. THORACIC SURGERY

Hospitals, 42; Assistant Residencies and Residencies, 165

Name of Hospital	Location	Chief of Service	Inpatients Treated	Outpatient Visits	Deaths	Autopsies	Asst. Res. and Residencies Offered	Beginning of Service (1949)	Beginning Stipend (Month)
Fitzsimons General Hospital*	Denver	J. H. Forsee	722	2,774	8	8	6	.....	n
Walter Reed General Hospital*	Washington, D. C.	F. E. Hamilton	813	5,582	18	16	16	1, 7	n
United States Navy									
U. S. Naval Hospital	Corona, Calif.	.....	.....	.....	.....	.....	2	.....	n
Veterans Administration									
Veterans Admin. Hospital	San Fernando, Calif.	H. W. Harrison	(Included in Pulmonary Diseases)	.....	.....	.....	1	.....	n
Veterans Admin. Hospital	Van Nuys, Calif.	J. Weinberg	(Included in Pulmonary Diseases)	.....	.....	.....	1	.....	n
Veterans Admin. Hospital	Chamblee, Ga.	O. Abbott	200	60	17	11	1	7/1	n
Veterans Admin. Hospital	Hines, Ill.	C. B. Fuestow	4,970	.....	95	61	52	1/1, 7/1	n
Veterans Admin. Hospital	Castle Point, N. Y.	R. Friedlander	438	.....	10	6	1	.....	n
Veterans Admin. Hospital	New York City	F. K. Sauer	154	165	9	85	4	7/1	n
Veterans Admin. Hospital	Oteen, N. C.	J. D. Murphy	755	.....	.....	.....	.....	.....	n
Veterans Admin. Hospital	Brecksville, Ohio	E. B. Ray	(See Pulmonary Diseases)	.....	.....	.....	.....	.....	n
Veterans Admin. Hospital	Memphis, Tenn.	F. A. Hughes	256	.....	13	9	3	7/1	n
Veterans Admin. Hospital	Legion, Texas	C. S. Livingston	109	240	6	4	2	.....	n
Veterans Admin. Hospital	McKinney, Texas	J. Carewell	.....	.....	.....	.....	2	.....	n
Veterans Admin. Hospital	Richmond, Va.	F. P. Coleman	332	.....	13	11	3	7/1	n
Nonfederal									
Highland-Alameda County Hospital*	Oakland, Calif.	P. G. Sampson	.....	.....	.....	.....	1	.....	\$100.00
Olive View Sanatorium	Olive View, Calif.	J. Skillen	423	.....	.....	.....	4	.....	480.00
National Jewish Hospital	Denver, Colo.	J. Grow	.....	.....	.....	.....	1	.....	.....
Norwich State Tuberculosis Sanatorium (Uncas-on-Thames)	Norwich, Conn.	.....	.....	.....	.....	.....	2	.....	.....
University Hospital*	Augusta, Ga.	R. C. Major	774	239	25	22	4	7/1	250.00
City of Chicago Municipal Tuberculosis Hospital	Chicago	.....	610	.....	.....	.....	2	.....	.....
Boston Sanatorium	Boston	J. Streider	.....	.....	.....	.....	2	.....	.....
University Hospital*	Ann Arbor, Mich.	J. Alexander	645	1,955	25	16	9	7/1	111.80
Herman Kiefer Hospital	Detroit	E. J. O'Brien	852	735	12	2	3	7/1	368.00
Mississippi State Tuberculosis Sanatorium	Sanatorium, Miss.	L. R. Reid	151	675	1	1	1	.....	.....
Barnes Hospital*	St. Louis	E. A. Graham	545	.....	35	29	2	7/1	25.00
Berthold S. Pollak Hospital for Chest Diseases	Jersey City, N. J.	F. Bortone	304	.....	.....	.....	2	.....	.....
Kings County Hospital*	Brooklyn	L. Hochberg	308	1,285	35	17	1	7/1	130.00
Edward J. Meyer Memorial Hospital*	Buffalo	J. D. Stewart	75	.....	7	3	1	7/1	100.00
Herman M. Biggs Memorial Hospital	Ithaca, N. Y.	R. Douglass	136	.....	1	1	2	.....	.....
Triboro Hospital	Jamaica, N. Y.	D. A. Mulvihill	.....	.....	9	3	5	.....	50.00
Mount Morris Tuberculosis Hospital	Mount Morris, N. Y.	V. H. Kaunitz	60	.....	.....	.....	1	.....	.....
Belleuve Hospital	.....	.....	.....	.....	.....	.....	.....	.....	.....
Div. I—Columbia University*	New York City	F. Berry	.....	.....	.....	.....	4	.....	.....
Metropolitan Hospital*	New York City	S. A. Thompson	103	.....	15	3	1	7/1	150.00
Homer Folke Tuberculosis Hospital	Onconeta, N. Y.	A. M. Skinner	143	14	2	2	2	7	301.25
Ray Brook State Tuberculosis Hospital	Ray Brook, N. Y.	.....	178	.....	.....	.....	2	.....	.....
Sea View Hospital	Staten Island, N. Y.	L. R. Davidson	379	.....	16	.....	7	7/1	150.00
North Carolina Baptist Hospital*	Winston-Salem, N. C.	H. H. Bradshaw	123	27	16	11	2	.....	.....
City Hospital*	Cleveland	S. O. Freeland	.....	757	.....	.....	2	7/1	70.00
University of Oregon Medical School Hospitals and Clinics*	Portland, Ore.	W. S. Conklin	254	6,562	11	9	4	7/1	75.00
Gaston Hospital	Dallas, Texas	.....	.....	.....	.....	.....	.....	.....	.....
Muirdale Sanatorium	Milwaukee	J. Steele	.....	.....	.....	.....	1	.....	.....

27. UROLOGY

The following services are approved by the Council and the American Board of Urology Hospitals, 204; Assistant Residencies and Residencies, 460

Name of Hospital	Location	Chief of Service	Inpatients Treated	Outpatient Visits	Deaths	Autopsies	Asst. Res. and Residencies Offered	Beginning of Service (1949)	Length of Approved Program (years)	Beginning of School (month)
United States Army										
Letterman General Hospital*	San Francisco	J. Schwartz	410	3,006	4	3	4	.....	2	n
Fitzsimons General Hospital*	Denver, Colo.	A. L. Abernethy	.....	.....	.....	.....	.....	.....	1	n
Walter Reed General Hospital*	Washington, D. C.	J. C. Kimbrough	1,682	2,263	12	12	6	1, 7	3	n
Oliver General Hospital*	Augusta, Ga.	E. C. Lowry	318	1,017	3	3	..	1/1	3	n
Brooke General Hospital*	San Antonio, Texas	G. R. Hamilton	1,094	7,531	11	9	6	.....	3	n
Gorgas Hospital*	Ancon, C. Z.	.....	682	3,269	13	11	1	1/1	3	n
Tripler General Hospital*	Monahua, T. H.	.....	369	690	4	3	..	7/1	3	n
United States Navy										
U. S. Naval Hospital*	Long Beach, Calif.	L. A. Newton	762	1,237	1	1	3	.....	3	n
U. S. Naval Hospital*	Onkland, Calif.	A. L. Abernethy	.....	.....	.....	.....	2	.....	3	n
U. S. Naval Hospital*	San Diego, Calif.	J. S. Hanten	975	855	5	3	2	.....	3	n
U. S. Naval Hospital*	Bethesda, Md.	H. J. Cokely	803	2,351	15	9	2	Varies	3	n
U. S. Naval Hospital*	St. Albans, N. Y.	S. Johnson	220	162	13	9	3	.....	3	n
U. S. Naval Hospital*	Philadelphia	J. W. Rogers	1,063	3,580	41	19	4	.....	3	n
U. S. Naval Hospital*	Portsmouth, Va.	.....	.....	.....	.....	.....	1	.....	3	n
United States Public Health Service										
U. S. Marine Hospital* ¹	Baltimore	J. S. Haines	1,356	4,382	5	5	1	7/1	2	n
U. S. Marine Hospital* ¹	Stapleton, S. I., N. Y.	C. Ferguson	584	509	9	4	3	7/1	3	n
Federal Security Agency										
Freedmen's Hospital* ¹	Washington, D. C.	R. F. Jones	285	2,815	16	8	1	7/1	3	n
Veterans Administration										
Veterans Admin. Center ¹	Los Angeles, Calif.	.....	382	504	23	16	6	.....	3	n
Veterans Admin. Hospital	Onkland, Calif.	.....	.....	.....	.....	.....	2	.....	3	n
Veterans Admin. Hospital ¹	San Francisco	H. M. Weyrauch	233	644	5	5	.....	7/1	3	n
Veterans Admin. Hospital ¹	Van Nuys, Calif.	D. Malcolm	311	2,504	13	10	2	1/1, 7/1	3	n
Veterans Admin. Hospital	Newington, Conn.	C. Denlinger	350	263	5	2	1	7/1	3	n
Veterans Admin. Hospital	Chamblee, Ga.	M. K. Bailey	399	52	15	6	3	7/1	3	n
Veterans Admin. Hospital	Hines, Ill.	F. Lloyd	1,218	.....	65	33	7	7/1, 1/2	3	n
Veterans Admin. Center ¹	Wadsworth, Kan.	I. S. Brown	269	5	9	8	3	1, 7	3	n
Veterans Admin. Hospital ¹	Louisville, Ky.	M. L. Schwalbe	482	3	..	..	2	.....	2	n
Veterans Admin. Hospital ¹	New Orleans, La.	E. Burns	320	177	9	8	2	7/1	3	n
Veterans Admin. Hospital	Fort Howard, Md.	H. Miesel	220	120	1	1	1	Varies	3	n
Veterans Admin. Hospital (West Roxbury) ¹	Boston	S. Vose	401	1,025	10	7	3	7	3	n
Veterans Admin. Hospital ¹	Frammingham, Mass.	.....	281	.....	13	3	3	.....	2	n
Veterans Admin. Hospital ¹	Minneapolis, Minn.	.....	472	.....	11	8	3	.....	2	n
Veterans Admin. Hospital ¹	Jefferson Bks., Mo.	.....	408	.....	5	1	3	.....	3	n
Veterans Admin. Hospital	Lincoln, Neb.	.....	325	.....	7	5	2	.....	3	n
Veterans Admin. Hospital	Albuquerque, N. M.	.....	241	.....	3	3	1	7/1	3	n
Veterans Admin. Hospital	New York City	P. K. Sauer	624	260	21	11	5	1, 7	2	n
Veterans Admin. Hospital	Staten Island, N. Y.	S. N. Kessler	301	149	17	12	1	7/1	3	n
Veterans Admin. Hospital ¹	Cleveland	L. C. Morris	510	132	4	4	2	7/1	3	n
Veterans Admin. Hospital	Portland, Ore.	P. B. Potampka	443	.....	8	7	1	1/1, 7/1	3	n
Veterans Admin. Hospital	Aspenwall, Pa.	C. A. Kuchn	450	.....	21	16	3	7/1	3	n
Veterans Admin. Center	Columbia, S. C.	T. M. Yates	466	.....	21	12	3	7	3	n
Veterans Admin. Hospital	Memphis, Tenn.	F. M. Jacobs	655	285	16	12	2	7/1	3	n
Veterans Admin. Hospital ¹	Nashville, Tenn.	H. S. Shelley	.....	.....	.....	.....	1	.....	2	n
Veterans Admin. Hospital ¹	Dallas, Texas	.....	242	.....	9	5	1	1/1, 7/1	3	n
Veterans Admin. Hospital ¹	McKinney, Texas	P. A. Duff	.....	.....	.....	.....	1	.....	3	n
Veterans Admin. Hospital ¹	Richmond, Va.	R. C. Bunts	503	1,455	0	4	4	7/1	3	n
Veterans Admin. Center ¹	Milwaukee	.....	398	1,299	17	13	4	7/1	3	n
Nonfederal										
Carraway Methodist Hospital*	Birmingham, Ala.	L. Timberlake	341	1,231	2	2	1	7/1	3	\$100.00
Jefferson and Hillman Hospitals* ¹	Birmingham, Ala.	B. Barclato	473	.....	15	9	3	.....	3	.....
Los Angeles County Hospital* ¹	Los Angeles	J. J. Cane	2,482	11,428	193	70	8	Varies	3	165.00
Dresbyterian Hospital—Olmsted Memorial*	Los Angeles	.....	.....	.....	.....	.....	.....	.....	2	.....
White Memorial Hospital*	Los Angeles	.....	.....	.....	.....	.....	.....	.....	2	.....
San Diego County General Hospital*	San Diego, Calif.	R. W. Barnes	518	5,519	16	8	1	7/1	3	140.00
Franklin Hospital*	San Francisco	R. Prentiss	352	387	22	10	2	7/1	2	125.00
San Francisco Hospital* ¹	San Francisco	H. B. Stephens	109	.....	3	1	3	.....	2	100.00
Southern Pacific General Hospital	San Francisco	C. M. Johnson	599	.....	33	7	2	.....	3	175.00
Stanford University Hospitals* ¹	San Francisco	.....	.....	.....	.....	.....	1	.....	2	.....
University of California Hospitals* ¹	San Francisco	J. R. Dillon	426	3,571	4	1	1	7/1	3	50.00
Santa Clara County Hospital*	San Jose, Calif.	E. Hinman	354	8,751	4	4	1	7/1, 8/1, 9/1	3	50.00
Harbor General Hospital*	Torrance, Calif.	D. Fagerstrom	344	1,693	12	9	1	7/1	2	235.00
University of Colorado Medical Center	Denver	G. D. Stilson	244	.....	22	12	1	7/1	3	.....
Colorado General Hospital* ¹	Denver	D. R. Higby	430	3,090	13	9	2	7/1	3	75.00
Denver General Hospital* ^{1, 28}	Denver	D. Newland	355	.....	23	14	1	7	.....	40.00
Corwin Hospital*	Pueblo, Colo.	.....	.....	.....	.....	.....	.....	.....	3	.....
Grace-New Haven Community Hospital	New Haven, Conn.	C. Deming	506	2,352	23	9	2	7/1	3	40.00
New Haven Unit (University Service)* ¹	New Haven, Conn.	L. L. Maurer	.....	.....	.....	.....	1	7/1	3	75.00
Waterbury Hospital* ¹	Waterbury, Conn.	H. J. Stettbacher	530	175	10	9	1	.....	2	100.00
Gallinger Municipal Hospital* ¹	Washington, D. C.	.....	376	1,416	21	10	3	7/1	3	.....
Duval Medical Center	Jacksonville, Fla.	.....	.....	.....	.....	.....	.....	.....	2	.....
St. Vincent's Hospital*	Jacksonville, Fla.	R. McIver	357	.....	22	2	2	7/1	2	100.00
Jackson Memorial Hospital* ¹	Miami, Fla.	.....	.....	.....	.....	.....	.....	.....	2	.....
Grady Memorial Hospital* ^{1, 15}	Atlanta, Ga.	M. K. Bailey	910	7,174	45	17	6	7/1	3	.....
University Hospital*	Augusta, Ga.	J. R. Rinker	355	.....	11	..	1	7/1	2	40.00
Alexian Brothers Hospital*	Chicago	.....	334	.....	21	10	1	7/1	2	100.00
Cook County Hospital*	Chicago	W. J. Baker	1,069	3,534	181	..	3	1/1, 7/1	3	32.00
Mersey Hospital-Loyola University Clinics*	Chicago	H. E. Landes	525	1,813	12	4	1	.....	3	25.00
Michael Reese Hospital* ¹	Chicago	H. C. Rolnick	555	1,618	.....	.....	2	1/1, 7/1	3	25.00
Mount Sinai Hospital* ¹	Chicago	H. C. Rolnick	333	1,107	26	7	1	7/1	2	50.00

27. UROLOGY—Continued

Name of Hospital	Location	Chief of Service	Inpatients Treated	Outpatient Visits	Deaths	Autopsies	Asst. Res. and Residencies Offered	Beginning of Service (1949)	Length of Approved Program (years)	Beginning Stipend (Month)
Presbyterian Hospital*	Chicago	N. J. Heckel	861	2,678	13	9	3	.....	3	\$ 25.00
†Provident Hospital*	Chicago	W. S. Grant	213	1,303	11	2	2	.....	3	.....
St. Luke's Hospital*	Chicago	H. Oulver	537	1,537	23	14	2	7/1	3	25.00
University of Chicago Clinics*	Chicago	C. B. Huggins	309	6,597	15	14	2	7/1	3	25.00
Wesley Memorial Hospital*	Chicago	V. J. O'Connor	728	.....	14	7	2	.....	3	25.00
†Evanston Hospital*	Evanston, Ill.	J. I. Farrell	282	365	4	4	1	.....	3	50.00
†St. Francis Hospital*	Evanston, Ill.	.....	579	.....	14	9	.....	.....	1	.....
St. Francis Hospital*	Peoria, Ill.	A. Sprenger	699	261	25	11	1	7/1	3	150.00
Indianapolis General Hospital*	Indianapolis	E. W. Rupel	460	2,292	32	17	2	7/1	3	80.00
†Indiana University Medical Center*	Indianapolis	H. O. Mertz	267	1,581	15	9	3	7/1	3	68.33
†Methodist Hospital*	Indianapolis	R. D. Howell	1,331	.....	31	12	2	7/1	3	200.00
University Hospitals*	Iowa City	N. Alcock	1,890	1,649	53	26	6	7/1	3	50.00
University of Kansas Medical Center*	Kansas City, Kan.	W. L. Valk	528	1,511	27	16	3	7/1	3	.....
†St. Joseph Hospital*	Lexington, Ky.	E. H. Ray	592	.....	22	9	1	7/1	2	90.00
†Louisville General Hospital*	Louisville, Ky.	R. E. Lich	287	2,319	11	5	2	7/1	2	.....
Charity Hospital of Louisiana*	New Orleans	.....	2,296	16,315	88	29	14	7/1	3	25.00
†Ochsner Foundation Hospital*	New Orleans	E. Burns	372	13,160	8	5	3	Varies	3	150.00
Touro Infirmary*	New Orleans	W. A. Reed	593	3,859	14	6	1	.....	3	25.00
†Shreveport Charity Hospital*	Shreveport, La.	R. K. Womack	618	1,611	25	11	1	7/1	3	60.00
Johns Hopkins Hospital*	Baltimore	W. W. Scott	1,036	4,474	23	15	5	7/1	3	41.63
†Sinal Hospital*	Baltimore	A. E. Goldstein	449	.....	27	15	3	7/1	3	25.00
Beth Israel Hospital*	Boston	G. O. Prather	338	2,217	.....	1	10/1	3	41.63	
Boston City Hospital*	Boston	G. O. Prather	551	5,818	22	9	3	.....	3	.....
Lahey Clinic*	Boston	.....	.....	.....	.....	3	.....	.....	3	.....
Massachusetts General Hospital*	Boston	F. H. Colby	433	.....	15	7	3	.....	3	.....
Massachusetts General Hospital*	Boston	S. N. Vose	.....	1,158	8	7	2	7/1	3	50.00
Peter Bent Brigham Hospital*	Boston	.....	.....	.....	.....	2	.....	.....	3	.....
†Mount Auburn Hospital*	Cambridge, Mass.	H. Chamberlin	230	170	.....	1	7/1	1	100.00	
†Worcester City Hospital*	Worcester, Mass.	L. M. Felton	.....	.....	.....	2	7/1	2	50.00	
University Hospital*	Ann Arbor, Mich.	R. Nesbit	1,317	7,954	24	17	6	7/1	3	111.80
City of Detroit Receiving Hospital*	Detroit	F. Cole	791	4,040	43	19	3	7/1	3	183.00
Grace Hospital*	Detroit	L. W. Hull	1,072	645	19	9	2	7/1	3	75.00
Harper Hospital*	Detroit	F. H. Cole	1,209	1,166	19	7	4	7/1	2	.....
Henry Ford Hospital*	Detroit	J. K. Ormond	650	15,025	19	14	3	7/1	3	200.00
Wayne County General Hospital and Infirmary*	Eloise, Mich.	W. L. Sherman	703	1,451	62	33	2	7/1	3	235.00
Minneapolis General Hospital*	Minneapolis	T. H. Sweetser	331	1,900	19	16	1	7/1	3	115.00
St. Mary's Hospital*	Minneapolis	T. H. Sweetser	463	120	9	6	1	9	3	150.00
University of Minnesota Hospitals*	Minneapolis	C. D. Crechy	785	2,787	24	16	3	.....	3	.....
Mayo Foundation	Rochester, Minn.	G. J. Thompson	.....	.....	.....	15	.....	.....	3	92.50
Ancker Hospital*	St. Paul	F. E. B. Foley	368	1,816	24	15	2	7/1	3	91.50
Charles T. Miller Hospital*	St. Paul	F. E. B. Foley	523	703	12	8	1	Varies	3	115.00
Kansas City General Hospital No. 1*	Kansas City, Mo.	A. L. Stockwell	544	2,253	26	19	2	7	3	60.00
Research Hospital*	Kansas City, Mo.	R. L. Hoffman	456	6	15	11	1	7/1	3	.....
†Barnes Hospital*	St. Louis	D. K. Rose	898	3,822	26	22	1	7/1	3	25.00
Homier G. Phillips Hospital*	St. Louis	.....	.....	.....	.....	2	7/1	3	95.00	
†Missouri Baptist Hospital*	St. Louis	O. E. Burford	724	.....	.....	1	7/1	3	70.00	
†Missouri Pacific Hospital*	St. Louis	.....	.....	.....	.....	.....	.....	.....	2	.....
St. Louis City Hospital*	St. Louis	Wattenberg, Carroll, and Rieky	452	1,789	84	36	3	7/1	3	25.00
St. Mary's Group of Hospitals*	St. Louis	C. E. Burford	713	2,538	21	9	3	7/1	3	35.00
Atlantic City Hospital*	Atlantic City, N. J.	C. H. de T. Shivers	357	4,273	4	1	1	7/1	2	60.00
Bayonne Hospital and Dispensary*	Bayonne, N. J.	A. J. Balsamo	587	670	2	1	2	7/1	3	.....
†Cooper Hospital*	Camden, N. J.	.....	429	4,751	17	8	1	7/1	2	83.33
Jersey City Hospital*	Jersey City, N. J.	E. J. Daly	432	3,080	27	4	2	.....	3	.....
Newark City Hospital*	Newark, N. J.	O. R. O'Crowley	.....	.....	.....	1	7	3	.....	.....
†Orange Memorial Hospital*	Orange, N. J.	.....	427	449	21	2	.....	Varies	2	100.00
Albany Hospital*	Albany, N. Y.	J. E. Heslin	800	1,132	22	12	2	7/1	3	41.67
Jewish Hospital*	Brooklyn	P. Aschner	662	1,474	24	9	.....	.....	2	.....
Kings County Hospital*	Brooklyn	F. L. Senger	1,546	4,417	182	8	2	7/1	3	80.00
Long Island College Hospital*	Brooklyn	F. L. Senger	581	2,846	15	3	3	7/1	3	25.00
†Methodist Hospital*	Brooklyn	H. T. Langworthy	506	447	7	3	1	7/1	3	.....
Buffalo General Hospital*	Buffalo	O. J. Oberkircher	592	1,679	15	6	2	7/1	2	25.00
Edward J. Meyer Memorial Hospital*	Buffalo	E. M. Watson	445	2,603	48	19	2	7/1	3	100.00
†Millard Fillmore Hospital*	Buffalo	G. Slotkin	659	.....	29	11	2	7/1	2	50.00
Queens General Hospital*	Jamaica, N. Y.	F. G. Riley	936	6,484	80	58	4	7/1	3	50.00
.....	New York City	R. S. Hotchkiss	735	9,799	39	6	3	.....	3	30.00
.....	New York City	S. P. Wilhelm	809	2,137	31	8	3	7/1	3	50.00
.....	New York City	S. Carleton	374	2,784	44	7	1	7/1	2	130.00
.....	New York City	J. Duff	754	2,463	22	4	4	1/1	3	80.00
.....	New York City	G. D. Oppenheimer	.....	.....	.....	2	.....	.....	3	50.00
†Mount Sinai Hospital*	New York City	T. J. Kirwin	259	2,195	32	11	2	7/1	2	130.00
New York City Hospital*	New York City	O. Lowsley and V. Marshall	.....	11,767	.....	5	7/1	3	25.00	
New York Polyclinic Medical School and Hospital*	New York City	.....	488	.....	5	.....	2	7/1	3	50.00
Presbyterian Hospital*	New York City	G. F. Cahill	1,296	8,911	40	.....	6	.....	3	41.66
Roosevelt Hospital*	New York City	S. A. Belster	592	2,817	16	7	3	7/1	3	70.00
St. Clare's Hospital*	New York City	W. V. Henley	4,760	8,662	78	36	5	7/1	2	25.00
St. Luke's Hospital*	New York City	J. A. Taylor	696	3,467	13	3	2	7	3	50.00
University Hospital*	New York City	C. T. Steptia	540	3,470	5	1	.....	.....	3	15.00
Strong Memorial—Rochester Municipal Hospitals*	Rochester, N. Y.	W. W. Scott	1,365	13,219	.....	.....	3	.....	3	45.00
Sea View Hospital*	Staten Island, N. Y.	A. M. Greenberger	132	.....	.....	2	7/1	1	130.00	
Charlotte Memorial Hospital*	Charlotte, N. C.	W. E. Daniel	1,313	116	15	4	2	7/1	3	60.00
Duke Hospital*	Durham, N. C.	E. P. Alsea	531	4,133	12	7	4	7/1	2	83.33
Watts Hospital*	Durham, N. C.	.....	560	2,161	12	6	2	7/1	2	50.00
North Carolina Baptist Hospital*	Winston-Salem, N. C.	F. K. Garvey	524	1,037	14	2	4	7/1	3	.....
City Hospital*	Cleveland	H. Trautner	422	3,123	30	.....	2	.....	3	70.00
Cleveland Clinic Hospital*	Cleveland	C. O. Higgins	1,249	20,575	20	3	5	7/1	3	100.00
University Hospitals*	Cleveland	J. J. Jolson	1,120	4,022	10	.....	1	7/1	3	25.00
Ohio State University Hospital*	Columbus, Ohio	W. N. Taylor	526	1,442	32	21	3	7/1	2	50.00
St. Vincent's Hospital*	Toledo, Ohio	L. P. Dolan	726	23	13	4	2	7	2	100.00
University Hospitals*	Oklahoma City	B. A. Hayes	212	2,846	13	3	1	7/1	3	35.00

27. UROLOGY—Continued

Name of Hospital	Location	Chief of Service	Inpatients Treated	Outpatient Visits	Deaths	Autopsies	Asst. Res. and Residencies Offered	Beginning of Service (1946)	Length of Approved Program (years)	Beginning Stipend (Month)
Hillcrest Memorial Hospital* ¹	Tulsa, Okla.....	J. O. Atkins.....	328	.....	13	3	..	.....	2	.....
St. John's Hospital* ¹	Tulsa, Okla.....	H. S. Browne.....	715	.....	15	1	1	.....	2	\$150.00
St. Vincent's Hospital*.....	Portland, Ore.....	.....	.....	.....	.....	..	1	.....	2	.....
University of Oregon Medical School Hospitals and Clinics* ¹	Portland, Ore.....	J. R. Hand.....	257	3,081	14	9	4	7/1	3	75.00
Allentown Hospital*.....	Allentown, Pa.....	W. C. Masonheimer.....	736	160	11	5	1	7/1	2	100.00
George F. Geisler Memorial Hospital*.....	Danville, Pa.....	W. I. Buchert.....	870	7,346	15	11	1	.....	3	75.00
St. Vincent's Hospital*.....	Eric, Pa.....	E. Hess.....	1,565	4,396	20	12	4	7/1	3	50.00
Harrisburg Hospital*.....	Harrisburg, Pa.....	S. L. Grossman.....	476	5,081	24	7	1	7/1	2	100.00
Episcopal Hospital* ¹	Philadelphia.....	G. D. Shoup.....	207	617	6	2	1	7/1	2	50.00
Graduate Hospital of the University of Pennsylvania*.....	Philadelphia.....	.....	173	2,790	10	5	1	7/1	2	.....
Hahnemann Hospital* ¹	Philadelphia.....	E. W. Campbell.....	861	2,839	3	..	2	.....	3	25.00
Hospital of the University of Pennsylvania* ¹	Philadelphia.....	P. B. Hughes.....	869	3,343	11	8	3	Varies	3	.....
Jefferson Medical College Hospital*.....	Philadelphia.....	.....	838	5,484	20	10	3	7/1	3	.....
Lankenau Hospital*.....	Philadelphia.....	C. A. W. Uhle.....	300	.....	7	4	1	7/1	2	50.00
Mount Sinai Hospital* ¹	Philadelphia.....	M. Muschat and I. J. Carp.....	357	327	25	18	1	6/21	2	50.00
Pennsylvania Hospital*.....	Philadelphia.....	L. Herman.....	668	3,602	9	5	2	7/1	3	20.00
Philadelphia General Hospital*.....	Philadelphia.....	.....	671	.....	46	..	3	7/1	3	70.00
Presbyterian Hospital* ¹⁰	Philadelphia.....	J. Birdsall.....	.....	.....	..	..	1	.....	3	25.00
Temple University Hospital* ¹	Philadelphia.....	K. B. Conger.....	461	2,115	12	9	1	7/1	3	.....
Mercy Hospital* ¹	Pittsburgh.....	E. J. McCague.....	520	558	6	2	1	9/1	3	100.00
University of Pittsburgh Medical Center.....	Pittsburgh.....	.....	.....	.....	..	..	2	.....	3	.....
Robert Packer Hospital*.....	Sayre, Pa.....	W. Baurys.....	478	1,102	10	5	1	7/1	3	150.00
Uniontown Hospital*.....	Uniontown, Pa.....	.....	.....	.....	..	..	1	.....	1	.....
Mercy Hospital*.....	Wilkes-Barre, Pa.....	P. P. Mayoek.....	303	1,779	9	5	1	7/1	1	75.00
Roper Hospital* ¹	Charleston, S. C.....	J. J. Ravenel.....	570	1,532	9	1	1	7/1	3	25.00
Tri-County Hospital.....	Orangeburg, S. C.....	L. P. Thackston.....	1,104	6,939	9	9	2	7/1	3	100.00
John Gaston Hospital*.....	Memphis, Tenn.....	T. D. Moore.....	601	6,478	25	14	3	.....	3	.....
St. Joseph Hospital* ¹	Memphis, Tenn.....	C. D. Allen.....	603	31	21	6	2	7/1	2	.....
Parkland Hospital* ¹	Dallas, Texas.....	K. King.....	434	3,920	17	9	2	7/1	3	50.00
University of Texas Medical Branch Hosps.* ¹	Galveston, Texas.....	R. E. Cone.....	364	4,590	6	2	3	7	3	50.00
Hermann Hospital*.....	Houston, Texas.....	C. M. Crigler.....	873	1,673	20	12	3	.....	3	50.00
Mary Fletcher Hospital* ²³	Burlington, Vt.....	W. M. Flagg.....	438	7	11	9	4	7/1	2	68.75
University of Virginia Hospital* ¹	Charlottesville, Va.....	S. M. Vest.....	626	3,274	19	6	4	7/1	3	.....
Medical College of Virginia Hospital Division* ¹	Richmond, Va.....	A. I. Dodson.....	593	2,600	22	8	3	7/1	3	46.50
St. Mary's Hospital*.....	Huntington, W. Va.....	R. M. Bobbitt.....	769	.....	20	1	1	11/1	3	100.00
La Crosse Lutheran Hospital* ¹	La Crosse, Wis.....	A. Gunderson.....	.....	.....	..	..	1	7	1	150.00
Madison General Hospital*.....	Madison, Wis.....	I. R. Sisk.....	680	.....	31	13	1	7/1	2	50.00
State of Wisconsin General Hospital* ¹	Madison, Wis.....	I. Sisk.....	569	.....	17	15	3	7	3	25.00
Milwaukee County Hospital* ¹	Milwaukee.....	J. C. Sargent.....	800	1,906	33	2	2	Varies	2	158.02

Numerical and Other References

- n. Salary established by government pay tables.
- *. Indicates hospitals approved for training interns.
- †. Indicates temporary approval.
1. Residencies open to women.
2. Affiliated with Veterans Administration Hospital, Newington, Conn.
3. Affiliated with Shriners' Hospital for Crippled Children, Salt Lake City.
4. Affiliated with Lakeville State Sanatorium, Middleboro; New England Penbody Home, Newton Center; Boston City Hospital, Boston.
5. Clinical data includes psychiatry.
6. Inpatients: Data refers to total inpatients treated in specialty. Obstetrical admissions do not include newborn. In general residency and pathology total hospital admissions are used.
7. Clinical data includes neurology.
8. Includes fellowships.
9. Affiliated with Northwest Clinic, Minot, N. D.
10. Includes acceptable affiliate assignment at Urologic Clinic, Philadelphia.
11. Includes affiliate service at South Bend Medical Laboratory, St. Joseph Hospital, South Bend; Elkhart General Hospital, Elkhart and St. Joseph's Hospital, Mishawaka, Ind.
12. Represents training acceptable to Board in (1) radiology, (2) roentgenology, (3) therapeutic radiology, (4) diagnostic roentgenology.
13. Affiliated with North Carolina Orthopedic Hospital, Gastonia, and Georgia Warm Springs Foundation, Warm Springs.
14. Type of training acceptable to Board: A—adult orthopedics; C—children's orthopedics; F—fractures; S—basic sciences.
15. Includes affiliate service at Emory University.
16. Affiliated with Genesee Hospital.
17. Acceptable affiliations at Norton Memorial Infirmary and Veterans Administration Hospital, Louisville, Ky.
18. Affiliated with Sea View Hospital and St. Vincent's Hospital, Staten Island, N. Y.
19. Training will also be carried out at DeKalb Public Hospital and St. Mary's Hospital, DeKalb, Ill.
20. Part of three year program offered by Harper, City of Detroit-Receiving and Children's hospitals in affiliation with Wayne University.
21. In affiliation with Johns Hopkins Hospital, Baltimore.
22. Approved for training in syphilology only.
23. Affiliated with Medical School of the University of Vermont, to include assignment at Bishop DeGoesbriand Hospital.
24. Affiliated with Free Hospital for Women, Brookline, Mass.
25. In affiliation with Hartford Hospital, Hartford, Conn.
26. In affiliation with Good Samaritan and St. Vincent's Hospitals, Portland, Ore.
27. Affiliated with Wesley Memorial Hospital, Chicago.
28. Apply: Office of Graduate Medical Education, University of Colorado Medical Center.
29. Includes affiliated service at Lakeville State Sanatorium, Middleboro, Mass.
30. Training program under the sponsorship of the University of Washington School of Medicine, Seattle.
31. Includes Stanford University Division—F½; University of California Division—AF 1½.
32. Includes affiliated service at Milwaukee Children's Hospital.
33. In affiliation with Georgetown University and George Washington University.
34. Affiliated with University of Minnesota.
35. Affiliated with Veterans Administration Hospital, Legion, Texas.
36. Affiliated with Betty Bacharach Home, Longport, N. J.
37. Affiliated with Harlem Hospital, New York City.
38. Affiliated with Holy Ghost Hospital, Cambridge, Mass., and Jewish Memorial Hospital, Roxbury, Mass.
39. Affiliated with Permanente Foundation Hospital and Stanford Convalescent Home.
40. Affiliated with St. Francis Hospital.
41. Affiliated with Division of Graduate Medicine, Tulane University School of Medicine.
42. May include six months' assignment to Dept. of Rehabilitation and Physical Medicine's approved program.
43. Includes affiliated service at DePaul Sanatorium, New Orleans.
44. Affiliated with University of Oregon Medical School, hospitals and clinics, Portland.
45. Affiliated with Mary Hitchcock Memorial Hospital, Hanover, N. H.
46. Affiliated with Veterans Administration Hospital, Aspinwall, Pa.
47. Affiliated with Bryan Memorial, Lincoln, Neb.
48. Affiliated with South Bend Medical Foundation, South Bend, Ind.
49. Affiliated with Children's Hospital, Louisville, Ky.
50. May include one year in the Department of Metabolic and Endocrine Diseases.
51. Affiliated with Cowell Memorial Hospital, Berkeley, Calif.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

535 NORTH DEARBORN STREET - - - CHICAGO 10, ILL.

Edited by

MORRIS FISHBEIN, M.D.

Assistant Editor, AUSTIN SMITH, M.D.

Associate Editors

JOHNSON F. HAMMOND, M.D. RICHARD J. PLUNKETT, M.D.

Editor for Current Medical Literature, GEORGE HALPERIN, M.D.

Assistant to the Editor, JEWEL F. WHELAN

Subscription price - - - Twelve dollars per annum in advance

Cable Address - - - "Medic, Chicago"

Please send in promptly notice of change of address, giving both old and new; always state whether the change is temporary or permanent. Such notice should mention all journals received from this office. Important information regarding contributions will be found on second advertising page following reading matter.

SATURDAY, MAY 14, 1949

REVISION OF ESSENTIALS OF AN APPROVED INTERNSHIP

In November 1948 the Council on Medical Education and Hospitals completed the first major revision of the "Essentials of An Approved Internship" since 1942. The revision was ratified by the House of Delegates at the St. Louis Interim Session, and its provisions are now in effect. A careful study of the new "Essentials" is indicated so that hospitals may adjust their programs to the present requirements, if necessary, and thus continue to qualify for internship approval.

With the exception of the necropsy data, the quantitative requirements have not been changed appreciably. Hospitals with capacities of 100 beds and over, maintaining an average daily census of 85 patients and an annual admission rate of 2,500, are eligible for approval. The necropsy rate has been raised from 15 to 20 per cent. This increase is consistent with the generally accepted principle that a hospital's necropsy rate constitutes a reliable gage of the staff's interest in scientific advancement. While the necropsy rate was raised, the quantitative requirement of 36 necropsies per annum was eliminated, so as not to penalize a hospital in which a relatively low number of deaths occur.

The Council in its present "Essentials" has reemphasized the importance of a well organized program for intern training, stating that internships arranged merely to provide hospitals with resident personnel to assist in the clinical work of the hospital cannot be approved. The Council has suggested that the appointment of a director of intern education on a full time or part time basis may be desirable in hospitals in which the members of the staff are unable to devote the necessary time to the careful planning and supervision of the details of the internship program. The attending staff is not to be relieved of responsibility for teaching; rather, the director will correlate the activi-

ties of the several services and supervise the over-all program. The ultimate responsibility for training the intern lies with the staff through instruction at the bedside, in the operating and delivery rooms and in other daily contacts. The "Essentials" suggests that an orientation period be arranged at the beginning of his service during which the staff should acquaint the new intern with the administrative and professional organization of the hospital and introduce him to the ancillary services of the hospital which are available to assist in the care and treatment of the patient.

The "Essentials" include the statement that the Council believes that a well organized rotating internship is likely to provide the best basic training for either the future general practitioner or the specialist. This type of training provides for adequate experience in the four major clinical divisions. Too frequent a rotation of assignments or assignment to more than one service at a time is not considered desirable. The Council recommends that at least three months be devoted both to internal medicine and to surgery and states that any assignment of less than two months' duration is unsatisfactory. While the majority of internships presently approved are of one year's duration, longer periods of service are considered preferable, since they permit a more satisfactory educational program and allow the intern sufficient time in which to be trained adequately to assume increasing responsibility in various fields of medicine.

For the first time, the "Essentials" provide a method for determining the number of interns to be appointed. The bed capacity of the hospital is used as a basis, with a range of 15 to 25 beds per intern recommended. Consideration should be given to the amount of responsibility required of the intern for work in outpatient departments, emergency services, laboratories or similar assignments in determining the ratio which the hospital may wish to use. While the Council does not establish a specific number of interns to be appointed by approved hospitals, the hospitals will, no doubt, comply with this requirement in organizing their programs.

Hospitals approved for intern training are currently being reappraised on the basis of these new "Essentials." Probably the Council will reconsider the approved status of the hospitals which fail to meet the quantitative requirements or which have not organized a training program that measures up to the new standards established. Council approval is granted on a year to year basis and may be withdrawn at any time that a hospital ceases to meet one or more of the requirements set forth. Approval may also be withdrawn from hospitals in which the intern program has not been in operation for a period of two consecutive years.

The provisions of the new "Essentials" have been called to the attention of all hospitals approved by the Council. Development of internship programs on the

basis of the requirements set forth in the present revision will result in a higher level of intern training, particularly in hospitals that have allowed the educational aspects of the internship to become subordinate to the service requirements.

EARLY RISING AFTER SURGICAL OPERATION

Early rising after operation was first advocated in this country by Emil Ries¹ of Chicago as early as 1899. Patients of Dr. Ries were made to sit in a chair for ten minutes on the second postoperative day regardless of the extent of the surgical procedure. The method was adopted somewhat later by Dr. H. M. Richter, also of Chicago, by the Mayos and by numerous other American surgeons. The Germans usually credit Heinrich Braun with priority in this field. At the thirty-seventh congress of the German Surgical Society in 1908 Kümmel and Krönig spoke enthusiastically of the method. A further impetus to early postoperative ambulation in this country was given by the report of Leithauser and Bergo,² in which the authors stated that pulmonary or vascular complications, dehiscence, hernia, thrombophlebitis or other serious complications failed to occur in a series of 436 operative cases. The nature of the intervention in 330 cases of this series was of a type considered minor, and in only 66 cases reported by them was the operation of the type considered major.

The advocates of early rising stressed, as pointed out in an early editorial in *THE JOURNAL*,³ the beneficial influence of the method on the pulmonary and intestinal functions; also on the function of micturition as well as on the mental state of the patient.

A recent report by Blodgett⁴ from Peter Bent Brigham Hospital offers an evaluation of both advantages and limitations of the method. Early rising has been practiced in this hospital since 1942. Noted among the advantages was a more rapid return to normal strength and activity and a better outlook and morale in the patient. When men were allowed to stand to void, a lowered incidence of urinary retention was noted. Early ambulation prevented the definite loss of strength that occurs with continued bed rest and shortened the period of convalescence. For a study of the incidence of postoperative complications, a series of patients was chosen in which the incidence of such complications is highest. The operations included major intra-abdominal operations and herniorrhaphies of various types. The test series consisted of 504 cases

in which early rising was practiced and a control series of 680 cases, in all of which the patients remained in bed for at least seven days after operation. Particular attention was paid to the incidence of atelectasis, phlebitis, wound infection and wound disruption. The incidence of atelectasis in early risers was 6.3 per cent and among late risers 6.2 per cent, a difference which is statistically insignificant. Thrombophlebitis of the deep veins in the legs occurred in 1.9 per cent in the late rising groups as compared with 2 per cent in the early rising group. With regard to wound infection, all that could be said was that early rising did not increase it, since the incidence was 2.8 per cent in the early rising group as compared with 4.4 per cent in the late rising group. Wound disruption after intra-abdominal operations in the late rising group occurred in 2.7 per cent and in 1.2 per cent in the early rising group. A follow-up of 421 herniorrhaphies for some six months to six years revealed a rate of recurrence of 4 per cent for the late risers in the group of indirect inguinal hernias and of 3.1 per cent among the early risers. The recurrence rate for direct hernia was 12.5 per cent in the late risers as compared with 9.4 per cent in the early risers.

These statistical data, according to Blodgett, do not show that early rising reduces the incidence of atelectasis or phlebitis, but they do show that early rising is without apparent ill effect on wound healing, wound infection or wound disruption and on the recurrence rate in hernias. The advantages of the method are to be seen in the prevention of the onset of weakness, in diminution of wound pain, acceleration of convalescence and reduction of the required nursing care.

DUPLEX MUMPS ANTIGEN

In 1942 Enders and Cohen¹ of the Department of Bacteriology, Harvard University, described a complement fixation test for mumps. The test employed a suspension of parotid glands from monkeys infected with mumps virus. The test was found useful in the diagnosis of some unusual manifestations of mumps infection, such as meningoencephalitis in the absence of parotitis.² Positive complement fixation reactions were obtained with the serums of 42 per cent of persons without previous history of mumps, which was interpreted as a measure of the frequency of inapparent infection with the mumps virus.

Habel,³ Levens⁴ and others subsequently adapted the mumps virus to the chick embryo, thus furnishing a cheaper and more readily available source of mumps antigen. Subsequently Henle and others⁵ of the

1. Ries, E.: Some Radical Changes in the After-Treatment of Celiotomy Cases, *J. A. M. A.* **33**: 454 (Aug. 19) 1899.

2. Leithauser, D. J., and Bergo, H. L.: Early Rising and Ambulatory Activity After Operation: A Means of Preventing Complications, *Arch. Surg.* **42**: 1089 (June) 1941.

3. Early Rising After Operation, editorial, *J. A. M. A.* **117**: 1710 (Nov. 15) 1941.

4. Blodgett, J. B.: Early Ambulation Following Surgical Procedures, *Bull. New York Acad. Med.* **25**: 176 (March) 1949.

1. Enders, J. F., and Cohen, S.: *Proc. Soc. Exper. Biol. & Med.* **50**: 180, 1942. Enders, J. F.; Cohen S., and Kane, L. W.: *J. Exper. Med.* **81**: 119, 1945.

2. Kane, L. W., and Enders, J. F.: *J. Exper. Med.* **81**: 137, 1945.

3. Habel, K.: *Pub. Health Rep.* **60**: 201, 1945.

4. Levens, J. H., and Enders, J. F.: *Science* **102**: 117, 1945. Beveridge, W. I. B.; Lind, P. E., and Anderson, S. G.: *Australian J. Exper. Biol. & Med. Sc.* **24**: 15, 1946.

5. Henle, G.; Henle, W., and Harris, S.: *Proc. Soc. Exper. Biol. & Med.* **64**: 290, 1947.

Department of Pediatrics, University of Pennsylvania, showed that the chick embryo antigen consists of a mixture of two serologically distinct complement fixation factors. One of these factors ("V antigen") is closely linked with the mumps virus and is found predominantly in the allantoic and amniotic fluids of the virus-infected chick embryo. The second or soluble factor ("S antigen") is found mainly in the infected embryonic tissues such as the allantoic and amniotic membranes. The two antigens can be separated by high speed centrifugation and sharply differentiated by serum reactions. Antibody against V can be removed from a human convalescent serum by absorption with V antigen, leaving most of the S antigen in the serum. Conversely, absorption with S antigen leaves most of the antibodies against V in the serum.

Application of the two antigens to human serums taken at various stages of mumps infection are currently reported.⁶ In order to study the development of antibodies to the two antigens, serums of volunteers were titrated at intervals following experimental exposure to an oral spray containing virulent or attenuated mumps virus. In a typical experiment, 2 volunteers were sprayed with a virulent virus. In both cases, anti-S reactions were demonstrated by the twelfth day, increasing to a maximum by the eighteenth to the twentieth day. Demonstrable reactions did not appear against the V antigen till five days later in the 1 case in which parotitis developed, but appeared almost simultaneously with the S antibody in the second volunteer, who remained apparently well. The two antibodies increased to approximately the same titer by the thirtieth day. Similar delayed formation of anti-V antibody was noted in volunteers inoculated with attenuated virus, in none of whom did parotitis develop. In some of these cases the anti-V titer remained at a very low level till the end of the test (thirty-five days).

Serums from cases of the natural disease were titrated periodically only after the appearance of symptoms. During the first week of the disease the serums usually show relatively high titer anti-S reactions, with low titer or negative anti-V reactions. During the second and third weeks the two reactions tend to become equal. After this both reactions decrease in titer, the S reaction somewhat faster than the V reaction. With serums collected six months or more after the infection, anti-V exceeds anti-S, in many cases anti-S being absent. Several years after the infection no detectable antibodies may be present except those against the V antigen.

After subcutaneous vaccination in skin testing with inactivated (irradiated) mumps virus, antibodies against both antigens may develop, those against V antigen being invariably of a higher titer than the anti-S titer. Frequently only anti-V is formed.

The Henles believe that the use of both V and S antigens will prove helpful in diagnosis, particularly in the absence of parotitis. A theory has not yet been suggested as to the origin and nature of the S antigen. Demonstration of the dual antigenicity of the mumps virus is a challenge to conventional theories in other virus infections.

Current Comment

THE INTERN SHORTAGE

In last year's Internship and Residency Number (THE JOURNAL, May 1, 1948), a survey of hospitals approved for intern training indicated that 20.5 per cent of internships offered by these hospitals were not filled. The highest proportion of vacancies was found in hospitals of 150 beds or less, particularly in those classified as nonteaching. The situation regarding intern vacancies remained relatively unchanged this year, with approved hospitals reporting 1,811 positions vacant as of Sept. 1, 1948, representing 19.7 per cent of those offered. In considering the discrepancy between the number of internships offered and the number of physicians available for these positions, it should be remembered that the former figure measures the demand for interns by approved hospitals and not of necessity the actual need. The Council, in the "Essentials of an Approved Internship," points out that a hospital should appoint interns in such numbers that there will be an average for the hospital of 15 to 25 beds per intern; it does not fix a specific number of internships for which a hospital is approved. Accordingly the statement that there are upwards of 9,000 "approved" internships is in a sense inaccurate. More correctly stated, there are 807 approved hospitals which offer 9,124 internships. These same hospitals next year might well decide to offer 10,000 internships or 8,000 as the case may be, thereby increasing or decreasing the relative shortage of interns. Estimates indicate that 1,380 hospitals can meet the quantitative requirements of the "Essentials of An Approved Internship" and hence have the potential to develop a program which will meet the standards for approval by the Council. If all these hospitals were to become approved, 16,000 interns would be required to staff them. Such a supply of interns is not presently available, nor is it likely to be in the near future. The majority of these hospitals, accordingly, will have to continue to render the same high type of patient care without relying on interns. As a step toward assuring the prospective intern of a satisfactory educational experience and to eliminate, as far as it can, the present situation relative to intern vacancies, the Council is now engaged in a survey of all hospitals approved for intern training. Undoubtedly the Council will remove from its list any hospital which does not meet minimum requirements for approval or which fails to provide a true educational experience for the physician during this important phase of his training.

6. Henle, G.; Harris, S., and Henle, W.: J. Exper. Med. 88:133, (July) 1948.

THE GENERAL PRACTICE RESIDENCY

The "Essentials of Approved Residencies and Fellowships" as revised by the Council last December includes for the first time a residency specifically designed for the physician who intends to enter general practice. Heretofore the Council had approved hospitals for general or mixed residencies, which were training programs rather loosely organized, for the purpose of providing additional experience following the internship. All hospitals with approved intern programs were approved for general residency training under the previous "Essentials." In addition, some seventy hospitals which were unable to meet the requirements for training interns were approved for general residency training only. The listing of these hospitals under a "General Residency" category will be discontinued after the publication of this Internship and Residency Number. Hospitals previously approved under the former classification and desiring continuing approval will be expected to reorganize their programs in accordance with the new requirements. A hospital seeking approval for residency training in general practice must meet the same general requirements as does a hospital offering residency training in a specialty. Training programs of this type have already been developed in a number of teaching hospitals. One of the federal services has also set up a residency at several of its larger training centers in conformity with the new classification and has already begun to train physicians in this field. Hospitals which are able to meet the requirements for approval should give consideration to the broadening of the scope of their educational activities by offering a residency of this type. In establishing the residency in general practice, the Council recognized the demand for additional training at the graduate level by physicians who do not intend to limit their work to a specialty. The type of experience offered by the general residency was often not at a level which would attract the applicant who wanted supervised training commensurate with his experience and ability. Of necessity, these men sought appointments to residencies in the specialty fields, although many might well have been attracted to a broader type of training had more adequate facilities been available. The residency for general practice will provide supervised training in the major clinical divisions of internal medicine, surgery, obstetrics-gynecology and pediatrics, as well as in the auxiliary services of anesthesiology, pathology and radiology. On the completion of a residency of this type, the physician should be better prepared to meet the professional demands of the community in his role as the "family doctor." The program has not been developed with the thought that one or another of the specialty boards will accept it as meeting in part its training requirements. Such action would defeat the purpose of this residency, which is to encourage more young physicians to enter the field of general practice. The Council believes that this may be accomplished in part by providing facilities for training which will give the young family doctor the assurance that he has been fully trained to meet the demands on his professional competence in a large field.

MORE CHIROPRACTORS

The fountainhead of chiropractic is the school in Davenport, Iowa. At present some 1,700 young men who served in the armed forces during the war are spending three years of six months each under the GI Bill of Rights learning about chiropractic in Davenport. The federal government is paying \$500 tuition per year for their training. The total amount for tuition is thus 1,700 times \$1,500, which is \$2,550,000. In many of the states the young men who graduate will be unable to practice the peculiar "art" and its salesmanship that they learn. Certainly chiropractic is not a science, because nothing resembling scientific evidence can be mustered to indicate that the practice of chiropractic is based on sound anatomy, physiology, pathology or any other basic medical science. In many states the chiropractors have to pass a basic science examination in order to qualify for a license. Reports indicate that a recent basic science examination in Iowa resulted in the appearance of some 500 of these young men, who sat crowded together in a room where they were given the kind of basic science examination that defeats the purpose of such legislation. One might philosophize at some length on the kind of legislation and administration under political control that results in this type of expensive farce. The facts themselves are an indictment.

SMALLPOX VACCINATION AND PREGNANCY

The report by Marjorie T. Bellows and co-workers¹ is a by-product of a study of the relation of infections and illnesses occurring during pregnancy to the incidence of abortions, stillbirths, congenital malformations, prematurity and infant deaths. All women less than four months pregnant at admission to the antepartum clinic of the Sloane Hospital for Women, in New York City, were included in the study, which was begun Oct. 1, 1946. The occurrence of 9 cases of smallpox in the spring of 1947 in New York City and the subsequent mass vaccination of an estimated 80 per cent of the total population afforded an opportunity to evaluate the effect of smallpox vaccination on the outcome of pregnancy. Of 893 pregnant women observed, 720 were vaccinated and 173 were not vaccinated. Three per cent of all pregnancies resulted in congenital malformations. The rates for women not vaccinated and for those who had primary reactions to vaccination were about equal and somewhat lower than the rates for women who did not have reaction or who had an accelerated reaction. The incidence of stillbirths varied from 2.3 per cent among women with primary takes to 4.3 per cent among women with accelerated reactions. The differences observed were not statistically significant. The infant death rates varied from 0.6 per cent among the nonvaccinated to 1.7 per cent among those with primary takes, the differences again not being significant. The authors conclude that smallpox vaccination during pregnancy does not increase the incidence of congenital malformations, stillbirths, abortions or infant deaths.

1. Bellows, M. T.; Hyman, M. E., and Merritt, K. K.: Effect of Smallpox Vaccination on the Outcome of Pregnancy, *Pub. Health Rep.* 64: 319-323 (March 11) 1949.

ORGANIZATION SECTION

Official Notes

REFERENCE COMMITTEES OF HOUSE OF DELEGATES

Dr. F. F. Borzell, Speaker of the House of Delegates, has appointed the following reference committees to serve in the House of Delegates at the Atlantic City Session in June:

SECTIONS AND SECTION WORK:

Roy B. Henline, *Chairman*, Section on Urology
J. W. Bird, Maryland
Charles H. Phifer, Illinois
John M. Porter, Kansas
Charles T. Stone, *Section on Internal Medicine*

RULES AND ORDER OF BUSINESS:

Albert F. R. Andresen, *Chairman*, New York
L. Howard Schriver, Ohio
Charles R. Rountree, Oklahoma
John F. Conway, New Mexico
E. Roger Samuel, Pennsylvania

REPORTS OF BOARD OF TRUSTEES AND SECRETARY:

Thomas A. Foster, *Chairman*, Maine
Warren L. Allee, Missouri
Allen H. Bunce, Georgia
William F. Costello, New Jersey
William M. Skipp, Ohio

MEDICAL EDUCATION:

B. R. Kirklin, *Chairman*, Section on Radiology
W. P. Anderton, New York
Lowell S. Goin, California
H. G. Hamer, Indiana
Charles L. Shafer, Pennsylvania

LEGISLATION AND PUBLIC RELATIONS:

William Bates, *Chairman*, Pennsylvania
F. J. L. Blasingame, Texas
Leo G. Christian, Michigan
Walter G. Phippen, Massachusetts
H. Gordon MacLean, California

HYGIENE AND PUBLIC HEALTH:

Deering G. Smith, *Chairman*, New Hampshire
W. Palmer Dearing, Public Health Service
Stephen E. Gavin, Wisconsin
Scott L. Smith, New York
Felix J. Underwood, Mississippi

AMENDMENTS TO CONSTITUTION AND BY-LAWS:

William D. Stovall, *Chairman*, Wisconsin
Ivan Fawcett, West Virginia
James P. Kerby, Utah
William A. Hyland, Michigan
B. E. Pickett Sr., Texas

REPORTS OF OFFICERS:

F. J. Pinkerton, *Chairman*, Hawaii
J. B. Lukins, Kentucky
George E. Earl, Minnesota
J. Stanley Kenney, New York
Charles J. Kickham, Massachusetts

CREDENTIALS:

H. B. Everett, *Chairman*, Tennessee
E. P. Flood, New York
Carl A. Lincke, Ohio
Raymond F. Peterson, Montana
Charles F. Strosnider, North Carolina

INDUSTRIAL HEALTH:

William L. Estes Jr., *Chairman*, Pennsylvania
Wyman D. Barrett, Michigan
Warren W. Furey, Illinois
Edward H. McLean, Oregon
Carl A. Grote, Alabama

EXECUTIVE SESSION:

John W. Cline, *Chairman*, California
R. H. Hayes, Illinois
Thomas P. Murdock, Connecticut
Howard K. Petry, Pennsylvania
Hugh P. Smith, South Carolina

MISCELLANEOUS BUSINESS:

Mather Pfeiffenberger, *Chairman*, Illinois
George Braunlich, Iowa
William R. Brooksher, Arkansas
Andrew A. Eggston, New York
Hoyt B. Woolley, Idaho

THE NATIONAL CONFERENCE OF COUNTY MEDICAL SOCIETY OFFICERS

Sunday, June 5, 1949, Atlantic City, N. J.

MORNING SESSION

ROSE ROOM, HOTEL TRAYMORE

REGISTRATION—9:00 A. M.

Call to Order: A. M. MITCHELL, M.D., *Chairman*, Terre Haute, Ind.

Address of Welcome: E. L. HENDERSON, M.D., *Chairman*, Board of Trustees, American Medical Association, Louisville, Ky.

PANEL I—9:30 A. M.

IS YOUR SOCIETY PREPARED TO CARE FOR EMERGENCY CALLS?

Moderator: MR. THEODORE WIPRUD, Secretary, Medical Society of the District of Columbia, Washington, D. C.

A. An Effective Emergency Call Plan.

RALPH E. SCHMIDT, M.D., *Chairman*, Medical Service and Public Relations Committee, Erie County Medical Society, Erie, Pa.

B. Plans for a Small County Society.

JAMES A. BIGGINS, M.D., *Chairman*, Committee on Economics and Public Relations, Mercer County Medical Society, Sharpsville, Pa.

C. The 24-Hour Telephone Answering Service.

MR. J. RICHARD CONNELLY, Assistant Secretary, Medical Society of the District of Columbia.

Open Discussion

PANEL II—10:30 A. M.

DOES YOUR SOCIETY HAVE AN INDIGENT MEDICAL CARE PLAN?

Moderator: W. ANDREW BUNTEN, M.D., Cheyenne, Wyo.

A. The Maryland Medical Care Program.

DEAN W. ROBERTS, M.D., Chief, Bureau of Medical Services, Maryland State Health Department, Baltimore.

B. The Washington State Program.

MR. RALPH W. NEILL, Executive Secretary, Washington State Medical Association, Seattle.

C. A County Society Plan.

MR. MARTIN BAKER, Executive Secretary, Sedgwick County Medical Society, Wichita, Kan.

Open Discussion

PANEL III—11:30 A. M.

IS YOUR SOCIETY READY FOR THE NATIONAL
EDUCATION CAMPAIGN?

Moderator: FRANK J. HOLROYD, M.D., Princeton, W. Va.

A. Practical Methods of Organizing for the Campaign.

IRA H. LOCKWOOD, M.D., Chairman, Public Policy and Relations Committee, Jackson County Medical Society, Kansas City, Mo.

B. Assuming Responsibility for Community Health Problems.

MR. ROLLEN WATERSON, Executive Secretary, Alameda County Medical Association, Oakland, Calif.

C. The Preparation and Distribution of Literature.

MR. HUGH BRENNEMAN, Public Relations Counsel, Michigan State Medical Society, Lansing, Mich.

D. Coordination with the American Medical Association National Education Campaign.

A one hour question and answer period devoted to the American Medical Association National Education Campaign with representatives of Whitaker and Baxter present to assist the moderator.

EVENING SESSION

TRIMBLE ROOM, 8:00 P. M., CLARIDGE HOTEL

A. M. A. National Education Campaign.

MR. CLEM WHITAKER, Director, American Medical Association's National Education Campaign.

A Senator Views the Health Problem.

The Honorable JOHN L. MCCLELLAN, United States Senator, Camden, Ark.; Member of the "Hoover" Commission on Organization of The Executive Branch of the Government.

AIR TRAVEL DIRECT TO ATLANTIC CITY

In the item on air travel, *THE JOURNAL*, April 23, p. 1156, there was failure to mention that Eastern Air Lines is the only air line with direct service to Atlantic City—no necessity to change to a bus or limousine for a two hour trip from Philadelphia. Eastern Air Lines serves the greater portion of the eastern half of the United States. For further information concerning Eastern Air Lines service to Atlantic City for the annual meeting of the American Medical Association June 6-10, please communicate with E. M. Van Duzer, Advertising and Public Relations Department, Eastern Air Lines Building, 10 Rockefeller Plaza, New York 20, N. Y.

RADIO PROGRAM TO BE CONTINUED
THROUGH SUMMER

Plans are being developed by the Bureau of Health Education for extension of the weekly national radio program of the American Medical Association, authorized recently by the Board of Trustees. As a result of that authorization, the series will be continued through the summer and well into the fall season. Customarily, the annual series has terminated in the latter part of June. The fifteen minute program that is carried over the National Broadcasting Company network, with more than one hundred stations presenting it locally, goes on the air at 3 p. m., central standard time, every Saturday. Introduction by Dr. W. W. Bauer of a special technic in which participants are picked up from widely separated sections of the country has met with much favorable comment. Excellent cooperation has been extended in this by state medical society officials. This procedure will be used at varying intervals throughout the series.

TELEVISION PROGRAMS

The Bureau of Health Education of the American Medical Association is presenting a series of brief television health education programs weekly over station WGN-TV, Chicago. Five minutes of a half hour program sponsored by an electrical equipment manufacturing company are devoted to consideration of subjects of interest primarily to women. Presentations have included obesity, alcoholism, rheumatism and heart disease, and among future programs will be skin disorders, child health, blood pressure and problems of aging. Visual aids employed have included charts, models and portions of motion pictures.

SURVEY OF SCHOOL HEALTH SERVICES

The secretary of each local medical society will soon receive in the mail a questionnaire on school health services in his community. The American Medical Association in cooperation with the United States Office of Education is making a survey of school health services through its Bureau of Health Education.

The United States Office of Education in Washington will concurrently query the schools. Two different questionnaires which supplement and reinforce each other and do not contain duplicate questions are being used. The information requested is needed to determine present strengths and weaknesses in school health services, to indicate needs and to point up action for the future. The questionnaire has been tested prior to printing and all unnecessary questions have been eliminated.

This project, which is actually an outgrowth of the National Conference on Physicians and Schools sponsored by the American Medical Association in 1947 at Highland Park, Ill., provides tangible evidence of the desire of the medical profession to cooperate in worth while projects designed to improve the health of school age children, as part of the American Medical Association's twelve point program for the advancement of medicine and public health.

WORCESTER (MASS.) INTERNS AND RESIDENTS PROTEST NATIONALIZED MEDICINE

The interns and residents of the Worcester City Hospital presented to Dr. N. S. Scarcello, Chairman of the Public Relations Committee of the Worcester District Medical Society, a letter relative to a recent statement made in *The Interne*, a magazine said to be the publication of the interns' organization. Apparently this organization includes relatively few interns and residents but claims to represent all.

Dr. Scarcello points out that the Worcester interns and residents oppose the statements made in *The Interne*, but they feel and he agrees that their side of the story will not be published by *The Interne*.

As their spokesman Dr. Scarcello forwards a copy of their letter plus the signatures of the interns and residents. The letter follows:

Association of Internes and Medical Students
New York, N. Y.
Gentlemen:

We, the undersigned, house officers at the Worcester City Hospital, wish to express our disapproval of the report on the A.I.M.S. Convention 1948, published in the February 1949 issue of *Interne*. We are particularly concerned with the resolution supporting a "prepaid national government-sponsored health program."

It is our considered judgment that a government-sponsored health program would be detrimental to the adequate medical care of the American people.

The endorsement of the National Health Program as expressed at the convention is not in accordance with the unanimous opinion of the house officers at this hospital. We feel that in all probability it cannot be the unanimous or even majority opinion of the house officers and medical students throughout the country.

Residents

Thomas V. Healey, M.D.
Robert J. Silkman, M.D.
Daniel H. Callahan Jr., M.D.
James W. Dykens, M.D.
Frank A. Slesinski, M.D.
John F. Curran Jr., M.D.
Felix G. Cataldo, M.D.
Joseph A. Dorgan, M.D.
Albert Haddad, M.D.
Preston W. Reynolds, M.D.
Merle S. Bacastow, M.D.
William F. MacGillivray, M.D.
Joseph F. Cafarella, M.D.
Edward Kilroy, M.D.

Interns

Wilfred J. Rokowski, M.D.
Laurent B. Houle, M.D.
Heath D. Bourdon, M.D.
John N. Houpsis, M.D.
Wallace W. Turner, M.D.
Joseph M. Coreoran, M.D.
James L. Guillelte, M.D.
Paul J. Gardner, M.D.
Robert E. Maher, M.D.
Robert I. Anderson, M.D.
Charles Atamian, M.D.
Joseph A. King Jr., M.D.
Hamilton B. Wood Jr., M.D.
Bradford S. Colwell, M.D.
John M. Cummings Jr., M.D.
Harold M. Frost Jr., M.D.
Robert F. Kelly, M.D.
Bernard B. Stone, M.D.
Edward E. Callaghan, M.D.
Harold Stein, M.D.
Robert E. Lee, M.D.

Washington Letter

(From a Special Correspondent)

May 9, 1949.

Expansion of Voluntary Hospital System Urged

Testimony supporting greater federal appropriations for subsidization of construction of voluntary hospitals and for medical research was presented in Washington the week of May 2, opening a series of public health hearings in Congress. Witnesses appearing before subcommittees of the Senate Labor and Public Welfare Committee included Dr. George F. Lull, Dr. Albert D. Kaiser, Dr. R. H. Hutcheson, Dr. William G. Lennox and Surgeon General L. A. Scheele.

May 16 has been scheduled for the opening of extended hearings on broad health legislation, including compulsory sickness insurance as proposed by President Truman, by the Senate health subcommittee. The four bills on which testimony will be heard are: S. 1106, for supplying drugs and laboratory diagnostic services to the medically indigent; S. 1456 and S. 1581, substantially alike in principle and which provide for federal support of state-controlled medical care assistance on a voluntary basis, and S. 1679, the Truman plan for compulsory sickness insurance.

Testifying May 4 before the special Senate subcommittee of which Senator Lister Hill is chairman, Dr. Lull explained that an American Medical Association legislative committee has endorsed the intent and purposes of the hospital expansion bill (S. 614) and further action will be considered by the House of Delegates at the Atlantic City meeting.

Dr. Hutcheson, in his dual capacity as Tennessee State Health Commissioner and president of the Association of State and Territorial Health Officers, expressed approval of S. 614. He recommended, however, that the proposed law contain no rigid formula on administrative costs but, instead, that the Surgeon General have authority to determine what the figure should be, state by state.

Passage of the measure, sponsored by Senators Hill, Taft, Smith and Ellender, also was urged by Drs. Kaiser and Scheele. The former, Rochester (N. Y.) health officer and executive secretary of the Rochester Regional Hospital Council, said enactment of S. 614 would promote development of regional hospital planning. Dr. Scheele stated that it would "mark an important step forward in our nationwide effort to provide adequate hospital facilities and services for the people of this country."

Appearing May 3 before the health subcommittee, of which Senator James E. Murray is chairman, Surgeon General Scheele advised against statutory establishment of additional research institutes in special fields. Separate bills are now being considered by the committee to create such institutes for multiple sclerosis (S. 102), epilepsy (S. 659), arthritis and rheumatism (S. 705) and cerebral palsy (S. 1538). Rather, said Dr. Scheele, administrative arrangements for expanded research should be kept flexible and left to the discretion of the United States Public Health Service. Dr. Lennox, associate professor of neurology at Harvard and president of the International League Against Epilepsy, said that the greatest needs are more funds for grants-in-aid to increase research; expansion of diagnostic, treatment and training clinics; more and better special schools for persons with epilepsy and education of the public toward improvement of the sufferers' social and economic adjustment.

National Advisory Mental Health Council Meets

Meeting in Washington May 2-3, the National Advisory Mental Health Council approved a large number of applications for research and training grants. However, notification of the recipients was delayed because Congress has not completed action on the Public Health Service appropriations bill for the next fiscal year, beginning July 1, 1949. The size of the prospective grants is dependent on the funds allocated to the National Institute of Mental Health in 1949-1950. Two new members of the Council, beginning July 1, will be Dr. Franz Alexander, of Chicago, and Dr. S. Bernard Wortis, of New York City. They will take the places of Dr. William C. Menninger and Dr. John Romano, whose three year terms expire in June.

Medical Legislation

STATE LEGISLATION

California

Bill Introduced.—A. 2158 proposes to amend the penal code by adding a proviso making it a misdemeanor for any representative, agent or employee of a public pound to deliver or turn over to any medical school or person any dog or cat for experimental purposes and for any person to receive any dog or cat for experimental purposes from any public pound.

Colorado

Bill Enacted.—S. J. Mem. 4 was adopted March 28, 1949. It memorializes the Congress of the United States to support passage of the "Local Public Health Services Act of 1949."

Connecticut

Bill Introduced.—H. 1650 proposes to amend the act concerning commitment of narcotic addicts so as to include barbiturate addicts.

Florida

Bills Introduced.—H. 367 proposes to repeal a 1947 law providing that in cases of emergencies the superintendents of state institutions with the approval of the board of commissioners of state institutions may employ medical personnel from without the state and such personnel so long as employed exclusively at state institutions and so long as not engaged in private practice shall be exempt from the requirements as to prior residence in the state and from basic science examinations. H. 508, to amend the law relating to naturopathy, proposes that naturopathy shall be defined to mean the use and practice of psychologic, mechanical and material health sciences to aid in purifying, cleansing and normalizing human tissues for the preservation or restoration of health, according to the fundamental principles of anatomy, physiology and applied psychology, as may be required. Naturopathic practice shall employ and embrace the use of light, air, water, clay, heat, rest, diet, external applications, mechanical and electrical appliances, suggestotherapy, hydrotherapy, zone therapy, hygiene, first aid and sanitation; provided, however, that nothing in the act shall be held or construed to authorize any naturopathic physician to practice materia medica, surgery, chiropractic, or to treat any venereal, contagious or infectious diseases including cancer or to prescribe or administer hypnotic or narcotic drugs, nor shall the provisions of this act in any manner apply to or affect the practice of osteopathy, chiropractic, Christian Science or any other treatment authorized and provided for by law for the cure or prevention of disease. Persons licensed to practice naturopathy would be required to register their certificates annually. H. 515, H. 537, S. 307, S. 329, S. 332 and S. 347 propose laws looking to the establishment of a new school of medicine and dentistry in the state of Florida. These proposals would permit the school of medicine to acquire, use and dispose of cadavers for educational and scientific purposes. S. 267 proposes to make it unlawful for any person, firm or corporation filling prescriptions for the grinding, processing and fitting of eye glasses, lenses and frames to give or receive a rebate to any person, firm or corporation writing or giving prescriptions for such purposes.

Illinois

Bill Introduced.—S. 390 proposes, among other things, to establish a division of cancer control to promote necessary measures to reduce the mortality from cancer, heart disease and other chronic diseases.

Maine

Bill Introduced.—H. 2081, to amend the workmen's compensation act, proposes to permit injured employees to be treated by osteopaths and chiropractors.

Michigan

Bills Introduced.—H. C. Res. 39 proposes to memorialize the Congress of the United States to refrain from imposing on the citizens of this nation any form of compulsory insurance or any system of medical care designed for national bureaucratic control. H. 446 proposes that any program of instruction in sex hygiene in the public schools shall be administered by a person holding a teacher's certificate qualifying such person as supervisor in such field. H. 514, to amend the penal code, proposes to make it a felony for any person to wilfully administer to any pregnant woman any medicine, drug, substance or thing whatever or employ any instrument or other means whatever, with intent thereby to procure the miscarriage of any such woman unless the same shall be necessary to preserve the life of the woman and unless such action shall have been advised by two consulting physicians to be necessary for such purpose. S. 266 proposes to make it unlawful for any person to compound, dispense or sell drugs, medicines, pharmaceutical preparations, or other products which are imitations, substitutions for, or alternates of drugs, medicines, or preparations specified on a prescription of any individual licensed to write prescriptions or on the oral or written order of any such person. S. 267 proposes to amend the basic science act by exempting chiropractors therefrom. S. 292, to amend the medical practice act, proposes to exempt from licensure persons who are continuing medical education through hospital training, commonly referred to as internship or residency, and who meet all qualifications and conditions for the practice of medicine in the state, except the making of application to be registered and certified and the taking of examinations. Such person must be approved by the medical examining board for such training, must confine his training within a hospital or hospitals approved by the board, must receive no fees from any patient during the period

of training, and must not engage in such training for a period exceeding six years. S. 331 proposes an appropriation of \$2,500,000 for the construction and equipment of an outpatient medical clinic building in connection with the university hospital and medical school.

Minnesota

Bill Introduced.—S. 1411 proposes appropriations for nursing scholarships in the state.

Bill Enacted.—S. 14 has become Chapter 471 of the Laws of 1919. Among other things it requires a physician having a person under his treatment for tuberculosis to report full particulars regarding such person to the state board of health within seven days after the date on which the diagnosis is made.

Missouri

Bills Introduced.—H. 286 proposes the enactment of a hospital licensing law. S. 200 proposes that any person licensed by any licensing board in the state of Missouri to practice or use any science or system in treating diseases or defects of the human body who accepts, in addition to his fees or charges for professional services if any are received or made, any rebate, commission or any other type of payment, either directly or indirectly, in connection with the writing or filling of a prescription or formula or for any supplies the patient has been directed or advised to procure, shall be deemed to have engaged in unprofessional conduct, provided that any licensee otherwise authorized by law may prepare his own prescriptions or formulas or sell supplies for a reasonable charge.

New Hampshire

Bill Introduced.—S. J. Res. 7 proposes the creation of a committee for the purpose of studying and analyzing hospital care and rates to be paid by the state to hospitals for services to recipients of public assistance.

New York

Bills Enacted.—A. 578 has become Chapter 593 of the Laws of 1949. Among other things it provides for the making of a study to obtain factual evidence of the best practices and procedure desirable in carrying on a health program for the treatment and training of children who are physically handicapped because of cerebral palsy. A. 1871 has become Chapter 592 of the Laws of 1949. It provides that every physician shall give notice to the health officer of the county, city, town or village wherein such person resides of every case of cerebral palsy under his care and of all new cases of cerebral palsy of which he learns. S. 2196 has become chapter 680 of the Laws of 1949. It provides regulations for the licensing of unincorporated hospitals and lying-in asylums.

North Carolina

Bills Enacted.—S. 198 was ratified April 18, 1949. It authorizes and empowers the North Carolina Medical Care Commission to establish and promulgate rules and regulations fixing fair and reasonable standards whereby student physicians, dentists, pharmacists and nurses receiving scholarship loans under the section shall receive a credit on the principal and interest of such loan for each year or other period of time of practicing his or her profession in a rural area in the state. S. 297 was ratified April 20, 1949. It proposes that cancer clinics shall meet the minimum requirements of the American College of Surgeons for tumor clinics or the minimum requirements of the Division of Cancer Control of the North Carolina State Board of Health, and that each physician who shall staff such clinic must be certified by the American Board of the specialty of medicine of which he is engaged or be one who has been approved by his county medical society or its duly appointed representative and the Division of Cancer Control of the North Carolina State Board of Health.

Oklahoma

Bill Introduced.—H. 545 proposes the creation of a State Convalescent Hospital System for the purpose of providing an asylum for medical and convalescent care for aged, needy persons who are unable to provide for themselves without an asylum or hospital.

Oregon

Bills Enacted.—S. Res. 36 was adopted April 5. It provides for the creation of a special committee to investigate the various public institutions of the state with particular reference to the care, custody, training and activities of the inmates of state institutions. S. 239 was approved April 5, 1949. It provides for the promotion of medical science by the distribution and use of unclaimed human bodies for scientific purposes by the University of Oregon Medical School. S. 347 was approved April 4, 1949. It requires naturopaths to register their licenses annually and pay an annual registration fee of \$10.

Rhode Island

Bills Introduced.—H. 906 proposes regulations for the licensing of maternity hospitals. S. 35 proposes the appointment of a special commission to undertake a comprehensive objective study of the problems of alcoholism in the state.

Tennessee

Bill Enacted.—S. 332 has become Chapter 234 of the Public Acts of 1949. It provides regulations for the organization of nonprofit general welfare corporations with powers to provide both hospital service benefits and medical expense indemnity benefits.

Texas

Bills Introduced.—H. 880 proposes to abolish the state board of chiropractic examiners as being inactive and obsolete. S. 446 proposes regulations for the licensing of vocational nurses and defines a vocational nurse as a person who attends or cares for the sick for compensation or hire, directly or indirectly, other than a registered nurse.

Coming Medical Meetings

American Medical Association, Atlantic City, June 6-10. Dr. George F. Lull, 535 N. Dearborn St., Chicago 10, Secretary.

American Academy of Neurology, French Lick, Indiana, French Lick Springs Hotel, June 1-3. Dr. Joe R. Brown, 19 Millard Hall, University of Minnesota, Minneapolis 14, Secretary.

American Academy of Tuberculosis Physicians, Atlantic City, Hotel Dennis, June 4. Dr. Oscar S. Levin, P. O. Box 7011, Denver 6, Colo., Secretary.

American Association of Railway Surgeons, Chicago, Drake Hotel, June 30-July 2. Dr. Chester C. Guy, 5800 Stoney Island Ave., Chicago 37, Secretary.

American Association of the History of Medicine, Lexington, Ky., Lafayette Hotel, May 23-24. Dr. Benjamin Spector, 416 Huntington Ave., Boston 15, Secretary.

American College of Chest Physicians, Atlantic City, Ambassador Hotel, June 2-5. Mr. Murray Kornfield, 500 N. Dearborn St., Chicago 10, Executive Secretary.

American College of Radiology, Atlantic City, Chalfonte-Haddon Hall, June 5. Mr. William C. Stronach, 20 N. Wacker Drive, Chicago 6, Secretary.

American Dermatological Association, Hot Springs, Va., May 25-28. Dr. Louis A. Brunsting, 102 Second Ave. S.W., Rochester, Minn., Secretary.

American Gastro-Enterological Association, Atlantic City, Claridge Hotel, June 3-4. Dr. Dwight L. Wilbur, 655 Sutter Street, San Francisco 2, Secretary.

American Gastroscopic Society, Atlantic City, Claridge Hotel, June 3-4. Dr. J. Edward Berk, 255 S. 17th St., Philadelphia 3, Secretary.

American Goiter Association, Madison, Wis., Hotel Loraine, May 26-28. Dr. Thomas C. Davison, 478 Peachtree St., N.E., Atlanta 3, Ga., Secretary.

American Laryngological Association, New York, May 16-17. Dr. Louis H. Clerf, 1530 Locust St., Philadelphia, Secretary.

American Medical Women's Association, Atlantic City, June 4-5. Dr. Augusta Webster, 104 S. Michigan Ave., Chicago, Secretary.

American Neurological Association, Atlantic City, June 13-15. Dr. H. Houston Merritt, 710 W. 168th St., New York 32, Secretary.

American Ophthalmological Society, Hot Springs, Va., The Homestead, June 2-4. Dr. Maynard C. Wheeler, 30 W. 59th St., New York, Secretary.

American Orthopedic Association, Colorado Springs, May 18-21. Dr. C. Leslie Mitchell, Henry Ford Hospital, Detroit 2, Secretary.

American Otological Society, New York, May 18-19. Dr. Gordon D. Hoople, 713 E. Genesee St., Syracuse, N. Y., Secretary.

American Proctologic Society, Columbus, Ohio, May 31-June 4. Dr. W. Wendell Green, 1838 Parkwood Ave., Toledo 2, Ohio, Secretary.

American Psychiatric Association, Montreal, Canada, May 23-27. Dr. Leo H. Bartemeier, General Motors Bldg., Detroit 2, Secretary.

American Radium Society, Atlantic City, June 5. Dr. Hugh F. Hare, 605 Commonwealth Ave., Boston 15, Secretary.

American Therapeutic Society, Atlantic City, June 2-5. Dr. Oscar B. Hunter, 915 Nineteenth St. N.W., Washington, D. C., Secretary.

American Urological Association, Los Angeles, Hotel Biltmore, May 16-19. Dr. Thomas D. Moore, 899 Madison Ave., Memphis 3, Tenn., Secretary.

Association for the Study of Internal Secretions, Atlantic City, June 3-4. Dr. Henry H. Turner, 1200 N. Walker St., Oklahoma City 3, Secretary.

Idaho State Medical Association, Sun Valley, June 20-23. Dr. Alfred M. Popma, 220 N. First St., Boise, Secretary.

Illinois State Medical Society, Chicago, Palmer House, May 16-18. Dr. Harold M. Camp, 224 S. Main St., Monmouth, Secretary.

International Congress on Rheumatic Diseases, New York, Hotel Waldorf-Astoria, May 30-June 3. Dr. Philip S. Hench, Mayo Clinic, Rochester, Minn., Chairman, American Committee.

Maine Medical Association, Poland Spring, Poland Spring House, June 19-21. Dr. Frederick R. Carter, 142 High St., Portland 3, Secretary.

Massachusetts Medical Society, Worcester, May 24-27. Dr. H. Quimby Gallupe, 8 Fenway, Boston 15, Secretary.

New Hampshire Medical Society, Newcastle, Hotel Wentworth, June 14-15. Dr. Carleton R. Metcalf, 5 S. State St., Concord, Secretary.

North Dakota State Medical Association, Minot, May 14-17. Dr. O. A. Sedlak, 702 First Ave. S., Fargo, Secretary.

Oklahoma State Medical Association, Tulsa, Mayo Hotel, May 15-19. Mr. R. H. Graham, 210 Plaza Court Bldg., Oklahoma City, Secretary.

Society for Investigative Dermatology, Atlantic City, Ritz Carlton Hotel, June 11-12. Dr. S. William Becker, 55 E. Washington St., Chicago 2, Secretary.

Society of American Bacteriologists, Cincinnati, May 15-20. Dr. John Blair, Hospital For Joint Diseases, New York, Secretary.

Society of Biological Psychiatry, Atlantic City, Chalfonte-Haddon Hall, June 12. Dr. George N. Thompson, 1136 W. Sixth St., Los Angeles, Secretary.

South Carolina Medical Association, Myrtle Beach, May 17-19. Dr. Julian P. Price, 15 W. Cheves St., Florence, Secretary.

South Dakota State Medical Association, Yankton, May 22-24. Dr. Roland G. Mayer, 22½ S. Main St., Aberdeen, Secretary.

Southeastern Surgical Congress, Biloxi, Miss., May 23-26. Dr. Benjamin T. Beasley, 45 Edgewood Ave. S.E., Atlanta 3, Ga., Secretary.

Western Branch of American Public Health Association, Los Angeles, Hotel Biltmore, May 30-June 1. Mr. Walter S. Mangold, University of California, Berkeley, Calif., Secretary.

GOVERNMENT SERVICES

ARMY

MEDICAL OFFICERS NEEDED IN MARYLAND

The Board of Civil Service Examiners, Chemical Corps, Camp Detrick, Frederick, Md., announces that a civil service examination for position of medical officer at Camp Detrick is now open to fill positions for which the salary ranges from \$6,235 to \$10,305 a year. No written test is required. Applicants will be rated on the basis of their training and experience as described in their applications. Information and application blanks may be obtained from the above address.

SYMPOSIUM FOR RESERVE OFFICERS AT AUGUSTA

A symposium for Medical Department reserve officers of the Third Army Area was held at Oliver General Hospital, Augusta, Ga., April 21-24. Dr. G. Lombard Kelly, Dean, University of Georgia School of Medicine, spoke on "Mutual Cooperation Between Medical Schools and Army Hospitals in Undergraduate and Postgraduate Medical Education." Officers of the Surgeon General's Office who participated in the program were Brig. General George E. Armstrong, the Deputy Surgeon General; Col. Paul I. Robinson, Chief, Personnel Division, and Col. Charles K. Holmes, Chief, Civilian Components Division. Col.

James P. Cooney, Chief, Radiological Branch, Division of Military Application, U. S. Atomic Energy Commission, and Radiological Consultant for the Office of the Surgeon General, spoke on "Medical Aspects of Atomic Energy."

HISTORY OF WORLD WARS I AND II

The long-awaited official history of the Army's effort in World War I has been completed in seventeen volumes and is in the process of printing. The first two volumes are expected to be ready for release within thirty days. The official history of World War I was not begun until after the war was over, whereas historical planning for World War II was made during that war and historians were present at the front during all combat operations. Three volumes of the history of World War II have already been released, and two other volumes are now at the printers. The official history of World War I contains many charts, maps, photographs and tables never before published. It tells the authentic story in the form of carefully selected letters, reports and other documents. A 70 page narrative summary in volume I provides an account of the principal operations on the western front following entry of the United States into the war. The basic records from which this history was written are in the National Archives in Washington, D. C.

PUBLIC HEALTH SERVICE

EXAMINATION FOR PUBLIC HEALTH NURSE

The U. S. Civil Service Commission has extended the closing date for the receipt of applications for its Public Health Nurse examination to June 30. The positions to be filled are in Washington, D. C., and vicinity; a few positions in territories and possessions of the United States may also be filled. Salaries range from \$3,727 to \$4,479 a year.

No written test is required. To qualify, competitors must have completed a three year nursing course or a two year nursing course plus appropriate nursing experience or education. Included in or supplementary to this education, applicants must show a minimum of 30 semester hours in an approved program of study in public health nursing. In addition, they must have had a minimum of one year's experience in public health nursing in a generalized community public health program. For positions paying \$4,479, additional experience in staff nursing or supervisory experience is required. Applicants must be registered as professional nurses at the time of appointment.

Interested persons may obtain application forms from first and second class post offices, from Civil Service regional offices, or from the U. S. Civil Service Commission, Washington 25, D. C. Applications should be filed with the Commission's Washington office.

DIABETES TESTS AT THE CAVALCADE OF PROGRESS

The Monmouth County Medical Society, the New Jersey State Department of Health and the U. S. Public Health Service cooperated in presenting to the public for the first time the new diabetes blood sugar screening test, April 4-10, during the Cavalcade of Progress at Asbury Park, N. J. Twenty-five thousand persons visited the exhibits, and of those 1,300 were selected for the diabetes screening test. Only those who had eaten from thirty to ninety minutes before applying for the test were selected. The public was notably interested in the simplicity of the test and the rapid process of arriving at results. Those whose blood sugar was reported normal were so advised

and went on their way. Those whose blood sugar were reported above normal were so advised by the physician in charge, and a venous sample was taken for additional analysis by the Somogyi-Nelson method of determination of blood sugar. The two tests resulted in the discovery of 49 previously unknown cases of diabetes.

Q FEVER ORGANISM VERY RESISTANT TO HEAT

The Public Health Service reports that the pasteurization of milk does not always kill the organism that causes Q fever that may be present. Studies made in the Los Angeles area in cooperation with the California State Department of Health indicate that pasteurization usually destroys the Q fever organisms in naturally infected milk, but that a few of them occasionally remain alive and apparently capable of producing the disease after pasteurization. In tests made with each of the two methods of pasteurization employed in California, the pasteurized milk from one of the vat tests still contained living Q fever organisms. Three of thirty-two specimens taken from bottles of vat-pasteurized market milk and one of four specimens of vat-pasteurized market cream were shown to contain living Q fever organisms. The studies were reported by Dr. Robert J. Huebner in the April 22 issue of *Public Health Reports*. Earlier studies had shown nearly two thirds of the dairies tested in that area produced raw milk containing the Q fever organisms (*Coxiella burnetii*).

SYMPOSIUM ON INDUSTRIAL WASTE

A symposium on water, sewage and industrial waste will be held June 23-24 at the Department of Commerce Auditorium, Washington, D. C. The study section sponsoring this symposium is one of twenty-three groups of special consultants organized to aid the National Institutes of Health in promoting research. Inquiries concerning this symposium should be addressed to V. M. Ehlers, Texas State Department of Health, Austin, Texas, Chairman of the Sanitation Study Section.

Medical News

(Physicians will confer a favor by sending for this department items of news of general interest: such as relate to society activities, new hospitals, education and public health. Programs should be received at least two weeks before the date of meeting.)

ALABAMA

State Medical Election.—At the recent annual session of the Medical Association of the State of Alabama, Dr. Frank C. Wilson, Birmingham, was elected president. The association does not have a president elect. Dr. William R. Carter, Repton, was chosen vice president of the Southwestern Division of the association. Dr. Douglas L. Cannon, Montgomery, continues as secretary.

ARIZONA

Personal.—Dr. C. A. Thomas, Tucson, was awarded a medal and scroll by the Pan American Congress of Tuberculosis, meeting in Mexico, D. F., recently, for his work in chest surgery and his aid in the control of tuberculosis.

Psychiatry and Neurology Meeting.—The May meeting of the Arizona Society of Psychiatry and Neurology will be held in Phoenix May 21 in the auditorium of the Good Samaritan Nursing Home. In addition to election of officers for the coming year, Dr. John R. Green, Phoenix, and Dr. Frederick A. Gibbs, Chicago, will speak on "Electroencephalography."

COLORADO

Rocky Mountain Cancer Conference.—The third annual Rocky Mountain Cancer Conference will be held at the Shirley Savoy Hotel, Denver, July 14-15, under the sponsorship of the Colorado State Medical Society, Rocky Mountain Cancer Foundation, and the Colorado Division of the American Cancer Society. A half day will be devoted to a symposium on the leukemias. The guest speakers include Drs. George F. Cahill, New York; Sherwood Moore, St. Louis; Cecil S. O'Brien, Iowa City; Fred W. Stewart, New York; John DeJ. Pemberton, Rochester, Minn.; Frederick D. Weidman, Philadelphia; Cyrus C. Sturgis, Ann Arbor, Mich., and Idys Mims Gage, New Orleans. There is no registration fee. The conference is financed by contributed funds through the American Cancer Society.

CONNECTICUT

Personal. Dr. James C. Hart has been appointed director of the Bureau of Preventable Diseases of the Connecticut State Department of Health to succeed the late Dr. Eugene E. Lamoureux. Dr. Hart has been acting director of the bureau for the past four months. He is a graduate of Yale University School of Medicine, New Haven, and practiced medicine in New Haven from 1934 to 1940.

Dr. Talbot Appointed to Institute of Living.—In connection with a greatly expanded program for care of the sick, teaching and research, Dr. William B. Talbot, New York, has been appointed assistant to the president of the Institute of Living in Hartford. Dr. Talbot, a graduate of Tulane University of Louisiana School of Medicine, New Orleans, for the past fourteen years has been administrator of the New York Post-Graduate Medical School and Hospital in New York City. He served at the U. S. Veterans Hospital in Bronx, New York; for seven and one-half years as assistant director of Grasslands Hospital in Valhalla, N. Y., and clinical psychiatrist and director of psychiatric service to county institutions.

FLORIDA

Laboratory to Examine Vitamin Pills.—The State of Florida has established a \$30,000 vitamin laboratory in the Mayo Building in Tampa to test the vitamin content of foods, pills and livestock feeds. Vincent E. Stewart, Ph.D., and Mr. Harold Hoffman will have charge of the investigations. Bread was selected as one of the first items to be tested.

Honor Two Board of Health Members.—Two members of the Florida State Board of Health staff have been honored for outstanding work in their fields. Dr. Roger F. Sondag, Jacksonville, director, Bureau of Preventable Diseases, was awarded a bronze medal by the American Cancer Society "for distinguished service in cancer control." The awards committee of the Florida Engineering Society selected David B. Lee, M.S., Jacksonville, chief sanitary engineer, for exceptional service to the engineering profession of Florida.

GEORGIA

Centennial Meeting of State Medical Association.—The Medical Association of Georgia observed the centennial of its founding at the annual meeting in Savannah, May 10-13. Guest speakers included:

William L. Benedict, Rochester, Minn., The Abner Wellborn Calhoun Lecture: Clinical Significance of Closure of the Retinal Blood Vessels.
Conrad G. Collins, New Orleans, Diseases of the Cervix.
Ralph S. McLaughlin, Charleston, W. Va., What the Medical Profession I
Catherine " " Detection of Early Cancer by
Means o
Ralph M. " "nesthesiology: New Wine and Old
Bottles.

The presidential address was delivered Thursday noon at a public session by Dr. Edgar Hill Greene, Atlanta, on "Our Problems at the Beginning of the Association's Second Hundred Years." Scientific and technical exhibits were on display.

ILLINOIS

Lectures for County Societies.—The Illinois State Medical Society has arranged the following lectures for county societies:

May 31, Iroquois County Medical Society in Watseka, James H. Hutton, Chicago, Hormone Preparations and Their Uses.
June 7, Bureau County Medical Society in Spring Valley, John R. Vonachen, Peoria, Modern Trends in Pediatrics.
June 9 Will-Grundy County Medical Society in Joliet, George H. Rezek, Cicero, Female Endocrines.
June 16, Effingham County Medical Society in Effingham, Archibald L. Hoynes, Chicago, The Known and Unknown in Poliomyelitis.
June 23, Will-Grundy County Medical Society in Joliet, James J. Callahan, Chicago, General Fractures.

Advantages of Small Town Practice.—The Illinois State Medical Society entertained seventy-five young interns and residents at the Hotel LaSalle, Chicago, on April 26 when three veteran small town doctors pointed out the advantages of rural practice. They explained how to set up an office and how to handle patients and other problems. Another doctor, who recently located in a small town down state, told how he solved problems with the help of neighbors. A small town banker discussed finances. The young physicians were given a list of forty rural Illinois communities in need of additional physicians. Another list contained the names of thirty country doctors who plan to retire and are looking for young physicians to replace them.

Chicago

Drs. Hektoen and Wilder Receive Ricketts Award.—The University of Chicago will honor two of its alumni May 23 when it presents the first Howard Taylor Ricketts Awards for outstanding medical work to Drs. Ludvig Hektoen, Chicago, and Russell Wilder, Rochester, Minn. The award, established by Mrs. H. T. Ricketts in recognition of outstanding medical work, will be presented annually on May 3, anniversary of the death of Dr. Howard Taylor Ricketts, who fell victim to typhus while working in this field in Mexico, D. F., in 1910. Dr. Hektoen, chairman of the department of pathology at the university from 1901 to 1935, encouraged Dr. Ricketts in his research on typhus. Dr. Wilder, chairman of the university's department of medicine from 1929 to 1931, professor of medicine at the Mayo clinic since 1931, and now head of the department, worked with Dr. Ricketts in Mexico. After Dr. Ricketts' death Dr. Wilder remained in Mexico to complete the work. At the presentation ceremony at the University of Chicago Clinics Dr. Wilder will speak on "Rickettsial Diseases: Discovery and Conquest."

KANSAS

State Medical Meeting.—At the annual meeting of the Kansas Medical Society in Topeka May 9-12, the guest speakers were:

Thomas T. Mackie, Winston-Salem, N. C., Tropical Disease Problems Among Veterans of World War II.
Henry K. Ransom, Ann Arbor, Mich., Inflammatory Lesions of the Intestines.
Lee E. Sutton Jr., Richmond, Va., Early Diagnosis of Poliomyelitis.
Walter A. Fansler, Minneapolis, Symptoms and Early Diagnosis of Carcinoma of the Large Bowel.
Karl H. Pfuetze, Cannon Falls, Minn., Modern Approach to Control of Tuberculosis.
Robert J. Crossen, St. Louis, Medical Gynecology.
Joseph H. Pratt Jr., Rochester, Minn., Intestinal Obstruction.
William A. Sodeman, New Orleans, Pitfalls in Antibiotic Therapy.
Paul A. O'Leary, Rochester, Minn., Dermatitis of the Hands.
William D. Gill, San Antonio, Texas, and C. Wilbur Rucker, Rochester, Minn., guest speakers at the Eye, Ear, Nose and Throat Luncheons.

Thursday afternoon's program included a Symposium on Medical Legislation, with Dr. Oscar W. Davidson, Kansas City, presiding. Round table luncheons were held each day. The speaker at the annual banquet Wednesday was Mr. Arch N.

Women's Clubs Oppose Compulsory Health Insurance.—Delegates to the annual convention of the General Federation of Women's Clubs, which has a membership of 5,000,000 in the United States, adopted unanimously April 28 a resolution which opposed "government control of health services" and supported "the extension and development of Voluntary Health Insurance." The resolution states that the federation "goes on record against Government control of health services which would jeopardize free enterprise, establish heavy new tax burdens and unprecedented National deficits, and infringe upon the powers of the individual states."

Annual Meeting of Laryngological Association.—The American Laryngological Association will hold its annual meeting at the Biltmore, New York, May 16-17, under the presidency of Dr. Frederick T. Hill, Waterville, Maine. Those speaking by invitation include:

Abraham White, Ph.D., New Haven, Conn., Factors Influencing the Growth of Lymphoid Tissue.
Joseph C. Doane, Philadelphia, An Internist Looks at Specialism.
Norman L. Hoerr, and Julius W. McCall, Cleveland, Changes in the Nasal Mucosa Following Laryngectomy.
Joseph C. Aub, Boston, Advances in Our Knowledge of Cancer.

The President's Reception followed by the banquet will be held Monday evening at 6 p.m.

Dr. Doull Appointed to Leonard Wood Memorial.—Dr. James A. Doull, Washington, D. C., medical director, United States Public Health Service, has been made medical director of the Leonard Wood Memorial (American Leprosy Foundation), succeeding Dr. H. Windsor Wade, Culion, Philippine Islands, who because of ill health has been relieved of administrative duties and appointed associate medical director. Dr. Wade will continue his pathologic studies at Culion, and the editorship of the *International Journal of Leprosy*. The headquarters of the medical department of the memorial has been transferred from Culion, P. I., to 1832 M. Street, N. W., Washington 6, D. C. Cable address: Woodmem, Washington.

American Dermatological Association.—The annual meeting of the American Dermatological Association, Inc., will be held May 25-28 at the Homestead, Hot Springs, Va. The presidential address will be delivered by Dr. Harry R. Foerster, Milwaukee. Among the subjects to be presented will be Relation of Sunlight, Complexion and Heredity to Carcinogenesis of the Skin, Hormones in Acne: A Clinical Evaluation of Their Use in Adolescent Women; Effects of Podophyllin on Basal-Cell Epithelioma and on Seborrhoeic, Senile, X-Ray, and Radiation Keratoses; Treatment of Syphilis with Aureomycin Given Orally, and Hiroshima: Three Years After. A symposium on Undergraduate Teaching in Dermatology, with Dr. Francis E. Sencar, Chicago, as moderator will be presented Wednesday afternoon.

Psychiatric Association Meeting in Montreal.—The American Psychiatric Association will hold its annual meeting at the Windsor and Mount Royal hotels in Montreal, Canada, May 23-27. The program includes, among others, the following invited speakers:

Wilder G. Penfield, Montreal, Canada, Psychical Seizures and Psychoparetic Automatism.
Herbert H. Jasper, Westmount, Quebec, Electroencephalogram in Epileptic Automatism and Equivalent States.
Francis L. McNaughton, Montreal, Medical Therapy in Relation to the Classification of the Epilepsies.
C. Bos and H. Lehmann, Montreal, Studies on Psychiatric Patients Undergoing Nitrous Oxide Treatments.
John A. Belisle, Eloise, Mich., Necessity of the "Calculated Risk" in Parole Policy.
William T. Dixon, New York, Sludged Blood Studies in Alcoholics and Other Psychiatric In-Patients.
William W., a Co-Founder, The Society of Alcoholic Anonymous.
Lela S. Anderson, R.N., New York, Human Factors Involved in Providing Better Nursing Treatment and Care of Patients in Mental Hospitals.
Mr. Howard Hanson, Rochester, N. Y., Effective Power of Consonance and Dissonance in Music.
Fritz Redl, Ph.D., Detroit, Dynamics of Group Therapy.
Howard A. Rusk, New York, America's No. 1 Problem—Chronic Disease and an Aging Population.
Kenneth G. Gray, Toronto, Canada, Psychiatric Evidence in Criminal Cases.
Hudson Hoagland, Ph.D., and Gregory Pincus, Sc.D., Worcester, Mass., Adrenal Cortical Responses to Stress in Normal Men and in Those with Personality Disturbances.
Robert A. Cleghorn and B. F. Graham, Ph.D., Montreal, Studies of Adrenal Cortical Activity in Psychoneurotic Subjects.
Meta A. Neuman, M.F., W. B. D. C., Pick's Disease.
Winifred Ashby, Ph.D., W. B. D. C., An Approach to the Solution of Mental Illnesses: Brain Enzyme Studies.
Charles Kligerman, Cleveland, Ohio, Observations in Neurodermatitis.

Several symposiums have been scheduled: Monday, Role of Psychoanalysis in Various Aspects of Medical Education and Symposium for Hospital Administrators; Tuesday, Symposium on Alcohol; Wednesday, United States Public Health; Friday, State Public Health, Veterans Administration Symposium and Medical Testimony in Court. Round table dinner meetings

will be held. Prof. David Thomson, Ph.D., McGill University, Montreal, will give the dinner address Wednesday evening on "Caries in the 'Ivory Tower.'" Motion pictures will be shown daily.

LATIN AMERICA

Guatemala Hospital Program.—Guatemala has begun a national hospital building program designed to create an integrated system of sixty-seven hospitals to provide a minimum level of adequate hospital facilities. The Guatemala Institute of Social Security, an autonomous body, will implement and control the program expected to be realized in fifteen to twenty years at a cost of \$25,000,000 to \$30,000,000. The system will revolve around a central hospital with 1,000 beds in Guatemala City, and will involve five other regional hospitals with 200 to 300 beds, seventeen departmental hospitals with 75 to 200 beds and forty-four rural hospitals with 30 to 50 beds. The central hospital, to be known as Roosevelt Hospital, is nearly completed. It was constructed at a cost of \$4,000,000, of which 45 per cent was a grant from the Institute of Inter-American Affairs.

Mexican Congress of Obstetrics and Gynecology.—The first Congress of Obstetrics and Gynecology of Mexico will be held in the Justo Sierra Auditorium and the Hotel de Prado, México, D. F., May 22-28. The scientific sessions will be divided into five groups: surgical gynecology; medical gynecology and endocrinology; infertility and sterility; obstetrics; and laboratory investigations, radiology and physiology. The program includes invited speakers from Argentina, Brazil, Cuba, Colombia, Chile, France, Panama, Peru, Uruguay, Venezuela, Spain and the United States and Mexico. Guests from the United States include Drs. Richard W. TeLinde, Baltimore; Arthur T. Hertig, Boston; M. Edward Davis, Chicago; B. Bernard Weinstein, New Orleans, and Edwin C. Hamblen, Durham, N. C. The congress is open for registration to interested physicians throughout the world. The secretaries are Dr. Carlos D. Guerrero and Dr. Alphonso Bravo, Marsella 11, México, D. F., of whom inquiries can be made.

CORRECTIONS

Lithium and Cesium.—In the editorial note in *THE JOURNAL*, March 12, page 692, the statement that lithium is the most reactive metal known is erroneous. Cesium, a member of the same family of metals as lithium, is considered to be the most reactive.

Proctologic Society Meeting.—Dr. Harry E. Bacon, Philadelphia, is president of the American Proctologic Society holding its annual meeting in Columbus, Ohio, May 31-June 4, and not Dr. Albert G. Shutte, Milwaukee, as stated in *THE JOURNAL*, April 30, page 1288. Dr. Shutte is vice president.

The Use of Streptomycin in Surgical Patients.—The illustrations appearing in the article by this title in *THE JOURNAL*, April 2, page 902, were partially incorrect. Figure 5, on page 904, is actually figure 4 and was made before streptomycin therapy was started. Figure 4 is actually figure 5 and shows the results after streptomycin therapy. Figure 6 is correctly labeled, but the photographer reversed the negative, so that the right side of the chest, which in figures 4 and 5 is to the reader's left, in figure 6 is incorrectly shown on the reader's right.

Marriages

THOMAS BUEGER WRIGHT, Cincinnati, to Miss Florie Elizabeth Kelly of Jacksonville, Fla., March 27.

WILLIAM A. VIELE JR., Seattle, to Miss Sarah Catherine Hargrove at Houston, Texas, March 19.

JOHN DEAYER ALEXANDER, New York, to Miss Helen King Kleberg in Kingsville, Texas, April 16.

WILLIAM J. BROWN JR., Cedar Rapids, Iowa, to Miss Jean Rowe of Galesburg, Ill., March 13.

HUGH STEVENS COLQUITT to Miss Beulah Nelson Dowda, both of Smyrna, Ga., March 9.

NORMAN DEANE, Newark, N. J., to Miss Elaine Rudnick of New York, March 10.

M. EUGENE FLIPSE JR., to Miss Carolyn Law, both of Miami, Fla., in March.

HARRY MANDELBAUM, Brooklyn, to Miss Rose Lader of New York, April 3.

R. A. ABRAHAM, Brooklyn, to Miss Laurette Weiss of New York, February 20.

Deaths

Harold Laurens Dundas Kirkham, Houston, Texas; born in Norfolk, England, March 24, 1887; University of Texas School of Medicine, Galveston, 1909; specialist certified by the American Board of Surgery and the American Board of Plastic Surgery; past president, vice president and trustee of the American Association of Oral and Plastic Surgeons; fellow of the Southern Surgical Association and the Texas Surgical Society, of which he had been president; member of the American Association for the Surgery of Trauma, the American Society of Plastic and Reconstructive Surgery and the American Medical Association; fellow of the American College of Surgeons; served in the Navy during World War I; recalled to active duty in December 1941 and appointed to the rank of captain in 1942; head of the department of plastic surgery for the U. S. Naval Hospital in San Diego from July 20, 1943, to March 3, 1945; in April 1946 awarded the Legion of Merit; received a commendation from the Surgeon General of the Navy for outstanding devotion to duty following the Texas City Disaster on April 16, 1947; at the time of his retirement on Oct. 1, 1947 was chief of plastic surgery at the U. S. Naval Hospital; affiliated with St. Joseph's Infirmary, Memorial Hospital, Jeff Davis Hospital and the Southern Pacific Hospital; died March 18, aged 62, of coronary thrombosis.

Victor Francis Cullen ☉ Baltimore; born in Williamsport, Md., Sept. 5, 1881; Johns Hopkins University School of Medicine, Baltimore, 1906; specialist certified by the American Board of Internal Medicine; member of the American College of Chest Physicians and the American Trudeau Society, of which he had been director and vice president; past president of the Southern Tuberculosis Conference and the National Tuberculosis Association; formerly vice president of the Medical and Chirurgical Faculty of Maryland; past president of the Maryland Tuberculosis Association; in 1947 retired as superintendent of the Maryland State Tuberculosis Sanatorium and of all Maryland tuberculosis sanatoriums; in 1924 had been awarded the Knighthood of St. Gregory by Pope Pius XI, in recognition of work in tuberculosis in Maryland; died in the Union Memorial Hospital March 9, aged 67, of hypertensive cardiovascular disease.

Arthur Nathaniel Alling, New Haven, Conn.; born in New Haven, July 1, 1862; College of Physicians and Surgeons, medical department of Columbia College, New York, 1891; member of the American Medical Association and the American Ophthalmological Society; fellow of the American College of Surgeons; joined the Yale University School of Medicine in 1893 as lecturer in ophthalmology; in 1894 became an instructor, in 1902 clinical professor and in 1938 professor emeritus; for many years affiliated with the New Haven Dispensary; on the staffs of the New Haven and Meriden hospitals; died March 15, aged 86, of coronary occlusion.

Samuel Kennedy ☉ Shelbyville, Ind.; born in Shelbyville, Ind., March 16, 1867; Medical College of Indiana, Indianapolis, 1891; an Associate Fellow of the American Medical Association; also a graduate in pharmacy; past president of the Shelby County Medical Society; formerly vice president of the Indiana State Medical Association and for many years a counselor of the Sixth District; in 1900, 1910, 1930 and 1940 a delegate to the U. S. Pharmacopoeial Convention in Washington, D. C.; for many years surgeon for the New York Central Railroad and the Pennsylvania Railroad; died February 1, aged 81, of cerebral hemorrhage.

Thomas Joseph Donovan ☉ Houston, Texas; born in Eden Valley, Minn., July 19, 1909; Harvard Medical School, Boston, 1934; assistant professor of clinical pediatrics at the Baylor University College of Medicine; specialist certified by the American Board of Pediatrics; certified by the National Board of Medical Examiners; member of the American Academy of Pediatrics; served during World War II; on the staffs of the Hermann, Jefferson Davis and Memorial hospitals and St. Joseph's Infirmary, where he died March 4, aged 39, of cancer of the liver.

Henry Tate Allingham, Omaha; John A. Creighton Medical College, Omaha, 1912; member of the American Medical Association; affiliated with Creighton Memorial St. Joseph's Hospital, Doctors Hospital and St. Catherine's Hospital; died March 13, aged 69.

John T. Anderson ☉ Warrensburg, Mo.; Missouri Medical College, St. Louis, 1889; died February 22, aged 79, of pneumonia.

Jeannie Oliver Arnold, Laguna Beach, Calif.; Boston University School of Medicine, 1891; formerly physician for Pembroke College in Providence, R. I.; died in St. Joseph Hospital, Orange, February 20, aged 88, as the result of a fall.

William Abraham Bostick, Milledgeville, Ga.; University of Georgia Medical Department, Augusta, 1924; member of the American Medical Association; past president of the Baldwin County Medical Society; on the staff of Milledgeville State Hospital; died February 2, aged 68, of cerebral hemorrhage.

Arthur George Davis ☉ Erie, Pa.; University of Buffalo School of Medicine, 1913; specialist certified by the American Board of Orthopaedic Surgery; member and formerly vice president of the American Academy of Orthopaedic Surgeons; member of the American Orthopaedic Association; fellow of the American College of Surgeons; on the staffs of the Hamot and St. Vincent's hospitals and Zem Zem Hospital for Crippled Children; died February 20, aged 61, of coronary disease.

Earl John Dorwaldt ☉ Albany, N. Y.; Albany (N. Y.) Medical College, 1924; associate professor of hygiene at the New York State College for Teachers; died in St. Peter's Hospital February 7, aged 51, of rheumatic heart disease.

Holly T. Drake, Marion, Ill.; Kentucky School of Medicine, Louisville, 1898; died in Holden Hospital, Carbondale, February 11, aged 82, of cerebral thrombosis and diabetes mellitus.

William Preston Drake, Bowling Green, Ky.; Kentucky University Medical Department, Louisville, 1905; member of the American Medical Association; for many years oculist for the Louisville and Nashville Railroad; died in Atlanta, Ga., February 10, aged 66, of coronary thrombosis.

Arthur Garfield Dula, Lenoir, N. C.; Leonard Medical School, Medical Department of Shaw University, Raleigh, 1912; died February 14, aged 65, of a heart attack.

Oswald Alfonso Eaddy ☉ Keithville, La.; Atlanta Medical College, 1914; died in Phoenix, Ariz., February 27, aged 57, of cerebral hemorrhage and heart disease.

Kiefer Killen Eason, Tulsa, Okla.; Baylor University College of Medicine, Dallas, Texas, 1926; served during World War I; affiliated with Hillcrest Memorial Hospital, where he died February 22, aged 50, of subacute yellow atrophy of the liver and virus hepatitis.

Crum Epler ☉ Pueblo, Colo.; University of Tennessee Medical Department, Nashville, 1894; member of the House of Delegates of the American Medical Association in 1908, 1932, 1933 and 1934; past president of the Colorado State Medical Society; served during the Spanish-American War; fellow of the American College of Surgeons; served on the staff of St. Mary Hospital; died February 6, aged 77, of cerebral hemorrhage.

Jack Wallace Ferguson, Ceredo, W. Va.; Ohio State University College of Medicine, Columbus, 1921; member of the American Medical Association; died February 5, aged 52, of acute dilatation of the heart.

Ignatius L. J. Fitzpatrick, Philadelphia; Medico-Chirurgical College of Philadelphia, 1901; formerly on the board of health; served on the staff of Philadelphia General Hospital; died February 16, aged 70, of carcinoma of the urinary bladder.

Harry Pugh Forsyth ☉ Alexandria, La.; Tulane University of Louisiana School of Medicine, New Orleans, 1929; past president of the Rapides Parish Medical Society; consultant for the state board of health; on the staff of the Huey E. Long Charity Hospital in Pineville and Baptist Hospital, where he died March 12, aged 51, of coronary occlusion and a fracture of the first lumbar vertebra received in an automobile accident in October 1948.

Benno Hugh Fultz ☉ San Antonio, Texas; College of Physicians and Surgeons, Baltimore, 1901; on the staff of Santa Rosa Hospital; died February 15, aged 74, of arteriosclerosis.

Cecil Hughes Gilliam, Galveston, Texas; University of Texas School of Medicine, Galveston, 1939; member of the American Medical Association; served during World War II; died February 16, aged 38, of coronary occlusion.

Edmund Francis Hanlon ☉ Hazleton, Pa.; Jefferson Medical College of Philadelphia, 1927; served during World War II; died February 16, aged 45, of coronary occlusion.

Oliver L. Iden ☉ Chillicothe, Ohio; Eclectic Medical Institute, Cincinnati, 1899; past president of the Ross County Medical Society; on the staff of Chillicothe Hospital; died February 6, aged 74, of heart disease.

Joseph Kahn * Milwaukee; University of Pennsylvania Department of Medicine, Philadelphia, 1888; member of the staff of Mount Sinai Hospital; died February 20, aged 82, of coronary occlusion.

Orson Arza Kellogg, Beloit, Wis.; Rush Medical College, Chicago, 1899; died in the Veterans Administration Hospital, Tomah, February 28, aged 76, of coronary heart disease and bronchopneumonia.

Rufus S. Kight * Norfolk, Va.; University of Maryland School of Medicine, Baltimore, 1900; fellow of the American College of Surgeons; past president of the Norfolk County Medical Society; formerly city coroner; affiliated with Norfolk General Hospital, Leigh Memorial Hospital and the St. Vincent De Paul Hospital, where he died February 12, aged 72, of heart disease.

Joseph H. Kinsey, Richmond, Ind.; Physio-Medical College of Indiana, Indianapolis, 1888; member of the American Medical Association; died February 14, aged 82, of congestive heart failure.

Grover Cleveland Klein * Galesburg, Ill.; Rush Medical College, Chicago, 1912; served during World War I; member of the staff of Galesburg Cottage Hospital; died January 30, aged 64, of coronary heart disease.

Jerome Henry Leadley * Rochester, N. Y.; University of Rochester School of Medicine and Dentistry, 1930; on the staffs of the Rochester General Hospital and the Strong Memorial Hospital, where he died February 24, aged 44, of atelectasis, following an operation for esophageal ulcer.

William McCombs, Philadelphia; Jefferson Medical College of Philadelphia, 1882; for many years affiliated with Wills Hospital; died in the Temple University Hospital January 30, aged 88.

John William McCreery * Whittemore, Iowa; Drake University Medical Department, Des Moines, 1898; died February 2, aged 71, of coronary occlusion.

Orville Johnson Mason, Macedon, N. Y.; Columbian University Medical Department, Washington, D. C., 1899; member of the American Medical Association; died in Canandaigua, February 23, aged 87, of pulmonary edema due to cardiovascular disease.

John Perry Merchant, Columbus, Ohio; Ohio Medical University, Columbus, 1902; died in St. Francis Hospital February 10, aged 70, of encephalomalacia of the midbrain due to thrombosis.

Dan Hazen Moulton * Chico, Calif.; Medical Department of the University of California, San Francisco, 1902; an Associate Fellow of the American Medical Association; in charge of the health department of the Chico State College; affiliated with Enloe Hospital, where he died February 10, aged 70, of cerebral hemorrhage.

Arthur Stone Needles, Lima, Mont.; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1911; member of the American Medical Association; served during World War I; died in Salt Lake City February 23, aged 63.

Dorwin Lewis Palmer * Santa Barbara, Calif.; University of Oregon Medical School, Portland, 1915; formerly associate clinical professor of radiology at his alma mater; specialist certified by the American Board of Radiology; member of the American Roentgen Ray Society; on the staff of Multnomah Hospital; died December 27, aged 60.

George Parke * Viola, Wis.; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1905; died February 22, aged 67, of acute coronary thrombosis and arteriosclerosis.

Ernest Lawrence Parker, Cohasset, Mass.; Harvard Medical School, Boston, 1904; member of the American Medical Association; died January 18, aged 70.

Claude Lee Penington * Macon, Ga.; University of Georgia Medical Department, Augusta, 1912; specialist certified by the American Board of Otolaryngology; senior attending ear, eye, nose and throat service, Macon Hospital, where he was chairman of the executive committee; on the staff of the Middle Georgia Hospital; formerly member of the Macon hospital commission; died in the University Hospital, Augusta, February 21, aged 57, of carcinoma of the stomach.

Frank Ellsworth Peters * Winnetka, Ill.; Rush Medical College, Chicago, 1929; died in Sarasota, Fla., February 15, aged 48, of chronic glomerular nephritis, erysipelas, hypertension and congestive heart failure.

Otto Andrew George Reinhard * Lincoln, Neb.; University of Illinois College of Medicine, Chicago, 1923; specialist certified by the American Board of Internal Medicine; fellow of the American College of Physicians; formerly field director of the Siamese public health department; on the staffs of Bryan Memorial and Lincoln General hospitals; died February 12, aged 51, of coronary occlusion.

George Lewis Ross, Edinburg, Texas; Marquette University School of Medicine, Milwaukee, 1914; member of the American Medical Association and the State Medical Society of Wisconsin; died February 26, aged 64, of cerebral hemorrhage.

Harold Augustine Ryan, Miami Beach, Fla.; Columbia University College of Physicians and Surgeons, New York, 1929; member of the American Medical Association; died February 25, aged 43, of coronary thrombosis.

Harry William Schumacher * Altamont, Ill.; Washington University School of Medicine, St. Louis, 1917; served during World War I; died in the Mark Greer Hospital, Vandalia, February 18, aged 58, of coronary thrombosis.

James R. Spears, New Orleans; Flint Medical College of New Orleans University, New Orleans, 1902; died in the Flint Goodridge Hospital of Dillard University, February 18, aged 74.

Roy George Spurbeck, Cloquet, Minn.; Northwestern University Medical School, Chicago, 1911; died February 12, aged 59, of myocarditis.

Amos Osborne Squire, Ossining, N. Y.; Columbia University College of Physicians and Surgeons, New York, 1899; member of the American Medical Association; medical examiner of Westchester County from 1925 to 1948; coroner of Westchester County from 1906 to 1912; served as health officer of Ossining and as physician at Sing Sing Prison; died February 11, aged 72, of cerebral arteriosclerosis and coronary thrombosis.

William Henry Stackable, Chicago; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1903; member of the American Medical Association; on the staff of St. Anne's Hospital; died February 8, aged 74, of arteriosclerotic heart disease.

Frederic Tupper Stearns, Osage, Iowa; State University of Iowa College of Medicine, Iowa City, 1942; member of the American Medical Association and of the Iowa State Medical Association; died in Mason City February 17, aged 33, of injuries received in an automobile accident.

James Gardner Strickland, Shamokin, Pa.; Jefferson Medical College of Philadelphia, 1913; served during World War I; member of the American Medical Association; formerly affiliated with the Shamokin (Pa.) State Hospital; died February 28, aged 61, of coronary occlusion.

George Linton Touchton, Savannah, Ga.; Atlanta School of Medicine, 1909; member of the American Medical Association; past president of the Georgia Medical Society; served during World War I; chief medical examiner of a draft board during World War II; formerly county physician; member of the staffs of St. Joseph and Warren A. Candler hospitals; died February 4, aged 64, of coronary occlusion.

John Edward Vallee, Van Nuys, Calif.; University of Vermont College of Medicine, Burlington, 1903; member of the American Medical Association; died February 13, aged 77, of cardiovascular renal disease.

Paul Reichard Webster * Leavenworth, Kan.; University of Kansas School of Medicine, Kansas City, 1922; on the staffs of Cushing Memorial and St. John's hospitals; died February 16, aged 51, of cerebral hemorrhage.

Francis Myron West, Lovelock, Nev.; College of Physicians and Surgeons of San Francisco, 1905; served during the Spanish-American War; died in the Veterans Administration Center, Reno, February 22, aged 76, of arteriosclerosis.

George B. Williamson, Joplin, Mo.; Missouri Medical College, St. Louis, 1887; died February 22, aged 82, of coronary thrombosis and diabetes mellitus.

Alfred Wolff, Brooklyn; Universität Heidelberg Medizinische Fakultät, Baden, Germany, 1909; member of the American Medical Association; died February 22, aged 63, of congestive heart disease.

Charles Wolff * St. Louis; St. Louis University School of Medicine, 1924; died in St. John's Hospital February 27, aged 53, of heart disease.

William S. Workman, Indianapolis; Louisville (Ky.) Medical College, 1891; member of the American Medical Association; died in Flower Mission Hospital February 13, aged 91, of pulmonary tuberculosis.

Foreign Letters

NETHERLANDS

(From Our Regular Correspondent)

March 21, 1949.

Professor Pijper and the Bacterial Flagella

Professor Adrianus Pijper, director of the well equipped South African Institute of Pathology of the Medical Faculty, Pretoria—rather recently the *Lancet* gave a description of it—is always in close contact with his country, Holland, and never fails to send his microbiologic films to be shown in meetings of the Netherlands Microbiological Society.

Pijper's latest motion picture illustrates his theory that the flagella of bacteria do not affect the locomotion of these microbes any more than the tail of a dog affects the locomotion of this mammal. According to him the bacteria move because their bodies can make an undulating, gyrating movement. Although the spectators unanimously enjoyed the high standard of this new product of Professor Pijper's camera, it was extremely difficult to accept the theoretic view of the distinguished microbiologist from South Africa.

Kingma Boltjes made himself the interpreter of those who did not agree with Pijper, and to the observations made by Orskow, Kaufmann and others he added a few of his own. According to Boltjes even the film clearly shows that the flagella do not consist of lifeless slime matter, but are gyrating at a speed much greater than could be caused by the movement of the bacterial bodies or by currents.

Kingma Boltjes published his remarks in the Netherlands journal of microbiology and serology *Antonie van Leeuwenhoek*. Among the excellent illustrations of his short article one finds a fine picture made by Miss W. van Iterson, engineer (Netherlands Institute for Electron Microscopy at Delft). This electron photograph most convincingly shows that flagella are no artefacts, but organs of the bacterial body.

Epidemic of Lobar Pneumonia

During the war a general practitioner, Dr. F. J. Huygen, made an interesting study of an epidemic of lobar pneumonia observed by him in his country practice not far from Arnhem.

During his three years' study Dr. Huygen counted 104 cases, of which hardly any occurred during the summer months, whereas a maximum was reached in the early spring. Most cases were single ones, and this sporadic spreading seemed to be favored by crowding (large families and bad social environment).

The bacteriologic analysis made in the Hygienic Institute of the University of Utrecht (Professor Julius) revealed *Pneumococcus* type I to be the prevalent type. The same microbe was found circulating among the healthy part of the population in a high percentage (25 per cent), quite uncommon for this type of pneumococcus.

In his publication (academic thesis) Dr. Huygen finds some analogy with meningococcosis, which disease is also characterized by an outbreak of sporadic cases after the "danger line" of a high percentage of carriers has been reached.

A Cancer Healer

The Minister for Social Affairs charged the President of the Public Health Council to report to him about Dr. Jules Samuels (Amsterdam), who for many years has claimed to cure malignant tumors by a short wave treatment of the hypophysis.

Although Dr. Samuels refused to cooperate, the reporter succeeded in tracing about 70 patients who were treated in the Samuels Institute. He found that in 30 patients, who, according to Samuels, were suffering from cancer, the diagnosis could not be confirmed by any specialist. In the other cases, all confirmed by specialists, Samuels's treatment had failed. This

inquiry explains how it has been possible for Samuels to organize demonstrations of quite a number of "cured cancer patients" for colleagues on several occasions.

The medical profession is anxious to know how the Government will handle this unpleasant affair. In his report the President of the Public Health Council has declared that a physician who publicly claims that he can cure cancer and who is not able to do so "undermines the faith in the medical profession."

Vital Statistics

The "Centraal Bureau voor de Statistiek" (The Hague) lately published the first vital statistics of the year 1948.

In many respects this third year after the liberation shows exceptional conditions. Marriages and births showed high figures; mortality, infant mortality and the death rate of respiratory tuberculosis low figures, lower than any level reached before the war. The mortality rate is considered to be a world low level record. In the following summary the figures of 1936-1939, the last period of four years before the war, are also found.

	1948	1936-1939
Marriages per thousand inhabitants.....	9.0	8.0
Live births per thousand inhabitants.....	25.3	20.3
Deaths per thousand inhabitants.....	7.4	8.7
Deaths under 1 year per thousand live births....	28.5	36.9
Death from tuberculosis per 100,000 inhabitants..	21.0	32.0

ITALY

(From Our Regular Correspondent)

FLORENCE, March 15, 1949.

Genesis and Treatment of Gastric Ulcers

At a meeting of the Academy of Sciences of Ferrara under the chairmanship of Professor Dogliotti, Professor Schiassi reported on the revised view now current concerning the genesis and treatment of gastric ulcer which, in his opinion, is justified by the increase in the incidence of this disease, by the controversial concepts which still exist with regard to pathogenesis, and by the various systems of treatment which are practiced in different countries. According to the speaker, four categories must be considered: (1) gastric ulcers resulting from epigastric trauma; these forms are very rare; (2) gastric ulcers in persons with a morbid entity localized in the nervous system, such as degeneration or tumors; these forms are merely exceptional; (3) gastric ulcers of infectious, toxic and anaphylactic origin, and (4) gastric ulcers in stigmatized persons. In the latter, neurolabile persons, the human potential of disease abides in the morphology of the patient. According to the speaker, the imponderable emotional shock descending from the cortex of the hypothalamus is transmitted by the vagus to the stomach and may upset the functions. According to Professor Schiassi, the cerebral impulse is conducted into the subdiaphragmatic region by the vagus and spreads to a nervous system which consists of a symbiosis of vagal and solar elements, so that one has no longer to deal with the vagus only or with the sympathetic nerve but with one and the other associated by a rhythmic, antagonistic and segmentary function which may become manifest in the viscus through terminal ramifications which end in the muscles and in the gastric glands.

The emotional shock communicating with this system, which the speaker has labeled "forgotten" because nobody has called attention to it, may put the antagonistic rhythm in disorder with damaging effects on the gastric tissues. This damage consists of hyperemia, ischemia, capillary hemorrhages or edema, and since it occurs in a viscus which secretes a liquid dissolvent, it constitutes a condition favorable to the development of the liquid which by its corroding activity produces ulceration. This etiologic interpretation authorizes the surgeon to intervene by interrupting the concatenation between the elements of the vago-solar system which cause the degradation of the tissues and the formation of ulcers.

Congress of Industrial Medicine

Under the chairmanship of Prof. Angelo Viziano the Fourteenth National Congress of Industrial Medicine was held in Turin and was attended by many physicians, politicians and representatives of public health, public instruction and other governmental departments. Prof. Luigi Carozzi, University of Geneva, secretary general of the permanent international commission on occupational diseases, presented the opening report on "Progress and Present Tendencies in Industrial Medicine."

The development of this discipline, from the point of view of prevention, is characterized today by a physiopsychologic and social as well as prophylactic and technical aspect, inasmuch as 90 per cent of the incapacity which causes absence from work is not of occupational origin. Among the important problems is the examination of applicants' eyesight, particularly if they are to do precision work; another important problem is that of the colors used on the walls of work rooms and for parts of the machinery, which are factors in the well-being of the workmen in their occupational environment and at the same time factors in greater production and in the prevention of accidents.

In the clinical field it is again the human factor which is dominant in the genesis of occupational diseases and of accidents during work. The preclinical latent period is of great importance in cases of occupational intoxication. Concerning the treatment with 2,3-dimercaptopropanol (BAL) recommended for many other intoxications in addition to arsenic poisoning, the author advises caution when the toxin which should be combated has a pronounced effect on the liver. Spas are in great favor for the treatment of occupational diseases. Professor Carozzi emphasized that it is the task of the physician to defend the workman against the dangers of excessive mechanization with the aim of rehumanizing work conditions.

Prof. Luigi Ferranini of Bari presented a report on "Fatigue of Respiratory Apparatus." He summarized the effects of muscular or intellectual work, of changes of temperature and of variations in atmospheric pressure on the respiratory function; the speaker analyzed the fatigue of the respiratory mechanism under conditions of strain as during singing, screaming and excitement; he presented a pathogenic interpretation of pulmonary emphysema and of hemorrhage of pulmonary parenchyma due to strain.

Professor Caccuri of Naples discussed the behavior of the cardiovascular apparatus in occupational poisoning. Professor Molino of Genoa discussed the pathologic changes and symptoms of welders using the electric arc.

Professors Ponzio, Matli and de Lorenzi were co-speakers on "The Roentgenologic Diagnosis in Factory Health Services." De Lorenzo discussed particularly the modern-fluorescent screen technic and the favorable results obtained by this means of research in thousands of workmen. Professor Ponzio reported on the apparatus and on the organization of the roentgenologic service in factories. Professor de Dominicis spoke on "Elements of Reasonable Salary," and its problems in respect to disease were presented in a report by Professor Mantovani.

Studies on Senescence

At the invitation of the International Society for Studies on Senescence with headquarters in Oxford, a National Society for Studies on Senescence has been established in Italy, the fifteenth nation which has joined the Oxford society. Prof. Maurizio Ascoli has been nominated as chairman of the new Italian society, which decided to publish a second edition of a classical work on senescence, compiled by Professor Devoto, and to distribute it to all Italian physicians. Professors Bastai and Dogliotti will be invited to bring up to date their report on old age, presented in 1938 to the Congress of Physiopathology, by enlarging it from the points of view of social

medicine and treatment. Professor di Guglielmo, with the cooperation of other scholars, will extend the research of the school of Professor Ferrata to the hematology of old age. The first congress of the new society will be held in Rome in October 1949.

BRAZIL

(From Our Regular Correspondent)

RIO DE JANEIRO, March 19, 1949.

Minimal Lesions of Pulmonary Tuberculosis in Adults

Examination of several thousands of industrial and clerical workers at the outpatient department of the Institute Clemente Ferreira in São Paulo disclosed 936 adults with minimal lesions of pulmonary tuberculosis. Of this total, 819 presented exudative lesions and 117 productive lesions. Among the former, 77.4 per cent were infiltrated and 22.6 per cent were scattered lesions. The right lung was involved in 62.4 per cent, while the left one was involved in only 37.6 per cent. Lesions were bilateral in 11.1 per cent. The most frequent localization was in the apex and the infraclavicular region (88.9 per cent). Clinical symptoms were not present in 53.9 per cent. In 94.2 per cent of patients with symptoms, clinical symptoms had lasted for not longer than one year. Examination of gastric contents showed 9.6 per cent bacteriologic positive results in patients with productive lesions and 30.9 per cent in those with exudative lesions.

One hundred and fifty-three patients not subjected to collapse-therapy were studied. Among those with exudative lesions, 60.1 per cent had progressive lesions, 10.5 per cent arrested, 2.6 per cent partially recovered, and 26.8 per cent completely recovered. In cases of productive lesions, 26.7 per cent were progressive. Seventy-four patients subjected to pneumothorax showed the following results: 27 per cent advanced, 5.4 per cent remained unchanged and 67.6 per cent showed favorable evolution.

Infections Caused by *Proteus Morgani*

Dr. Vera Leite Ribeiro of the Hospital dos Servidores do Estado, Rio de Janeiro, studied cultures recovered from feces and other material in 31 cases of dysentery in infants. Nine strains (29 per cent) possessed a specific flagellar (H) antigen, according to cross agglutination and absorption tests. Such an antigen failed to appear in other *Proteus morgani* cultures occurring in normal feces of healthy persons, as well as in patients suffering from well known *Shigella* or *Salmonella* infections. All cases showing presence of special H antigen *P. morgani* cultures the conditions were recognized as pathologic by both clinical investigation and postmortem examination (6 cases were fatal). Circulating antibodies (specific H agglutinins) were also found in a patient with a chronic condition who had a specific *P. morgani* strain in the feces.

Activity of Adrenal Cortical Extract by Oral Administration

Effectiveness of corticoadrenal extracts when given parentally has been demonstrated. In a recent study, Dr. Maria I. Mello, of the Division of Chemistry and Pharmacology of the Oswaldo Cruz Institute studied the effects produced by this extract when given orally and subcutaneously. Four different methods were tried. Oral administration was by stomach tube. Corticoadrenal extracts employed in the study were prepared by the Swingle and Pfiffner technic. The extract was given as total extract and as a charcoal adsorbate. Adrenalectomized rats treated by the oral preparations responded better to the charcoal adsorbate than to the total extract. The glycogen liver deposition test of Britton and Silvette and the Grollman test were used to measure results. Responses obtained with the adsorbate were similar to those obtained from injected

extracts. All animals received the same dose of the cortical extract, and all the groups used for the tests were maintained under identical conditions.

Lepromin Reaction in Healthy Noncontact Persons

Drs. Abraão Rothberg and N. Souza Campos, of the Division of Leprosy, São Paulo State Department of Health, performed the lepromin test in 163 adults and 94 children. All were healthy residents of São Paulo. These persons spent all or almost all their lives in the city or in rural sections of the state where leprosy is endemic. They had no known direct contact with cases of the disease. Some of the adult group also were tested by the Mantoux reaction with 1:10,000 dilution of tuberculin. Both the early Fernandez reaction and the late Mitsuda reaction were frequently found positive in adults. Negative results were frequently observed in the children. Usually agreement occurred in results of the early and the late lepromin reactions both in positivity and negativity, but in many Fernandez-negative cases a late Mitsuda positive reaction was observed.

Comparison with Mantoux tests supports the opinion that the tuberculin sensitization influences the early lepromin reaction. The late lepromin reaction did not seem to be influenced by tuberculin sensitization.

Medical Examinations and Licensure

COMING EXAMINATIONS AND MEETINGS

NATIONAL BOARD OF MEDICAL EXAMINERS

NATIONAL BOARD OF MEDICAL EXAMINERS: *Parts I and II*. Various Centers, June 20-22, Sept. 12-14. *Part III*, June, various centers. Exec. Sec., Mr. E. S. Elwood, 225 S. 15th St., Philadelphia 2.

EXAMINING BOARDS IN SPECIALTIES

AMERICAN BOARD OF ANESTHESIOLOGY, Inc. *Written*. Various Centers, July 15. *Oral*, Oct. 16-20. Sec., Dr. Curtiss B. Hickcox, 745 Fifth Ave., New York 27.

AMERICAN BOARD OF INTERNAL MEDICINE: *Oral*, Philadelphia, June 1-3. *Written*, Oct. 17. Asst. Sec.-Treas. Dr. W. A. Werrell, 1 Main St., Madison 3, Wis.

AMERICAN BOARD OF NEUROLOGICAL SURGERY: *Oral*, Chicago, June 1949. Sec., Dr. W. J. German, 310 Cedar Street, New Haven, Conn.

AMERICAN BOARD OF OPHTHALMOLOGY: *Oral*, New York, June 11-15; St. Louis, Oct. 15-19; Boston, December. Sec., Dr. S. J. Beach, 56 Ivie Rd., Cape Cottage, Maine.

AMERICAN BOARD OF ORTHOPAEDIC SURGERY. *Part II*, New York City, Jan. 1950. Final date for filing application for Part II is Aug. 15. Address: Dr. Francis M. McKeever, 1136 W. 6th St., Los Angeles 14, Calif.

AMERICAN BOARD OF OTOLARYNGOLOGY: Chicago, Oct. 4-7. Sec., Dr. D. M. Lierle, University Hospital, Iowa City.

AMERICAN BOARD OF PEDIATRICS: *Written*. Under local monitors, June 24. *Oral*, Cleveland, Sept. 16-18; New York City, Oct. 21-23; Chicago, Dec. 9-11. Sec., Dr. John McK. Mitchell, 6 Cushman Road, Rosemont, Pa.

AMERICAN BOARD OF PHYSICAL MEDICINE. Philadelphia, June 4-5. Sec., Dr. R. L. Bennett, 30 N. Michigan Blvd., Chicago.

AMERICAN BOARD OF PLASTIC SURGERY: Examinations are given in June and November of each year in the home town of applicants. Sec.-Treas., Dr. Louis T. Byars, 400 Metropolitan Bldg., St. Louis, Mo.

AMERICAN BOARD OF PSYCHIATRY AND NEUROLOGY, Inc. *Special Examination*, October. Place to be announced. Final date for filing application is July 15. December, New York City. Sec. Dr. F. J. Braceland, 102-110 Second Ave., S.W., Rochester, Minn.

AMERICAN BOARD OF RADIOLOGY. Atlantic City, June 2-4. Sec., Dr. B. R. Kirklin, 102-110 Second Ave., S.W., Rochester, Minn.

AMERICAN BOARD OF SURGERY: *Written*. Various Centers, October 26. Final date for filing application is July 1. Sec., Dr. J. Stewart Rodman, 225 S. 15th St., Philadelphia.

AMERICAN BOARD OF UROLOGY: *Written*, December. *Oral and Clinical*, Chicago, Feb. 11-15. Final date for receipt of case histories is Sept. 1, 1949. Sec., Dr. Harry Culver, 7935 Sunnyside Road, Minneapolis 18, Minn.

BOARDS OF MEDICAL EXAMINERS

ALABAMA: *Examination*. Montgomery, June 28-30. Sec., Dr. D. G. Gill, 519 Dexter Ave., Montgomery.

ARKANSAS: * Little Rock, June 9-10. Sec., Dr. L. J. Kosminsky, Texarkana. *Eclectic*. Little Rock, June 9-10. Sec., Dr. C. H. Young, 1415 Main St., Little Rock.

CALIFORNIA: *Examination*. San Francisco, June 21-23. Sec., Dr. Frederick N. Scatena, 1020 N St., Sacramento.

COLORADO: * *Examination*. Denver, June 20-22. Sec., Dr. W. W. King, 831 Republic Bldg., Denver.

DELAWARE: Dover, July 12-14. Sec., Dr. J. S. McDaniel, 229 South State St., Dover.

FLORIDA: * *Examination*. Jacksonville, June 26-28. Sec., Dr. Frank D. Gray, 12 N. Rosalind Ave., Orlando.

GEORGIA: *Examination*. June 8-9, Atlanta and Augusta. *Reciprocity*. Atlanta, June. Sec., Mr. R. C. Coleman, 111 State Capitol, Atlanta.

GUAM: *Endorsement*. Agaña, Last Friday of each month. Sec., Capt. C. K. Youngkin, Dept. of Public Health, Guam. % F.P.O., San Francisco, Calif.

HAWAII: * *Examination*. Honolulu, July 11-14. Sec., Dr. S. E. Doolittle, 881 S. Hotel St., Honolulu.

IDAHO: Boise, July 11-13. Sec., Miss Estella S. Mulliner. Bureau of Occupational Licenses, 355 State House, Boise.

INDIANA: *Examination*. Indianapolis, June 21-23. Sec. Board of Medical Registration and Examination. Dr. Paul R. Tindall, 416 K. of P. Bldg., Indianapolis.

IOWA: * *Examination*. Iowa City, June 13-15. Sec., Dr. M. A. Royal, 506 Fleming Bldg., Des Moines.

KANSAS: Kansas City, June 1-2. Sec., J. F. Hassig, 905 North 7th St., Kansas City, Kans.

KENTUCKY: *Examination*. Louisville, June 15-17. Sec., Dr. Bruce Underwood, 620 S. 3rd St., Louisville 2.

MAINE: Augusta, July 5-6. Sec., Dr. Adam P. Leighton, 192 State St., Portland.

MARYLAND: *Examination*. Baltimore, June 21-24. Sec., Dr. Lewis P. Gundry, 1215 Cathedral St., Baltimore. *Homoeopathic*. Baltimore, June 14-15. Sec., Dr. John A. Evans, 612 West 40th St., Baltimore.

MASSACHUSETTS: *Written*. Boston, July 12-15. Sec., Dr. George L. Schadt, 413 E. State House, Boston.

MICHIGAN: * *Written*. Detroit and Ann Arbor, June 13-15. Sec., Dr. J. Earl McIntyre, 203 Hollister Bldg., Lansing.

MISSISSIPPI: Jackson, June 21-22. Asst. Sec., Dr. R. N. Whitfield, State Board of Health, Jackson.

MISSOURI: *Examination*. St. Louis, May 30-31 and June 8-10. Exec. Sec., Mr. John A. Hailey, Box 4, Jefferson City.

MINNESOTA: * Minneapolis, June 21-23. Sec., Dr. Julian F. DuBois, 230 Lowry Medical Arts Bldg., St. Paul 2.

MONTANA: Helena, Oct. 3-5. Sec., Dr. Otto G. Klein, First National Bank Bldg., Helena.

NEBRASKA: * *Examination*. Omaha, June 6-8. Dir., Bureau of Examining Boards, Mr. Oscar F. Humble, 1009 State Capitol Building, Lincoln 9.

NEW JERSEY: *Examination*. Trenton, June 21-24. Sec., Dr. E. H. Hallinger, 28 West State Street, Trenton 8.

NEW YORK: Albany, Buffalo, New York and Syracuse, June 28-July 1. Sec., Dr. Jacob L. Lochner, 23 South Pearl St., Albany.

NORTH CAROLINA: *Examination*. Raleigh, June 23-25. Sec., Dr. Ivan Proctor, 226 Hillsboro St., Raleigh.

NORTH DAKOTA: * *Written*. Grand Forks, July 5-7. *Reciprocity*. Grand Forks, July 8. Sec., Dr. C. J. Glaspel, Grafton.

OHIO: *Examination*. Columbus, June 15-18. *Endorsement*, Columbus, July 5. Sec., Dr. H. M. Platter, 21 W. Broad St., Columbus.

OKLAHOMA: * Oklahoma City, June 8-9. Sec., Dr. Clinton Gallaher, 813 Braniff Bldg., Oklahoma City.

PENNSYLVANIA: *Examination*. Philadelphia and Pittsburgh, July. Acting Sec., Mrs. B. G. Steiner, 351 Education Bldg., Harrisburg.

PUERTO RICO: San Juan, Sept. 6-10. Sec., Dr. Luis Cueto Coll, Box 3717, Santurce.

RHODE ISLAND: * *Examination*. Providence, July 7-8. Chief, Mr. Thomas B. Casey, 366 State Office Bldg., Providence.

SOUTH CAROLINA: *Examination*. Columbia, June 27-29. *Endorsement*. Columbia, June 27-28, Aug. 1, Sept. 5 and Oct. 3. Sec., Dr. N. B. Heyward, 1329 Blanding St., Columbia.

SOUTH DAKOTA: * *Examination*. Pierre, July 19. Sec., Dr. G. J. Van Heuvelen, Capitol Bldg., Pierre.

TEXAS: *Examination*. Austin, June 16-18. Sec., Dr. M. H. Crabb, 209 Medical Arts Bldg., Fort Worth 2.

UTAH: *Endorsement*. Salt Lake City, May 25. *Examination*, Salt Lake City, July 13-15. Sec., Dept. of Registration, Miss Rena B. Loomis, 324 State Capitol Bldg., Salt Lake City.

VIRGINIA: *Examination*. Richmond, June 17-18. *Reciprocity*. Richmond, June 16. Dr. K. D. Graves, 631 First St., S.W., Roanoke.

WASHINGTON: * Seattle, July. Sec., Mr. Edward C. Dohm, Department of Licenses, Olympia.

WISCONSIN: * *Examination*. Milwaukee, June 28-30. Sec., Dr. C. A. Dawson, Tremont Bldg., River Falls.

WYOMING: Cheyenne, June 20. Sec., Dr. Franklin D. Yoder, Capitol Bldg., Cheyenne.

* Basic Science Certificate required.

BOARDS OF EXAMINERS IN THE BASIC SCIENCES

ALASKA: Feb. 1950. Sec., Dr. C. Earl Albrecht, Box 1931, Juneau.

ARIZONA: Tucson, June 21. Sec., Mr. Francis A. Roy, Science Hall, University of Arizona, Tucson.

COLORADO: *Examination*. Denver, June 1-2. Sec., Dr. Esther B. Starks, 1459 Ogden St., Denver.

CONNECTICUT: New Haven, June 11. Exec. Asst., State Board of Healing Arts, Miss Mary G. Reynolds, 110 Whitney Ave., New Haven 10.

FLORIDA: *Examination*. Gainesville, June 11. Sec., Mr. M. W. Emmel, University of Florida, Gainesville.

MINNESOTA: *Examination*. June and Oct. Sec.-Treas., Dr. Raymond N. Bieter, 105 Millard Hall, Univ. of Minnesota, Minneapolis.

OREGON: Portland, June 18, Sept. 3 and Dec. 3. Sec., Mr. Charles D. Byrne, State Board of Higher Education, Eugene.

SOUTH DAKOTA: Vermillion, June 3-4. Dr. G. M. Evans, 310 E. 15th St., Yankton.

TENNESSEE: Memphis, July 8-9. Sec., Dr. O. W. Hyman, 874 Union Ave., Memphis 3.

WISCONSIN: Milwaukee, June 4, Sept. 24 and Dec. 3. Sec., Prof. W. H. Barber, Ripon College, Ripon.

Council on Medical Education and Hospitals

COOPERATIVE PLAN FOR THE APPOINTMENT OF INTERNS

The following new agreement for internship appointments has been approved by the Association of American Medical Colleges, the Council on Medical Education and Hospitals of the American Medical Association and the American Hospital Association.

This plan for 1949 will apply only to undergraduate students in the fourth year of their medical school course.

Application for Internships.—1. Applications are to be filed with the hospitals beginning on the third Tuesday in October (Oct. 18, 1949).

2. Application should be made in duplicate; the original to be forwarded to the dean of the applicant's medical school for transmission together with credentials to the hospital or hospitals of the applicant's choice; the second copy to be mailed directly to the hospital or hospitals by the applicant.

3. The application may be accompanied by letters of recommendation from faculty members. Such letters of recommendation shall not be routinely requested by hospitals.

4. The number of applications filed shall not be limited in number.

Tendering of Internship Appointments.—1. The tendering of internship appointments by hospitals shall be made by telegram. No telegram shall be sent which will arrive prior to 12:01 a. m. of the third Tuesday in November (Nov. 15, 1949). Telegrams may be filed in advance for delivery at 12:01 a. m.

Applicants may visit hospitals and be interviewed by the intern committee, but the hospital or its representative shall not commit the hospital or the applicant before Nov. 15, 1949.

2. Hospitals may notify alternates of their status at the same time and in the same manner as their first choice candidates.

Acceptance of Appointments.—1. Acceptance of appointments should be made promptly. Applicants should be allowed a reasonable period of time to consider appointment offers, but no specified waiting period after 12:01 a. m. is obligatory.

2. On acceptance of an appointment, prompt notification of withdrawal of applications to other hospitals which have offered appointments should be made.

1950 GRADUATES OF THE UNIVERSITY OF WASHINGTON SCHOOL OF MEDICINE

The Council on Medical Education and Hospitals has ruled that students who will graduate from the University of Washington School of Medicine in 1950 will be considered for purposes of internship appointment as if they had graduated from an approved medical school. Hospitals approved for intern training will not lose their approved status if they accept these students for internships.

Since its organization, the development of the University of Washington School of Medicine has been followed closely by the Council. In accordance with long-standing policy, however, approval is not granted any medical school until representatives of the Council survey the school after instruction has been instituted in all four years of the medical course. The first senior class at the University of Washington will not be enrolled until the fall of 1949. Inspection of the school, therefore, cannot be carried out in time to include the findings of the survey in the 1949 Educational Number of THE JOURNAL, which will be used by hospitals for determining whether applicants for internships are graduates of approved medical schools.

If the University of Washington School of Medicine is included on the Council's approved list in 1950, the work of all students in good standing at the school at the time the Council's representatives survey the school will be fully accredited.

GRADUATE TRAINING PROGRAMS ACCEPTABLE BY THE AMERICAN BOARD OF PSYCHIATRY AND NEUROLOGY

The Council on Medical Education and Hospitals has limited its approval of programs for graduate training to those offered in connection with general or special hospitals. The following information is published, however, at the request of the American Board of Psychiatry and Neurology to indicate the availability of a special type of training which is acceptable to the board and carries full credit toward certification by that board.

Requirements for Acceptance

In order to facilitate the arrangements for training in child psychiatry (which constitutes a major aspect of modern psychiatry), the American Board of Psychiatry and Neurology will accept one year of training in psychiatric clinics for children which may or may not be a part of a hospital approved for residency training, provided such a clinic gives adequate supervision and instruction for full time training during the entire third year of the required three year formal training period. For the purpose of evaluating such clinics, the following conditions and criteria are deemed essential by the American Board of Psychiatry and Neurology:

1. That the clinic have a full time medical director, psychologist, and social worker qualified by training and experience in child psychiatry and allied fields to supervise the training of residents.

2. That the major portion of such training be devoted to therapy adequately supervised by this qualified staff.

3. That the service and teaching activities of the clinic be integrated with those of the community and its social agencies.

4. That clinic work be supplemented by seminars, case conferences, journal clubs or other opportunities for the discussion of the basic principles involved in outpatient work with children and parents, teacher, public health and welfare agency personnel.

5. That such a training clinic be well established in the community with a qualified staff that has operated together long enough as a team to insure stable and sound functioning.

6. That the senior members of the clinic team show evidence of previous experience in the teaching of psychiatry in general, child psychiatry in particular, and their allied fields.

These criteria set forth by the Board pertain more particularly to community-sponsored clinics offering full time training in child psychiatry during the third year of formal residency training. If these clinics are affiliated with hospitals already maintaining approved programs, separate approval is not required unless warranted on the basis of their meeting all requirements for straight fellowship training in child psychiatry.

The following clinics are acceptable to the American Board of Psychiatry and Neurology as qualifying under these provisions.

Center	Director
Children's Psychiatric Division, Langley-Porter Clinic, San Francisco	Dr. Stanislaus Szurek
Institute for Juvenile Research, 907 S. Wolcott Ave., Chicago	Dr. Sophie S. Sloman
Louisville Mental Hygiene Clinic and Child Study School, 610 S. Floyd St., Louisville, Ky.	Dr. Spafford Ackerly
The Guidance Center, 1737 Prytania St., New Orleans	Dr. Milton E. Kirkpatrick
The Psychiatric Clinic of the Mental Hygiene Society of Maryland, Baltimore	Dr. H. Whitman Newell
Children's Center, 244 Townsend St., Roxbury, Mass.	Dr. Marian Putnam and Mrs. Beata Rank, co-directors
Judge Baker Guidance Center, 38 Beacon St., Boston	Dr. George E. Gardner
Amherst H. Wilder Clinic, 279 Rice St., St. Paul	Dr. Hyman S. Lippman
Central Clinic, Cincinnati General Hospital, Cincinnati	Dr. Maurice Levine
Child Guidance Clinic, 1711 Fitzwater St., Philadelphia 46	Dr. Frederick H. Allen
Pittsburgh Child Guidance Clinic, 3004 Victoria St., Pittsburgh 13	Dr. Harry M. Little
Children's Service Center of Wyoming Valley, 335 South Franklin St., Wilkes-Barre, Pa.	Dr. J. Franklin Robinson

RESIDENCY TRAINING IN RADIOLOGY

A survey of hospitals approved for residency training in radiology is contemplated by the American Board of Radiology, in cooperation with the Council on Medical Education and Hospitals. This survey will include those hospitals which are presently fully approved, approved on a temporary basis or have applied for approval.

According to a recent announcement of the board regarding its plans, the inspection work will require the assistance of forty to fifty radiologists who will visit the radiology department of each hospital included in the survey. The board has estimated that the project will require several months to complete.

Medical Motion Pictures

FILM REVIEWS

Fractures, An Introduction. 16 mm., color, sound, 1,000 feet (1 reel), showing time twenty-six minutes. Prepared in 1948 by The American College of Surgeons under the medical supervision of Harrison L. McLaughlin, M.D., New York. Produced by Eddie Albert Productions, Hollywood, under a grant by and procurable on loan from the Johnson & Johnson Research Foundation, Orthopedic Division, New Brunswick, N. J.

This motion picture deals with fundamental concepts of fractures and by means of specific examples, well chosen to illustrate certain common types, forcefully drives home lessons of physiology, pathology and treatment.

It begins with the actual mechanism of fracture, such as by tripping and falling on an outstretched hand, depicting certain fractures that may occur from such injury. Effects on the body as a whole are stressed; the possible injuries distant from the fracture, the adjacent soft tissue involvement and the elements that contribute to the displacement of the fragmented bones. Recognition of the associated pathologic changes is emphasized and treatment illustrated. Consideration is given to the patient as an individual who has a specific job awaiting his return.

Several common types of fractures are shown in detail. Physiology of repair according to present concepts is demonstrated. The necessity for obtaining desirable alignment and immobilization is depicted. Examples of the unsatisfactory results which may occur without proper treatment are illustrated. Actual manipulations on a patient are seen during reduction of a fracture of the upper extremity. Brief mention is made of the desirability of various forms of traction for certain fractures and the occasional necessity for open reduction and fixation. Since it is a fundamental teaching film the more specialized methods of fracture treatment are properly kept in the background.

The application of plaster splints and the follow-up care of a patient wearing plaster are seen. Common complications of plaster immobilization are mentioned and treatment illustrated. The patient is seen exercising various parts of the body to gain strength and improve motion, and the interest of the surgeon in returning the patient to his position in as perfect condition as possible is evident.

This film is an excellent example of what can be done to improve the teaching of fracture treatment. It could well be used at the beginning course in fractures and repeated at the end of the course. In order to expand on certain points and to deviate toward more specific treatment, it would have been valuable to have a set of slides accompany the film.

From a production standpoint, the film is well done in every respect. The animation and roentgen reproductions are especially good.

The success of this film should encourage the production of other films showing in detail the various forms of traction, internal fixation, treatment of malunions and nonunions and other elements concerned in fracture treatment.

Supracondylar Leg Amputation. 16 mm., color, silent, 290 feet, showing time thirteen minutes. Prepared in 1947 by and procurable on loan or purchase from Philip Thorek, M.D., 25 East Washington Street, Chicago 2.

This is a record type film showing a supracondylar type of leg amputation in which a simple circular incision is utilized without attempt to form flaps. Each structure is individually isolated, ligated and severed.

The type of amputation is relatively common with a few modifications of the surgeon demonstrating the procedure. The strong points of the film are the excellent dissection of the soft tissues and careful exposure of each structure. The careful handling of all tissues is commended.

The weak points of the film from the technical side are the excessive showing of hemostats and suturing, the photographing of many heads and hands that obstruct the view of the actual

work and the extraneous material photographed in the background.

The professional objections might be listed as: (1) the use of a film on amputation without even a tourniquet's being shown available in case of necessity; (2) the unnecessary length of exposure and time consumed in detailed work that could be done rapidly without unnecessarily endangering the operative procedure; (3) the use of nonabsorbable suture material throughout, which in many operations might be contraindicated; (4) placing of the resultant scar on the distal end of the stump, which is not always the best place for a scar for modern types of prosthesis; (5) the use of alcohol injections into the nerve trunk, which is open to question in modern amputation, and (6) the treatment of the periosteum at the distal end of the amputation stump, which is opened to some technical questioning.

This film would be best viewed by specialists who could properly evaluate the advantages and disadvantages of the material depicted. It is not recommended for general practitioners, residents, interns or medical students, who, because of limited experience in amputations, might not be able to evaluate the material properly. It contributes little to the present knowledge of amputations and because of its individual approach to the subject has the inherent danger of formulating ideas that may not stand the test of time.

Portacaval Shunt for Portal Hypertension. 16 mm., color, silent, 425 feet (1 reel), showing time fifteen minutes. Prepared in 1948 by and procurable on loan or purchase from Philip Thorek, M.D., 25 East Washington Street, Chicago 2.

The operative procedure used in end to side portacaval shunt on a patient with a diagnosis of cirrhosis of the liver associated with ascites is illustrated. There is no mention of bleeding esophageal varices, which is generally felt as the real indication for this operative procedure. In this case the liver did not appear too severely damaged and the ascites not extreme. Good medical management will greatly relieve many of these patients, particularly if sufficient protein is given to elevate the plasma albumin to a normal range; if this is accomplished, the ascites can be controlled. This treatment should have been tried on the patient, although little knowledge of the past history is given in the picture.

The operative technic is not well shown. Some of the finer technical details are skipped, such as the anastomosis between the open end of the portal vein and the side of the vena cava. Mention is not made of the end results.

From a photographic standpoint, the color quality is good; however, in several scenes the surgical field is not centered on the screen. A better camera angle would have shown some of the technics more clearly, especially those in the deeper cavities.

This film cannot be recommended as a teaching aid.

Supra-Aortic Esophagogastrostomy for Carcinoma of the Midportion of the Esophagus. 16 mm., color, silent, 975 feet (3 reels), showing time thirty-eight minutes. Prepared in 1948 by and procurable on loan or purchase from Philip Thorek, M.D., 25 East Washington Street, Chicago 2.

This film shows in detail surgical removal of a carcinoma of the midportion of the esophagus and the technic of mobilization of the stomach and its anastomosis to the remaining supra-aortic portion of the esophagus. The history, roentgenograms and esophagoscopy findings are briefly presented. The surgical procedure illustrating the actual technical phases and important steps of the operation are outlined, and landmarks are well depicted. The patient is shown on succeeding postoperative days and on the tenth postoperative day eating a liquid and soft diet without difficulty. Roentgenograms taken before and after operation are shown.

While this is a long complicated operation involving many separate steps, the film is possibly a little too long. Judicious editing would not destroy the purpose of the film.

This production should be suitable for general surgeons, otolaryngologists, residents and interns.

The field wanders on the screen; otherwise the photography is good.

Bureau of Legal Medicine and Legislation

MEDICOLEGAL ABSTRACTS

Health Departments: Right to Reimburse Executive for Expenses at Medical Meeting.—The Louisville and Jefferson County Board of Health reimbursed one of its executives for expenses incurred in attending a meeting of the Southern Branch of the American Health Association held in Memphis, Tenn. The board contended that it was necessary for certain of its executives and employees to make outstate trips in attending such meetings to obtain and collect information regarding public health practices, that this travel was undertaken by its executives and employees to qualify and equip themselves more fully and intelligently to carry out the duties demanded by the public health of the community, that the trip was for public purposes and benefits and that the information thus obtained was utilized in public health administration. The trial court held that the board was without authority to pay the expenses of its members or employees in attending medical meetings, schools, institutions or conferences to better qualify themselves to discharge their duties. From this judgment the board appealed to the Court of Appeals of Kentucky.

The defendant board was created as a city-county board of health, and the statute creating it provided, among other things: "The board may expend funds for the purpose of conducting research work, including laboratory and biometrical work, and establishing, erecting and maintaining laboratories and other buildings and all appurtenances thereto for research work as to the prevalence, causes, cure and prevention of disease, and to that end the board is authorized to expend funds in the employment of such persons or organizations, scientists or research experts as the board may deem proper. The board shall be charged with the responsibility for the collection from official and other sources and for the publication of such statistics and information as may be useful and necessary for the performance of its duties. . . ."

The board admits, said the Court of Appeals, that all of its power is derived from the legislature and that there is no specific statutory authorization for reimbursement to its executives or employees of expenses incurred in attending medical meetings and conventions in search of information on health. If such expenses are legitimate, continued the court, they arise by necessary implication in carrying out expressly conferred powers. The excerpt quoted herein authorizes the board to expend funds for the purpose of conducting research work and charges it with responsibility for the collection and publication from official and other sources of such statistics and information as may be useful in the performance of its duties. These and other broad powers conferred on the board by the statute, the court continued, come very near expressly authorizing it to pay the expenses of its officers and personnel in attending medical meetings. Certainly, by necessary implication, the statute authorizes this expenditure, since there is hardly any other practical way whereby the information can be obtained by public health officers except in attending such medical meetings. It may be argued that they could remain at home and gather this information by reading medical journals and the proceedings of meetings held by doctors. But it is common knowledge that hearing some eminent specialist lecture, engaging him in conversation thereafter and seeing him demonstrate and put into practice his theory, is much more enlightening than reading of it in a journal. It appears that at the meeting in question there was a discussion on the common problems of health administration by the board's representative with other members who attended a symposium on hospital and sanitary construction; also, he attended another symposium on tuberculosis, its control in urban and rural communities; another on public health administration, and another on recruiting and training of public health personnel.

The record showed that of an appropriation of \$1,877,000 for the fiscal year there had been expended in outstate travel up

to the time of the filing of the suit in May only the sum of \$1,603. Therefore, said the court, it can hardly be said that the board was allowing an unusual amount of its budget to be spent in outstate travel in collecting information and statistics relative to their duties as public health officers. It appeared that a resolution was adopted by the board providing that travel allowance could be approved only if directed by the Director of Health. The expense was limited to \$10 per day and actual railroad fare, and 25 per cent of the entire expense had to be borne by the person making the trip. This resolution, said the court, is persuasive that the board intended to see that no abuse occurs in outstate travel. However, should abuse arise, then an aggrieved party has access to the courts. So in the case at bar, the court concluded, when the legislature authorized the board to "expend funds for . . . research" and charged it with the responsibility "for the collection from official and other sources and for the publication of such statistics and information as may be useful and necessary for the performance of its duties," the necessary implication is that the board may bear the expense of its officers and employees in attending medical meetings outside of the state where such research information and statistics may be found. Accordingly the judgment denying the expenditure was reversed. *Louisville and Jefferson County Board of Health v. Steinfeld*, 215 S. W. (2d) 1011 (Ky., 1948).

Malpractice: Surgeon's Liability for Nurse's Actions.—This was an action for damages resulting from the alleged negligence of the defendant physician. From a verdict and judgment for the defendant, the plaintiff appealed to the court of appeals of Ohio, Hamilton County.

The defendant physician operated on the plaintiff to remove an abscess from the lung. To do this, it was necessary to pack the pleural cavity with paraffin to prevent the infection from spreading when the abscess was opened. A later operation was performed to drain the abscess and remove the paraffin, and it was in connection with this second operation that it was asserted that the defendant was negligent. In performing this operation either of two types of electrical machines could be used, each requiring a different technic. The defendant physician instructed the hospital attendants to prepare an operating room and supply a Davis Bovie machine. When he arrived at the assigned room, he found a Davis Bovie machine was there, proceeded to test it, found that it was in good working condition and then repaired to the scrub room to prepare for the operation. After rendering himself antiseptic, he immediately went back to the operating room, where he found the plaintiff draped for the operation and the electrical machine in position, but as usual hidden from view of the surgeon by a screen between it and the operating table, excepting the attachments used by him in performing the operation. As a matter of fact, while the defendant was in the scrub room, attendants of the hospital had removed the Davis Bovie machine and substituted therefor a Fisher machine. The defendant was not informed of this substitution and proceeded with the operation as though with a Davis Bovie machine. The result was that the plaintiff received a severe third degree burn on the outer surface of the right thigh, where his leg rested on the electrode of the machine.

The plaintiff argued that even if the defendant could not be charged with personal knowledge that a Fisher machine had been substituted for the Davis Bovie machine, the scrub nurse knew of the substitution and her knowledge was attributable to the defendant as a matter of law. She was an employee of the hospital, said the court, charged with the duty of preparing the room and the instruments and of supplying the instruments to the surgeon during the progress of the operation. The defendant had no right to direct as to the mode or manner of preparing the room for the operation.

We are of the opinion, concluded the court of appeals, that the scrub nurse was not in any sense an employee of the defendant in the task of preparing the room preceding the actual beginning of the operation and that whatever negligence occurred in that connection cannot be attributed to the surgeon. Accordingly, the judgment of the trial court in favor of the physician was affirmed. *Clary v. Christiansen*, 83 N. E. (2d) 64 (Ohio, 1948).

Current Medical Literature

AMERICAN

The Association library lends periodicals to members of the Association and to individual subscribers in continental United States and Canada for a period of three days. Three journals may be borrowed at a time. Periodicals are available from 1938 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 18 cents if three periodicals are requested). Periodicals published by the American Medical Association are not available for lending but can be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

American Journal of Medical Sciences, Philadelphia 216:605-732 (Dec.) 1948

- Millikan Oximeter in Recognition and Treatment of Anoxemia in Clinical Medicine. L. Godfrey, H. S. Pond and F. C. Wood.—p. 605.
Studies on Blood Histamine Partition of Blood Histamine Before and After Clotting in Health and Disease States. W. N. Valentine and J. S. Lawrence.—p. 619.
Interrelationship of Hodgkin's Disease and Other Lymphatic Tumors. R. P. Custer and W. G. Bernhard.—p. 625.
Hematologic and Histologic Study of Bone Marrow and Peripheral Blood of Adult Dog. P. E. Rekers and Molly Coulter.—p. 643.
Negative Effect of Folic Acid on Irradiation Leukopenia in Cat. W. S. Adams and J. S. Lawrence.—p. 656.
Severity and Duration of Hypertension in Relation to Amount of Cardiac Hypertrophy. B. R. Stein and Arlie R. Barnes.—p. 661.
Study of Comparative Value of Tetrathylammonium Bromide and Diagnostic Spinal Anesthesia in Selection of Hypertensive Persons for Sympathectomy. L. A. Soloff, W. E. Burnett and C. T. Bello.—p. 665.
Electrocardiographic and Clinical Studies on Action of Ergotamine Tartrate and Dihydro-Ergotamine 45. D. Scherf and M. Schlachman.—p. 673.
*Use of Quinidine Sulfate in Treatment of Hiccup: Preliminary Report. S. Bellet and C. S. Nadler.—p. 680.
Sulfate and Phosphate Excretion in Urine of Patients on Rice Diet. W. Kempner, J. M. Lesesne, Barbara Newborg and C. F. Whicker.—p. 687.
*Brucellosis and Multiple Sclerosis: Cutaneous Reactions to Brucella Antigens. E. R. Kyger Jr. and R. L. Haden.—p. 689.
Endometriosis. G. H. Amsterdam.—p. 694.
Liver Diseases of Infancy and Childhood: Brief Summary of Reports and Papers, 1934-1948. I. J. Wolman and J. D. Farquhar.—p. 704.

Quinidine Sulfate for Hiccup.—Bellet and Nadler report on the use of quinidine in 9 cases of hiccup. Quinidine stopped the paroxysms in 6 cases, was partially successful in 2 and failed in 1 case. The usual methods of treatment had been tried in most of these patients without success. The authors are not certain as to the dose of the drug and frequency of administration which may be necessary to stop a paroxysm. It is suggested that an initial dose of 10 grains (0.6 Gm.) preferably given by the intramuscular route, be repeated hourly for three to four doses. If the paroxysm stops, the patient may be put on a maintenance dose of 5 grains (0.3 Gm.) orally every two to three hours. If the paroxysm recurs, the initial high doses should be repeated. The authors feel that quinidine could stop a paroxysm of hiccup in two ways: (1) by a direct effect of the drug on the diaphragm as well as on the muscles of respiration, and (2) by blocking the nerve impulses at the myoneural junction. There is some suggestive evidence that this drug may have a direct effect on nerve tissue which may block impulses through the vagus and other nerves.

Brucellosis and Multiple Sclerosis.—According to Kyger and Haden acute brucellosis may produce meningitis, encephalitis and encephalomyelitis. They have reviewed 560 cases of chronic brucellosis to determine the frequency of neurologic symptoms. Their observations suggest that multiple sclerosis might be a central nervous system manifestation of chronic brucellosis. In order to investigate this hypothesis, 118 consecutive patients with multiple sclerosis were subjected to skin tests with Brucella antigens. The skin tests indicate a high degree of cutaneous reactivity to Brucella antigens. The authors also point out that areas of greatest frequency of multiple sclerosis in the United States are in the Pacific Northwest and in the Great Lakes basin; brucellosis of the abortus type is prevalent in these same areas. The question arises as to whether the concept of brucellosis as an etiologic agent in multiple sclerosis is compatible with the pathogenesis of the latter disorder. Andren contends that neither the possibility of local allergy nor the theory of virus etiology necessarily

precludes the possibility of vasoconstriction or vascular occlusion as the basic mechanism in multiple sclerosis. The same statement could be applied to brucellosis; perivascular infiltration and small vessel thromboses have been noted as basic components of the granulomatous lesions produced by it. The plaque-like lesions seen in cases of Brucella chorioretinitis are certainly comparable to the plaques of multiple sclerosis, and both chorioretinitis and iritis have been seen in a few of the patients of this study.

American J. Obstetrics and Gynecology, St. Louis

56:1021-1228 (Dec.) 1948. Partial Index

- Role of Surgery in Treatment of Carcinoma of Cervix. C. D. Read.—p. 1021.
Newer Concepts of Menstruation. I. H. Kaiser.—p. 1037.
Leiomyosarcoma of Uterus: Report of 16 Cases, 1917 to 1948. G. H. Davis, J. S. Howe and W. G. French.—p. 1048.
*Endometriosis as Cause of Ileal Obstruction. P. E. McGuff, J. M. Waugh, M. B. Dockerty and L. M. Randall.—p. 1059.
Acute Hydramnios. P. F. Mueller.—p. 1069.
Cervical Obstruction with Inflatable Cannula in Uterotubal Insufflation and Hysterosalpingography. I. C. Rubin and E. Myller.—p. 1077.
*Diagnosis of Genital Malignancy by Vaginal Smears. J. R. Kernodle, W. K. Cuyler and W. L. Thomas.—p. 1083.
Critical Survey of Questionable Pelvis. H. H. Groskloss, O. F. Robbins and J. T. Moehn.—p. 1090.
Comparative Study of Efficacy of Certain Drugs in Promoting Evacuation of Female Bladder Following Gynecologic Operations. C. Lintgen.—p. 1112.
Simultaneous Intrauterine and Extrauterine Pregnancy. R. W. Devoe and J. H. Pratt.—p. 1119.
Habitual Abortion: Pathologic Analysis of 100 Cases. R. L. Wall Jr. and A. T. Hertig.—p. 1127.
Necropsy Findings in Patients with Carcinoma of Cervix: Implications for Treatment. A. Brunschwig and Virginia Pierce.—p. 1134.
Cystoscopy and Pyelography Following Paravesical Extraperitoneal Cesarean Section. Edith K. Mangone.—p. 1138.
Bacteriology of Fallopian Tubes Removed at Operation. Marie L. Koch.—p. 1142.
Statistical Report of 1,771 Cases of Hysterectomy. W. C. Weir.—p. 1151.
Rate of Renewal in Woman of Water and Sodium of Amniotic Fluid as Determined by Tracer Technics. G. J. Vosburgh, L. B. Flexner, D. B. Cowie and others.—p. 1156.
*Rh Sensitization in Primipara Caused by Intramuscular Injection of Human Serum Resulting in Fatal Erythroblastosis. J. T. Wallace, A. Wiener and Margaret H. Doyle.—p. 1163.

Endometriosis Causing Ileal Obstruction.—McGuff and his associates of the Mayo Clinic analyzed the clinical data on 16 cases in which ileal obstruction was caused by endometriosis. Three of these cases are from their clinic and 13 are cited from the literature. They stress the following as important factors in the diagnosis of endometriosis causing ileal obstruction: (1) sterility of more than ten years' duration, (2) increasing acquired dysmenorrhea, (3) menstrual periodicity in the symptoms of endometriosis and moderately progressive ileal obstruction and (4) the presence, in half of the cases, of tender nodules in the cul-de-sac of Douglas or along the uterosacral ligaments, or of uterine fibroids or ovarian cysts. Obstruction of the distal part of the ileum by endometriosis often has been thought clinically to be appendicitis accompanied by ileus. The symptoms of endometriosis can be elicited if a thorough history is taken. The treatment of choice in ileal obstruction caused by endometriosis is ileal resection, with or without preliminary ileocolostomy or enterostomy and with or without bilateral oophorectomy and/or hysterectomy, as indicated by the presence and degree of the associated pelvic pathologic processes. Ileal obstruction was found to be due, usually, to kinking caused by the adhesions of endometriosis and, to a lesser degree, to the impingement of the endometrioma into the intestinal lumen. Endometriomas of the ileum were more superficial in location than those of the pelvic part of the colon. Endometrial glands and stroma were found in all layers of the intestinal wall except the mucosa, more prominent in the muscularis propria and the serosa. Histologic examination of frozen sections of tissue and pathologic confirmation of endometriosis as the cause of ileal obstruction are imperative, because a malignant process can be excluded only by this procedure.

Diagnosis of Genital Cancer by Vaginal Smears.—Kernodle and his associates say that smears are being taken from all new patients who come to the obstetric and gynecologic clinic of Duke University. Vaginal and cervical smears, and

frequently endocervical or endometrial smears are made. So far 6,753 smears have been studied from 1,709 patients. Malignancy was diagnosed by means of the smear technic of Papanicolaou and Traut in 114 of the 124 in whom cancer was verified by pathologic studies; that is, the percentage of error was 8.1. False positive diagnoses were made in 34 of 1,585 patients; a percentage error of 2.1. Case histories of 9 patients are given to illustrate the diagnosis of genital carcinoma by the vaginal smear method. These include squamous cell carcinoma of the cervix, 5; squamous cell carcinoma of the vulva, 1; sarcoma of the uterus, 1, and chorionepithelioma, 1. Those patients having squamous cell carcinoma of the cervix show that the diagnosis of cancer sometimes may be made earlier by smears than by the biopsy method. Primary adenocarcinoma of the oviduct was revealed in the vaginal smears of one patient. One patient with adenocarcinoma of the endometrium in which smears were negative even when they were obtained from the tumor surface is reported to show weakness of the smear method.

Rh Sensitization Caused by Intramuscular Injection of Human Serum.—Wallace and his associates say that it is now generally recognized that transfusions or even intramuscular injections of Rh-positive blood are far more potent in sensitizing Rh-negative persons than is pregnancy with Rh-positive fetuses. Thus, while only 1 of about 25 Rh-negative women bearing Rh-positive babies becomes sensitized to the Rh factor, fully one half of such persons can be sensitized by injections of Rh-positive blood. This difference is readily explained by the difference in quantity of antigen injected. The authors cite a primigravida who is presumed to have been sensitized to the Rh factor by an injection of pooled human serum, given as a prophylactic measure against poliomyelitis during childhood, and in whose baby fatal erythroblastosis developed. They emphasize that the injection of serum or plasma into the Rh-negative women may create Rh sensitization. The hazard of such injections is at times as great as that accompanying the injection of Rh-positive whole blood, and may deprive even primiparas of the opportunity of having normal babies. They urge that in taking obstetric histories careful inquiry be made into whether such injections have been received by the patient. It is likewise recommended that all physicians exercise utmost care and discretion in the use of these substances. Since the preparation of this report, attention has been called by a California physician to a second case of erythroblastosis in a firstborn baby whose mother may have been sensitized by injection of pooled serum as a prophylactic measure against poliomyelitis.

American Journal of Public Health, New York

38:1635-1740 (Dec.) 1948. Partial Index

- Health Centers and Hospital Survey and Construction Act. V. M. Hoge.—p. 1653.
It Works in Seattle: Merged Official and Voluntary Public Health Nursing Agencies. E. E. Palmquist and Marguerite Prindiville.—p. 1663.
South Richmond Community Nursing Service. C. H. Eller and Catherine L. Austin.—p. 1669.
Chronic Typhoid Carrier: I. Natural Course of Carrier State. A. Littman, J. A. Vaichulis, R. Kaplan and W. H. Baer.—p. 1675.
*Penicillin or Silver Nitrate as Prophylactic Against Ophthalmia Neonatorum? C. Berens and F. M. Foote.—p. 1680.
Age Distribution of Poliomyelitis in New York City in Relation to Previous Epidemics. A. Yankauer Jr. and H. P. Goldberg.—p. 1683.
*Paper and Paper Board in the Food Industry—Public Health Aspects. F. W. Tanner.—p. 1688.

Penicillin or Silver Nitrate Against Ophthalmia Neonatorum.—Berens and Foote point out that practically all states have laws requiring the use of a prophylactic agent in the eyes of the newborn. In most instances the law either leaves to the discretion of the state health department the type of prophylactic agent to be used or specifies "1 per cent silver nitrate or equally effective agent." Recently silver nitrate has been attacked in the press as being ineffective and harmful. The authors show that there is no evidence that permanent damage results from the use of 1 or 2 per cent silver nitrate. Solutions left standing may reach a concentration as high as 50 per cent. For this reason, it has been suggested that silver acetate be substituted, since it appears equally effective but becomes saturated at 1.2 per cent. However, furnishing 1 per

cent silver nitrate in paraffin-lined beeswax ampules, as supplied by most health departments, has overcome danger to the eye from high concentration of the drug. A study by the National Society for the Prevention of Blindness in 1948 showed that there was no damage from silver nitrate among 112,035 live births and that many of the 67 cases of ophthalmia neonatorum occurring among this number were due to infections other than the gonococcus. If it should be established that penicillin or other antibiotic is as good as silver nitrate, it will be some time before the mode of administration, the strength of solution and many other important factors are determined. The authors conclude that no change concerning the use of prophylactic agents in the prevention of ophthalmia neonatorum should be recommended at the present time.

Paper in the Food Industry.—Tanner reviews the sanitary aspects of the use of paper containers for foods and stresses that coliform bacteria are absent in the pulp stream in paper mills and in finished paper. Bacteria are destroyed in paper mills by pulping under pressure with chemicals, bleaching with strong chlorine and passage over drier rolls heated to high temperature. Many species of bacteria die out in paper because of lack of moisture. Only aerobic spore-bearing bacteria survive. A bacterial count such as has been proposed for finished paper is of no value for determining the sanitary quality of paper.

Annals of Internal Medicine, Lancaster, Pa.

29:991-1220 (Dec.) 1948

- Intracellular Environment for Infectious Agents. E. W. Goodpasture.—p. 991.
Newer Analgesic Drugs; Their Use and Abuse. H. Isbell.—p. 1003.
Strongyloidiasis. L. H. Kyle, D. G. McKay and H. J. Sparling Jr.—p. 1014.
Electrocardiographic Response to Changes of Posture During Respiratory Arrest Following Deep Inspiration or Expiration: Clinical Significance. A. Leimdorfer.—p. 1043.
Hypertension as Reaction Pattern to Stress; Summary of Experimental Data on Variations in Blood Pressure and Renal Blood Flow. S. Wolf, J. B. Pfeiffer, H. S. Ripley and others.—p. 1056.
Aureomycin—New Antibiotic: Evaluation of its Effects in Typhoid Fever, Severe Salmonella Infections and in Case of Colon Bacillus Bacteremia. H. S. Collins, T. F. Paine Jr., E. B. Wells and M. Finland.—p. 1077.
Infectious Arteritis. W. S. Middleton.—p. 1093.
*Coramine (Nikethamide) in Barbiturate Poisoning: Comparison with Picrotoxin; Preliminary Report. J. C. Watts and J. Ruthberg.—p. 1104.
Skeletal Lesions in Hodgkin's Disease. E. H. Falconer and M. E. Leonard.—p. 1115.
Intravenous Neostigmine in Diagnosis of Myasthenia Gravis. J. E. Tether.—p. 1132.

Nikethamide in Barbiturate Poisoning.—Watts and Ruthberg point out that poisoning due to the barbiturates has been increasing, and newspaper publicity, instead of helping the situation, appears actually to have increased the number of cases of attempted suicide from these drugs. An effective antidote to this type of poisoning is therefore of great importance. The authors describe the method used in barbiturate poisoning in the Queens General Hospital, New York City. Certain preliminary procedures were used in all groups, the only variation in the treatment being the choice of nikethamide or picrotoxin. Nikethamide, 5 cc., or lately 10 cc. of 25 per cent nikethamide, is given intravenously, followed by 5 cc. every five minutes for the first hour. In addition, a constant amount was given by intravenous drip so that a base line amount of 5 cc. per hour was administered. After the first hour, booster doses of 5 cc. intravenously were given, on the hour. In cases of more severe poisoning 5 cc. was given every half-hour as a booster. Therapy at first was continued until the patient had a return of reflexes and moved spontaneously, but now it is continued to the point of responding to stimuli such as answering questions. When picrotoxin was used a test dose of 3 mg. was given intravenously. If there was no reaction, 3 mg. was repeated every five minutes for three doses. After a fifteen minute interval another series of three injections at five minute intervals was carried out. Therapy was continued thus until the return of reflexes and spontaneous motion. Between 1941 and 1946, inclusive, 99 cases of barbiturate poisoning were treated. Particular attention is given to the 58 cases treated in 1945 and 1946. Six case histories are presented. The authors found that in no case in which nikethamide failed did picrotoxin succeed in saving the patient. In several cases in which picro-

toxin did not help, nikethamide gave good results. In several cases picrotoxin caused severe convulsions, some requiring the administration of amobarbital (amytal sodium®) for control. In no case did nikethamide cause convulsions. Nikethamide is safer to use for this reason and can be given by nurses without danger, whereas picrotoxin must be given with a physician on hand at all times because of the danger of convulsions.

Annals of Surgery, Philadelphia

128:1041-1206 (Dec.) 1948

- Nature of Shift of Plasma Protein to Extravascular Space Following Thermal Trauma. O. Cope, J. B. Graham, F. D. Moore and Margaret R. Ball.—p. 1041.
- *Traumatic Chylothorax: Review of Literature and Report of Case Treated by Ligation of Thoracic Duct and Cisterna Chyli. R. R. Baldrige and R. V. Lewis.—p. 1056.
- Rectal Stricture of Lymphogranuloma Venereum. L. Breidenbach and L. R. Slattery.—p. 1079.
- Tetraethyl Ammonium Chloride—Its Effects on Surface Temperatures of Extremities in Peripheral Vascular Conditions. F. Pearl.—p. 1092.
- Tetraethyl Ammonium Chloride—Its Effects on Surface Temperatures of Arteriosclerotic Extremities. F. L. Pearl.—p. 1100.
- *Chronic Progressive Infectious Gangrene of Skin: Patient with Exposure to Cold Wave Solution. F. A. Simeone and H. L. Hardy.—p. 1112.
- Study of Beta 17 Ketosteroids in Case of Pseudo-Hermaphroditism Due to Adrenal Cortical Tumor. L. J. Leahy and W. L. Butsch.—p. 1124.
- Evaluation of Open Jump Flap for Lower Extremity Soft Tissue Repair. S. Edwards.—p. 1131.
- Carcinoma Developing in Sebaceous Cysts. J. C. Peden Jr.—p. 1136.
- Comparison of Efficacy of Therapeutic Agents in Treatment of Experimentally Induced Diffuse Peritonitis of Intestinal Origin. S. Rothenberg, H. Silvani, S. Chester, Helen Warner and H. J. McCorkle.—p. 1148.
- Giant Cell Tumor of Sacrum: Case Report. R. F. Bowers.—p. 1164.
- Cholelithus Cyst Associated with Congenital Atresia of Bile Ducts (Report of Case). C. B. Ripstein and G. G. Miller.—p. 1173.
- Traumatic Rupture of Cholelithus, Associated with Acute Hemorrhagic Pancreatitis and Bile Peritonitis. N. F. Hicken and V. L. Stevenson.—p. 1178.
- Multiple Carcinomas of Stomach. J. P. O'Brien and A. Oppenheim.—p. 1184.
- Internal Hernia Behind Jejunal Loop of Posterior Gastro-Enterostomy. F. F. McAllister.—p. 1194.

Traumatic Chylothorax.—Baldrige and Lewis point out that the function of the thoracic duct is the conveyance of chyle and lymph into the general circulation. Chyle flows at the rate of 60 to 190 cc. per hour. With complete severance of the duct it is possible to lose over 4 liters within a twenty-four hour period. Crushing injuries, stab and bullet wounds, fall from height, blow on chest, automobile accidents, severe coughing and surgical accidents are some of the causes of chylothorax. Intrathoracic surgical injury of the thoracic duct resulting in chylothorax is not as rare as might be supposed. The authors know of 1 recent case of traumatic chylothorax following sympathectomy and another as a result of erosion of the thoracic duct from a catheter placed in the chest for drainage of an empyema. Several cases have been observed following resections of the esophagus for tumors of that organ. Adequate removal of certain tumors of the esophagus may require deliberate section of the duct. The importance of appropriate treatment of surgical injuries of the duct cannot be overemphasized. Because of the pinkish gray purulent appearance of the fluid, the unwary observer may be led into the mistaken diagnosis of empyema or hemothorax. The secondary symptoms and frequent fatal termination of chylothorax result from persistent loss of fluid, fat, protein and lymphocytes in cases in which healing does not take place spontaneously or in which successful surgical treatment is not accomplished. Mortality rates from chylothorax approximate 50 per cent. The authors list the aims of treatment of chylothorax and mention the different procedures recommended in the past. Mortality statistics of the past indicate that these measures have not been entirely successful. Repeated thoracentesis and the maintenance of nutrition are essential, but the latter is difficult to achieve. Cure of the condition depends on the establishment of collateral lymph circulation and/or the closure of the injured duct. The authors describe a case of injury of the cisterna chyli during sympathectomy for hypertension, with cure of the resulting chylothorax by ligation of the thoracic duct, the cisterna chyli and all its main afferent trunks. They feel that, in view of the high mortality rates existing in chylothorax, the inadequacy of conservative treatment and the many arguments in favor of surgical ligation, it is difficult to understand the almost universal

condemnation of this procedure. They conclude that ligation of the thoracic duct and/or the cisterna chyli is feasible and may be a life-saving procedure.

Gangrene of Skin.—The patient whose case is reported by Simeone and Hardy had an unusual type of chronic progressive gangrene of the skin of the abdominal wall. Her defense reaction was peculiar in that leukopenia, rather than leukocytosis, accompanied the infection. Recently, Cotter reported 5 patients who showed skin and systemic manifestations which he attributed to the toxic effects of thioglycolic acid in "cold wave" hairdressing solutions. The patient here described was a hairdresser. Her case raises the question of the role that exposure to thioglycolic acid or thioglycolates in "cold wave" solutions may have played in her peculiar susceptibility to infection. While the principal cause of this patient's illness was the infection of the abdominal wall, the nature of the lesion was obscure. It was a granulomatous infection of the skin and subcutaneous tissue causing ulceration of the skin with blister formation and dissolution of epithelium over abdominal scars and in patchy areas over the infected skin. It was suspected that the peculiar hematologic response that this patient exhibited to infection and, in addition, the presence of impaired liver function could be due to an intoxication. Her history was searched for possible exposure to noxious agents. The only possibility was that she might have been exposed to some injurious agents in connection with her work as a hairdresser. The patient submitted for examination samples of all the materials and solutions that she has used in her beauty parlor. None of the solutions tested contained benzene or other known toxic agents except that the cold wave solutions were known to contain thioglycolic acid and/or thioglycolates. The active ingredient in cold wave solutions has already been suspected of exerting toxic effects in man. Hardy has found leukopenia in workers engaged in making cold wave solutions. McCord and his associates with subcutaneous injections of thioglycolic acid produced skin ulcerations which were slow to heal, and they also observed some renal changes and severe damage to the liver. The authors admit that it cannot be stated categorically that the woman whose case is reported owed her peculiar hemolytic response and her liver impairment to thioglycolic acid or thioglycolate intoxication. The evidence is circumstantial. It was thought important to report this case, because with accumulation of data it may be possible to indict or to exonerate cold wave solutions from responsibility.

Annals of Western Medicine & Surgery, Los Angeles

2:543-592 (Dec.) 1948

- Infectious Mononucleosis: Analysis of 43 Cases. S. I. Rapaport.—p. 543.
- *Relief of Pain in Acute Pancreatitis. S. Pearson and J. C. Lungren.—p. 550.
- Refrigeration in Surgery. N. P. Plechas.—p. 552.
- *Hemorrhages Following Tonsillectomy and Adenoidectomy: Related to Weather During Twelve Year Period. A. G. James.—p. 558.
- Electronarcosis. Esther Bogen Tietz.—p. 562.
- Early Electrocardiographic Changes in Acute Coronary Thrombosis: Report of Case. E. Bogen.—p. 565.

Relief of Pain in Pancreatitis.—According to Pearson and Lungren the pain in acute pancreatitis is severe and intractable. The most singular characteristic of this disease, pain, is usually sudden in onset, knifelike in character, epigastric in distribution and, in many instances, refractory to narcotics. Prostration and shock are frequent additional factors. Etamon® (tetraethylammonium chloride) has been shown to block effectively sympathetic and parasympathetic impulses at the ganglionic synapse. Inasmuch as both the sympathetic and vagal stimuli excite pancreatic secretion, it would seem reasonable to assume that this drug may be of some benefit in the nonsurgical treatment of acute pancreatitis. The authors cite the case of a woman, aged 32, who presented symptoms of pancreatitis. Intravenous and intramuscular injections of tetraethylammonium chloride counteracted the symptoms and the patient could be discharged several days later. At a follow-up examination several weeks later she was still well.

Weather Conditions and Hemorrhages After Tonsillectomy.—James investigated the relationship between weather change and hemorrhage following tonsillectomy. Among 12,826 tonsillectomies and adenoidectomies performed in a twelve year

period, on children ranging in age from 2 to 12 years, 136 postoperative hemorrhages occurred. These hemorrhages occurred in association with environmental temperature peaks. The change in temperature, not the degree of temperature, is the significant factor. The percentage of postoperative hemorrhages is greater in the colder months when temperature changes are more acute.

Archives of Ophthalmology, Chicago

39:563-706 (May) 1948

- Choice of Sulfonamide Drugs for Local Use. I. H. Leopold and W. H. Steele.—p. 563.
Miotic and Antiglaucomatous Activity of Tetraethyl Pyrophosphate in Human Eyes. W. M. Grant.—p. 579.
*Effect of Insulin Hypoglycemia on Ciliary Muscle. L. H. Quinn.—p. 587.
Fractures of Orbital Floor. A. G. DeVoe.—p. 595.
Development of Changes in Visual Fields Associated with Glaucoma. A. Posner and A. Schlossman.—p. 623.
Entropion in Infancy Caused by Folding of Tarsus: Report of Case. A. Kettesy.—p. 640.
Boxing Injuries of Eyes. P. H. Boshoff and E. Jokl.—p. 643.
Use of Vasodilators in Syphilitic Atrophy of Optic Nerves. W. F. Duggan.—p. 645.
Implant of "Vittallium" Tube in Treatment of Stenosis of Lacrimal Duct. V. La Rocca.—p. 657.
Intraocular Pressure in Cases of Hemorrhage of Retina. J. M. V. Ortiz.—p. 661.
Postmortem Ocular Pressure. J. Majoros.—p. 665.
Congenital Hypoplasia (Partial Aplasia) of Optic Nerve. B. Jerome and H. W. Forster Jr.—p. 669.

Insulin Hypoglycemia and the Ciliary Muscle.—Quinn made retinoscopic examinations on patients receiving insulin hypoglycemia treatment for schizophrenia and other psychoses. Paredrine hydrobromide ophthalmic® (1-[para-hydroxyphenyl]-2-aminopropane hydrobromide) homatropine hydrobromide and atropine sulfate were used to dilate the pupils. Examinations were made before and during the hypoglycemia reaction. Definite stimulation of the ciliary muscle was found in some eyes when paredrine® was used as a mydriatic. This was most pronounced in the youngest group of patients and was greatest during deep insulin hypoglycemia. Homatropine partially abolished the stimulation of the ciliary muscle during insulin hypoglycemia, and atropine almost completely abolished it, especially during deep insulin hypoglycemia. One patient had so strong a stimulation of the sphincter of the iris during the treatment that his pupils could not be dilated with paredrine®, but they could be dilated at other times with paredrine® and could be dilated with homatropine during treatment.

Archives of Surgery, Chicago

57:185-290 (Aug.) 1948

- Parenteral Feeding of Protein. R. Elman.—p. 185.
Regional Enteritis: Further Pathologic Observations. F. M. Owen Jr.—p. 195.
*Actinomycosis of Thorax and Abdomen. D. A. Campbell and B. Bradford Jr.—p. 202.
Prevention and Treatment of Wound Dehiscence. F. E. Walton.—p. 217.
Double Aortic Arch: Report of 2 Cases. W. J. Potts, S. Gibson and R. Rothwell.—p. 227.
Tantalum Gauze in Repair of Large Postoperative Ventral Hernias. C. R. Lam, D. E. Szilagyi and Magda Puppenthal.—p. 234.
End Results of Excision of Carpal Bones. J. K. Stack.—p. 245.
Resection of Trachea: Experimental Study and Report of Case. O. T. Clagett, J. H. Grindlay and H. J. Moersch.—p. 253.
Incarcerated and Strangulated Inguinal Hernia: Critical Survey of 500 Consecutive Cases with Treatment by Nonsurgical (Taxis) and Surgical Procedures. W. Requarth and F. V. Theis.—p. 267.
Anastomosis of Ileum to Lower Part of Rectum and Anus: Report on Experiences with Ileorectostomy and Ileoproctostomy, with Special Reference to Polyposis. R. R. Best.—p. 276.
*Endometriosis in General Abdominal Surgery. S. Abel.—p. 286.

Actinomycosis of Thorax and Abdomen.—In the first of the 6 cases of extensive actinomycosis of the thoracic or abdominal viscera reported by Campbell and Bradford, the disease began with acute appendicitis and progressed to a fatal termination. The clinical course in the second patient was not unlike that in case 1. Though the outcome was little different from that in the previous case, the patient's clinical course appeared to be appreciably altered by the administration of sulfadiazine. The third patient had actinomycosis of the pelvic organs, an extremely rare condition. This patient also died. The fourth patient, who had actinomycosis of the thorax, recovered after surgical drainage and treatment with sulfadiazine and penicillin.

The fifth patient was a man, aged 84, who had an orange-sized mass in the right upper quadrant of the abdomen, which was mildly tender. Later he had acute attacks of abdominal pain. It was felt that his age and general debility precluded a successful surgical procedure. His condition gradually deteriorated, and he died. Necropsy revealed a large chronic abscess and colonies of *Actinomyces* identified by microscopic examination in the wall of the abscess. The case of the sixth patient is noteworthy, because it is believed to be the second one on record in which the patient survived actinomycotic abscess of the liver. Evaluation of chemotherapeutic measures, with particular reference to sulfonamide drugs and penicillin, is difficult, and many years will probably elapse before an accurate appraisal can be made. A definite advance has been made with the addition of sulfonamide drugs and penicillin to the surgical armamentarium.

Endometriosis in General Abdominal Surgery.—Abel is of the opinion that today endometriosis is discovered in roughly half the patients subjected to abdominopelvic operation. This increased incidence results not merely from a more critical evaluation of this disease, but is real. More intrauterine and cervical cautery, with subsequent stenosis, is thought to be an important factor. The symptoms depend to some degree on the distribution of the endometrial changes, but in general can be grouped under the headings of menstrual disorders, pain and infertility. The menstrual disorders are varied, with menorrhagia or hypermenorrhea as perhaps the outstanding ones. Irregularities of flow and even hypomenorrhea are seen. Rectal pain, especially during the menstrual period, is also frequently a part of the story and results from invading rectovaginal implants. With involvement of the ovaries and with the fixation, dyspareunia is occasionally present. Infertility is commonly associated. The cardinal sign of endometriosis is the presence of shotty nodules in the cul-de-sac and rectovaginal septum; this observation of rectovaginal bimanual examination is almost pathognomonic of the disease. The author found that in many instances of endometriosis acute appendicitis was simulated. These cases presented a picture of generalized abdominal pain with localization in some patients. Peritoneal signs were present, apparently the result of irritation from spillage of old grumous bloody material from within the endometriotic lesions. Leukocytosis and fever were usual, and nausea was reported in most instances. The histories of 4 such patients are presented. The lesson the author has learned from such cases is that endometriosis should be kept in mind.

Blood, New York

3:1315-1478 (Dec.) 1948

- Cytology of Rabbit Thymus and Regeneration of Its Thymocytes after Irradiation; with Some Notes on Human Thymus. H. Downey.—p. 1315.
Effect of Endocrinopathies on Blood. W. H. Daughaday, R. H. Williams and Geneva A. Daland.—p. 1342.
Observations on Mechanism of Hemolysis in Paroxysmal (Cold) Hemoglobinuria. A. A. Siebens, W. H. Zinkham and P. F. Wagley.—p. 1367.
Events in Hemolytic Crisis of Hereditary Spherocytosis, with Particular Reference to Reticulocytopenia, Pancytopenia and an Abnormal Splenic Mechanism. W. Dameshek and M. L. Bloom.—p. 1381.
*Jaundice and Sulfonamide Drugs. C. H. Rammelkamp.—p. 1411.
Blood and Bone Marrow in Infective Subacute and Chronic Atrophy of Liver. E. Muelengracht and H. Gormsen.—p. 1416.
Myelofibrosis Associated with Tuberculosis: Report of 4 Cases. H. W. Craft, H. L. Alt and W. H. Nadler.—p. 1426.
*Occurrence of Normoblasts in Peripheral Blood in Congestive Heart Failure: Indication of Unfavorable Prognosis. J. Groen and E. G. Godfried.—p. 1445.
Thiamin Deficiency in Rhesus Monkey: Clinical, Metabolic and Hematologic Observations. J. F. Rinehart, L. D. Greenberg and L. L. Ginzton.—p. 1453.
Studies on Hypoproteinemia: I. Hypoproteinemia in Patients with Gastric Cancer; Its Persistence after Operation in Presence of Body Tissue Repletion. F. Homburger and N. F. Young.—p. 1460.
Studies of Phosphorus Metabolism in Man: II. Study of Permeability of Human Erythrocyte to Inorganic Phosphate in Vitro by Use of Radioactive Phosphate (P^{32}). F. H. L. Taylor, S. M. Levenson and M. A. Adams.—p. 1472.

Jaundice and Sulfonamide Drugs.—According to Rammelkamp sulfonamide-induced jaundice may be difficult to differentiate from toxic hepatitis, infectious hepatitis and serum jaundice. Establishment of a definite diagnosis in jaundiced patients is

important because sulfonamide compounds should be discontinued immediately if they are responsible, whereas in jaundice due to other causes sulfonamide drugs may be given. The author differentiates three forms of sulfonamide-induced jaundice, the immediate, intermediate and delayed. In the immediate form of hepatitis secondary to sulfonamide medication jaundice appears one to three days after chemotherapy was started. Prior to this, nausea, vomiting, headache, chills, fever, burning of the eyes and skin rashes may have appeared. As the drug is continued the skin may become icteric and the urine dark with bile. The liver is enlarged and tender and skin rashes appear. An example of this form of hepatitis is reported. Jaundice developed two days after the first dose of a second course of sulfathiazole. In the intermediate form of jaundice the patient becomes critically ill within a few hours, pallor is marked, the liver and spleen may be enlarged and fever is usually present. Hemoglobin may appear in the urine. Later bilirubin and urobilinogenuria are observed. The erythrocyte count and hemoglobin concentration are low, and a smear of the blood may show nucleated erythrocytes. The reticulocyte count becomes elevated. The blood usually contains free hemoglobin as well as increased amount of bilirubin. When toxic reactions occur, the drug must be stopped immediately and blood transfusions should be given. The delayed form of sulfonamide-induced jaundice appears ten or more days after the institution of sulfonamide treatment, at about the time clinical improvement is anticipated. The temperature suddenly increases. Nausea, vomiting, epigastric discomfort, headache, dizziness, photophobia and aching of the joints are other symptoms. A distinctive feature is the appearance of a rash which may be erythematous or exfoliative. Erythema nodosum is not infrequently observed in patients treated with the thiazole derivatives of the sulfonamide drugs. Jaundice develops within a few hours or days after these other toxic symptoms have become manifest.

Normoblasts in the Peripheral Blood in Congestive Heart Failure.—During the past year Groen and Godfried have observed 9 patients with severe congestive heart failure, all of whom showed a varying number of normoblasts in the peripheral blood. In some of these cases there was a temporary remission of the sequelae of the heart failure; during this remission the normoblasts disappeared from the peripheral blood. All of the patients died. Brief case histories of these patients are presented. The authors recommend search for normoblasts in the blood of patients with severe heart failure. When normoblasts are found, interference with the oxygenation of the blood, either by pulmonary infarcts or thrombi inside the heart, is most likely to be present. It seems justifiable to consider the prognosis as very grave in these cases.

Connecticut State Medical Journal, Hartford

12:1103-1198 (Dec.) 1948

- Social Impact of Alcoholism. S. D. Bacon.—p. 1105.
Effects of Curare and Prostigmine on Central Nervous System: Preliminary Report of Clinical Observations. S. Berman.—p. 1111.
Pancreatic Malignancy: Pancreatico-Duodenectomy. D. F. Levy.—p. 1116.
Anemia in Hypothyroidism. S. E. Eisenberg.—p. 1122.
Ophthalmologists and Optometrists—Possible Solution to a Problem. P. W. Tisher.—p. 1126.
Screening as Viewpoint in Medical Practice. B. V. White.—p. 1129.

Anemia in Hypothyroidism.—Eisenberg believes that hypothyroidism is frequently overlooked in determining the etiology of obscure anemias or those anemias failing to respond to iron and liver therapy. One reason for this is the fact that diminished metabolism may be present without the distinctive clinical features of myxedema. Anemia resulting from hypothyroidism may be of three types. The first type, simple hyperchromic, is the true, uncomplicated anemia of hypothyroidism. The second type is the hypochromic, an iron deficiency anemia modified by the coexistence of hypothyroidism. The third type, the Addisonian hyperchromic, is one of true Addisonian pernicious anemia modified by the coexistence of hypothyroidism. The theory is presented that the effects of the thyroid gland on erythropoiesis are indirect results of changes in the rate of metabolism. A case is cited which is an example of both the first and the second type of anemia resulting from hypothyroidism.

Gastroenterology, Baltimore

11:575-788 (Nov.) 1948. Partial Index

- *Gastric Ulcer: Study of 600 Cases. Frances H. Smith and Sara M. Jordan.—p. 575.
Observations on Excessive Nocturnal Gastric Secretion in Patients with Duodenal Ulcer. J. B. Kirsner, E. Levin and W. L. Palmer.—p. 598.
Benign Stricture of Esophagus with Special Reference to Esophagitis Iliatus Hernia, Esophageal Ulcer and Duodenal Ulcer. E. B. Benedict and R. H. Sweet.—p. 618.
Gastric Polyps. L. L. Hardt, F. Steigmann and G. Milles.—p. 629.
Surgery of Complications of Ulcerative Colitis. L. K. Ferguson and L. W. Stevens.—p. 640.
Studies with Bromsulphalein: I. Its Disappearance from Blood After Single Intravenous Injection. F. J. Ingelfinger, S. E. Bradley, A. I. Mendeloff and P. Kramer.—p. 646.
*Infectious Mononucleosis and Infectious Hepatitis: Studies Bearing on Certain Resemblances and Differences. J. E. Berk, H. Shay, J. A. Ritter and H. Siple.—p. 658.
Factors Affecting Protein Balance in Presence of Chronic Viral Liver Damage. L. W. Kinsell.—p. 672.
Clinical Aspects of Sequelae of Acute Hepatitis. R. B. Capps.—p. 680.
Total Fecal Solids, Fat and Nitrogen: IV. Study of Patients with Chronic Relapsing Pancreatitis. G. R. Dornberger, M. W. Comfort, E. E. Wollaefer and M. H. Power.—p. 691.
Pancreatic Function as Measured by Analysis of Duodenal Contents Before and After Stimulation with Secretin. G. R. Dornberger, M. W. Comfort, E. E. Wollaefer and M. H. Power.—p. 701.
Studies in Pancreatic Function: I. Preliminary Series of Clinical Studies with Secretin Test. D. A. Dreiling and F. Hollander.—p. 714.
Effect of Enterogastrone Concentrates on Gastric Secretion in Human Beings. R. R. Ferayorni, C. F. Code and C. G. Morlock.—p. 730.
Hyperplasia of Brunner's Glands Simulating Duodenal Polyposis. W. H. Erb and T. A. Johnson.—p. 740.

Gastric Ulcer.—Smith and Jordan are concerned with the differentiation between benign and malignant gastric ulcer, pointing out that this problem raises the question whether all patients with gastric ulcers should undergo gastric resection or whether gastroenterologists should continue their attempts to distinguish between those gastric ulcers which can be trusted to be benign and those which are or may become malignant. The authors present observations on 600 cases. The incidence of malignant gastric ulcers was 9.8 per cent. Forty-seven of 59 cases of malignant ulcer were histologically proved and 12, although clinically considered to be malignant, were not operated on for stated reasons. This study does not furnish final data on the controversial point of whether all gastric ulcers should be resected. Many other such studies should be done so that the gastroenterologist and surgeon whose experience is still insufficient may have some guide. The authors found that the male patient is a little more than twice as prone to gastric ulcer as the female, but more than four times as prone to malignant ulcer. The symptoms are disarmingly similar in the cases of benign and malignant ulcer. The greater curvature and fundus have the highest percentages of malignancy, 60 per cent and 50 per cent. Less than one fifth of the prepyloric lesions are malignant, and the same percentage of malignancy is found on the lesser curvature. The greater frequency of ulcers in these regions diminishes the percentile incidence but does not change the fact that the greatest number of malignant lesions are to be found in these areas. No dependence can be placed on the associated roentgen observation of duodenal ulcer with the gastric lesion in the differentiation of benign and malignant ulcer; in this series, a roentgenologic defect of the duodenum was diagnosed in 31 per cent of those gastric ulcers which were proved malignant. Since recurrent gastric ulcer harbors potential malignancy, a recurrence is an indication for resection, although this policy will result in the resection of many benign ulcers. The first occurrence of gastric ulcer must be treated with persistence. Failure of complete healing within six to eight weeks and all recurrences are justification for resection.

Infectious Mononucleosis and Infectious Hepatitis.—Berk and his associates say that clinical similarities between infectious hepatitis and infectious mononucleosis have long been appreciated. Jaundice has been observed repeatedly in patients considered to have infectious mononucleosis. Interest was aroused by hematologic changes suggestive of infectious mononucleosis noted surprisingly often by one of the authors in soldiers with virus hepatitis. They made serial observations of the behavior of the heterophile antibodies in patients with infectious hepatitis. Similar observations were begun on patients with infectious mononucleosis. Significant increases in heterophile antibody titer were found to occur rarely in infectious

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted. Single case reports and trials of new drugs are usually omitted.

British Journal of Surgery, Bristol

36:8-224 (Oct.) 1948

- Radical Mastectomy: Technic and Complications. V. Riddell.—p. 8.
 Argentaffinoma of Gastro-Intestinal Tract. D. R. K. Reid.—p. 130.
 Neurogenic Tumors of Stomach. R. L. Canney.—p. 139.
 Bilharzial Ureter: Some Observations on Surgical Pathology and Surgical Treatment. N. Maker.—p. 148.
 Venous Obstruction in Upper Extremity. E. S. R. Hughes.—p. 155.
 Implantation of Secondaries from a Renal Carcinoma (Hypernephroma) within Ureteric Lumen. J. B. Macalpine.—p. 164.
 Megalo-Ureter: A Report of 2 Cases. J. H. Carver.—p. 168.
 Case of Traumatic Pararenal Pseudohydronephrosis. G. Cleland.—p. 172.
 Fistula Between Rectum and Urinary Tract. N. Wyndham.—p. 175.
 Accessory Urethral Canal in Male. P. H. Schurr.—p. 181.
 Subphrenic Abscess: Critical Survey of 12 Cases. R. S. Hunt.—p. 185.
 Massive Spontaneous Intraoperative Hemorrhage. A. C. Brewer and R. Marcus.—p. 198.
 Pulmonary Resection for Metastatic Malignancy: 3 Cases Secondary to Hypernephroma. D. Robb.—p. 200.
 Spontaneous Rupture of Splenic Artery. J. F. E. Gillam.—p. 203.
 Duodenocolic Fistula Complicating Carcinoma Coli. E. P. H. Drake and J. F. Goodwin.—p. 204.
 Glossopharyngeal Neuralgia: Extracranial Neurectomy. J. T. Morrison.—p. 208.

Venous Obstruction in Upper Extremity.—Hughes points out that Paget in 1875 and Schrotter in 1884 described a condition wherein an arm of an otherwise perfectly healthy person became diffusely swollen and discolored. Schrotter believed that movements of the shoulder girdle damaged the axillary vein and were thus responsible for the formation of a thrombus. Although many have accepted this theory, neither trauma nor thrombosis is a constant feature. Hughes presents histories of 5 patients with this disorder and says that the prognosis, as far as life is concerned, is excellent, but residual after-effects, varying in degree from trivial to serious, persist probably in all cases, suggesting that obstruction is permanent with recovery dependent on the efficiency of the collateral vessels. Most explanations so far given for this condition suggest a thrombus in the axillary or subclavian vein, but operation frequently reveals no sign of a thrombus. The author describes investigations that have been made on the causation of this condition. The research indicates that the phrenic nerve which passes anterior to the subclavian vein, a pre-venous phrenic nerve, may constrict the vessel against scalenus anterior the tendon, as effectively as a ligature. Anticoagulants should be administered as soon as possible to limit the extent of intravascular clotting which may follow secondarily and which may obstruct vessels concerned in establishing a collateral circulation. Paravertebral sympathetic blocks have shortened the convalescence, probably by their influence on the collateral vessels.

Subphrenic Abscess.—Hunt presents observations on 12 cases of subphrenic abscess that came under his observation during the past sixteen months. In 3 of these the subphrenic abscess developed after operations which the author himself had done; in the other cases the original cause, such as appendicitis or perforated peptic ulcer, had been treated at other hospitals. The author stresses that subphrenic abscess may follow inflammation in almost any intra-abdominal organ. Early and efficient treatment of any predisposing cause, such as appendicitis or peptic ulcer, will prevent it. The controversy over Fowler's position and the theories of the spread of infection from below upward by the lymphatics and capillary attraction make it difficult to decide on the best methods of prevention. Fowler's position is difficult to maintain and tends to restrict the breathing, but on occasion it affords the best method of getting dependent drainage. In a diffuse inflammation it is unlikely that a drainage tube will drain anything beyond its immediate track after the first forty-eight hours and should therefore be removed. When the inflammation is well localized the tube will continue to function as long as there is anything to drain or until the abscess walls collapse and the abscess cavity becomes obliterated. It is in such cases that Fowler's position may be employed with advantage. As a rule, a subphrenic abscess needs drainage as soon as a diagnosis is made. Diagnostic needling should be avoided, because there is danger of spreading the

infection to pleura or peritoneum or of damaging some intra-abdominal organ. The longer a subphrenic abscess remains untreated the more likely it is that chest complications will follow and the chances of recovery diminish. The extraperitoneal approach should always be employed. An anterior subcostal or paramedian incision is suitable for the anterior spaces and resection of the twelfth rib for the posterior spaces and the right inferior space. Great care is needed to avoid injury to the splenic flexure in left-sided cases. Many different kinds of organisms may be present. Massive doses of penicillin supplemented by sulfonamide compounds are beneficial. A high protein diet, breathing exercises from the start and careful nursing all help to hasten recovery.

British Medical Journal, London

2:1049-1090 (Dec. 18) 1948

- Incidence and Treatment of Infective Ear Disease in Factory Employees. C. M. Johnston.—p. 1049.
 *Vitamin D in Treatment of Boeck's Sarcoidosis. R. F. Robertson.—p. 1059.
 Aisenberg Encephalopathy During Treatment of Tropical Eosinophilia. B. Singh.—p. 1061.
 *Aortic Coarctation with Patent Ductus Arteriosus. H. A. Haxton and M. L. Thomson.—p. 1062.
 Steroid Metabolism and Frontal Lobes. F. Reitman.—p. 1064.

Vitamin D in Boeck's Sarcoidosis.—Robertson reports a case of Boeck's sarcoidosis in which the skin lesions had been slowly progressing for nine years and in which sudden spontaneous improvement was not expected. The administration of calciferol in the form of tablets resulted in dramatic improvement of the skin lesions. The main improvement occurred during a three week period of severe toxic effects unrelated to the level of serum calcium. The author points out that there is evidence that sarcoidosis is related to or identical with tuberculosis. The response of the skin lesions of sarcoidosis to treatment with calciferol resembles that of lupus vulgaris, this being another point in favor of a close relationship between sarcoidosis and tuberculosis. Robertson believes that in view of the risks of causing a sarcoid lesion to flare up elsewhere and of causing sudden extension and ulceration of the skin lesions, calciferol should not be used in the treatment of sarcoidosis unless the lesions are extensive and disfiguring.

Aortic Coarctation with Patent Ductus Arteriosus.—Haxton and Thomson say that although coarctation of the aorta and patent ductus arteriosus are now recognized as defects which are amenable to surgical treatment, the opportunity seldom arises of treating them simultaneously. They present the history of a girl in whom the diagnosis of congenital heart disease had been made at the age of 2 years and 4 months, but the precise defect was not determined at that time. At the age of 7 she presented typical signs of aortic coarctation, and an operation was performed. The mediastinal pleura was incised and reflected to expose the main arteries and the vagus nerve. An aortic coarctation, marked by a narrowing of the exterior and by a palpable thickening of the wall, was found 1 cm. beyond the left subclavian artery, and a small patent ductus, suspected clinically, was attached to the aorta near the level of the coarctation. The coarctation was resected and found to be almost complete. The opening of the ductus was immediately distal to the coarctation. The ends of the aorta were anastomosed by two stay stitches and a single running suture of black silk on an eyeless needle. The suture passed through all coats and an endeavor was made to get square apposition of the cut ends of the vessel. The child is now lively and healthy looking. The early appearance of a well developed collateral circulation indicated a severe degree of coarctation, and the ultimate prognosis with operation was regarded as poor. The right axis deviation seen in this case is noteworthy, because aortic coarctation is usually accompanied by a left axis deviation. It has been suggested by Gilchrist that this may be due to the presence of a patent ductus arteriosus opening distal to the coarctation. In these circumstances the blood is believed to flow from the pulmonary artery to the aorta, thus throwing an additional load on the right ventricle. This case supports Gilchrist's theory, but the small caliber of the duct and the persistence of the right axis deviation eleven months after operation suggest that this is not the full explanation.

Lancet, London**2:915-954 (Dec. 11) 1948**

Pathogenesis of Acute Exanthems: Interpretation Based on Experimental Investigations with Mouspox (Infectious Ectromelia of Mice). F. Fenner.—p. 915.

Splenectomy in Kala-Azar. T. C. Morton and J. N. C. Cooke.—p. 920.

The Male-Toad Test for Pregnancy. M. Haines.—p. 923.

Human Toxoplasmosis in England: Report of Case. N. M. Jacoby and L. Sagorin.—p. 926.

*Relapse of Pernicious Anemia During Maintenance Therapy with Folic Acid. D. L. Mollin.—p. 928.

Hyperdurie Premedication. E. Asquith and E. Thomas.—p. 930.

Relapse of Pernicious Anemia During Folic Acid Therapy.—Mollin believes that the danger of the development of subacute combined degeneration of the cord in patients treated with folic acid makes it unlikely that many long term studies will be made of its ability to maintain the hematologic remissions it produces. He presents the history of a patient who relapsed under treatment with folic acid. The average levels of red cells and hemoglobin during the period of successful folic acid therapy were slightly lower than those reached later on liver therapy. The amount of folic acid required to induce the initial remission was small, and the patient was kept in excellent health for eight and a half months on the maintenance doses given. The fall in red cell count began after the patient had been receiving folic acid 5 mg. daily for about four months. This trend could not be reversed by a fourfold increase in the dose of folic acid. Larger doses might possibly have been effective, but it did not seem justifiable to withhold liver extract any longer. The patient responded well to liver extract.

Medical Journal of Australia, Sydney**2:649-676 (Dec. 4) 1948**

Management of Delayed Response to Artificial Rupture of Membranes as Method of Inducing Labor. W. M. Lemmon.—p. 649.

Ovulation in the Sexual Cycle and Basal Temperature Patterns. J. W. Johnstone.—p. 653.

Surgical Treatment of Cardiospasm: Cardio-Esophageal Myotomy. A. Gild.—p. 658.

2:677-704 (Dec. 11) 1948

Long-Term Therapy in Thyreotoxicosis with Methyl Thiouracil. H. R. G. Poate.—p. 677.

2:705-732 (Dec. 18) 1948

Significance of Modern Embryology in Pathology. E. S. J. King.—p. 705.

Recent Developments in Social Medicine in New Zealand. G. H. M. Luke.—p. 710.

Bladder-Neck Obstruction: Review of 508 Cases Treated by Endoscopic Resection. H. Mortensen.—p. 714.

Proceedings of Royal Society of Medicine, London**41:735-812 (Nov.) 1948. Partial Index**

*Modern Conceptions Concerning Compulsory Isolation of Lepers: Contagious Malignant Morbus Hansen versus Non-Contagious Benign Hansenide. R. D. G. P. Simons.—p. 751.

Management and Treatment of Psychopaths in Special Institution in Denmark. G. K. Stürup.—p. 765.

Pharmacology and Biochemical Lesions. R. A. Peters.—p. 781.

Recent Progress in Nasal Physiology. A. W. Proetz.—p. 793.

Purulent Pachymeningitis. H. Cairns and F. Schiller.—p. 805.

Isolation of Lepers.—Simons quotes Rogers and Muir as saying, "As long as we had no treatment of material value there was some excuse for recourse to the crudities of the Middle Ages, the lifelong segregation of lepers." Today, however, one can save energy and money by isolating only the malignant lepromatous and not the hansenide patients. The hansenide patients who leave leper colonies will in their turn encourage others to undergo adequate treatment, since they will see by this example that leprosy is no longer a crime which is punished by imprisonment for life, but that it is curable and certainly in two thirds of all cases not even contagious. Lepers and sufferers from disease classified as leprosy will no longer fly from the police and the doctor. The answer to the question what should be done with the isolated patients is twofold. 1. All patients with infectious leprosy should remain in isolation. Leper homes should be called "clinics" or some such name. Reactions should be negative for at least two years without the appearance of new symptoms before the patient's discharge is considered, as any shorter interval has resulted in too many relapses. 2. All hansenide patients (N or nodular leprosy) should be discharged immediately, though they would have to

remain under regular supervision of a skin specialist. The following should be cared for by the public health authorities: Those hansenide patients who suffer from general poor health, or who return to unhealthy and poor environment; also patients who are likely to turn to prostitution or to contract tuberculosis—24 per cent to 32 per cent of all lepers die from tuberculosis and many more suffer from it. Segregation should depend not on the diagnosis of leprosy, but on the differential diagnosis between infectious malignant leprosy and the noninfectious hansenide.

South African Medical Journal, Cape Town**22:697-744 (Nov. 27) 1948. Partial Index**

Two Cases of Pneumonic Plague: Recovery of One Case Treated with Streptomycin. W. Lewin, B. J. P. Becker and B. Horwitz.—p. 699.

Sterilization with Peritoneoscopy. P. L. Playfair.—p. 711.

*The Miller-Abbott Tube: Two Complications in Its Use. W. Wilkie.—p. 714.

Laboratory Procedures in Serodiagnosis of Syphilis: Improved Screen Test. Gwen M. MacNab and W. Lewin.—p. 726.

Some Medical Emergencies in the New-Born: Their Recognition and Treatment. S. Heymann.—p. 734.

Two Complications in Use of Miller-Abbott Tube.—

Wilkie reports that two complications of the use of the Miller-Abbott tube not previously reported were recently observed in the same patient. The first complication, occlusion of the lumen of the tube, was produced by shrinking of the thread used to lash the balloon to the tube and was due to failure to wet the thread before use. The result was that after the tube had been introduced the balloon could neither be inflated nor deflated. The balloon contained only about 10 cc. of air, but had the balloon been fully inflated, it would probably not have been possible to remove the tube by any means other than an operation. The second complication was that it was impossible to withdraw the tube. Roentgen investigation showed that the balloon was constantly arrested at the duodenojejunal flexure. In the course of five days many attempts to withdraw the tube failed. Finally the tube was cut at the patient's mouth in order that the distal end and the balloon might eventually be passed per rectum. During the next three days roentgenoscopy revealed that the tube progressed, but the patient had intermittent attacks of cramps and vomiting. These were relieved by morphine. The tube was passed on the third day and the cause of the trouble was then obvious. The house surgeon, in lashing the balloon to the tube, had not trimmed away the excess of balloon material, so that it formed a projection around the proximal lashing of sufficient size to be gripped by the bowel in spasm.

Deutsche medizinische Wochenschrift, Stuttgart**73:581-620 (Dec. 3.) 1948. Partial Index**

My Road to Leukotomy. E. Moniz.—p. 581.

Pathogenesis and Differential Diagnosis of So-called Functional Headache. W. Töniss.—p. 583.

Clinical Aspects of Neurologic Complications of Diphtheria. W. Scheid.—p. 585.

The Existential Analysis of Frankl, the Third Direction of the Vienna School of Psychotherapy. W. Soucek.—p. 594.

*Influence of Pregnancy and Delivery on Course of Multiple Sclerosis. J. Hirschmann.—p. 595.

Disturbances in Sympathetic Regulations During Convalescence from Typhus. K. H. Pfeffer.—p. 596.

Pregnancy and Multiple Sclerosis.—Hirschmann points out that there have been cases in which a supervening pregnancy has caused no change whatsoever in existing multiple sclerosis; in other cases, however, pregnancy has been known to cause serious exacerbations. Recent observers have gained the impression that if pregnancy occurs during a chronic progressive form of multiple sclerosis, there is nearly always an exacerbation. The effect of pregnancy in the numerous cases of multiple sclerosis that have an intermittent course remains unclarified. The author investigated the records on multiple sclerosis of the neurologic clinic of the University of Tübingen and found that age is an important factor; that is, the higher the age at which multiple sclerosis and gestation concur the more unfavorable is the prognosis. The critical point seemed to be the transition of the third to the fourth decade. Of 42 women in whom onset or exacerbation of multiple sclerosis concurred with pregnancy or delivery, only 9 were in the third decade of life and the

other 33 were in the fourth decade. In answer to the question whether an interruption of pregnancy might prevent the progression of the multiple sclerosis, the author says that this could be considered in only some of the cases, for the exacerbation frequently appears during the second half of pregnancy, at a time when interruption is too dangerous.

Helvetica Medica Acta, Basel

15:569-638 (Dec.) 1948. Partial Index

- *In Vitro Culture of Endocrine Glands for Reimplantation Into Human Organism. K. F. Bauer.—p. 569.
Dysproteinemia and Paraproteinemia in Plasmocytoma: Detection by Fractionated Precipitation Curves. P. Guye and J. Joliat.—p. 581.
Differentiation of "Prothrombin Time" According to Quick. P. Frick.—p. 614.
Simple Method for Determination of Potassium in Serum. B. Cagianut.—p. 634.

In Vitro Culture of Endocrine Glands for Reimplantation Into Human Organism.—Bauer discusses the possibility of utilizing endocrine tissue cultures in the treatment of hormonal deficiencies. He attempts to show what may be regarded as possible and what is not possible as yet. The aim is to supply the human organism with hormone-producing cells instead of with chemical hormones. The author mentions three different culture methods that will be suitable for reimplantation into the human organism. Cultures of testes of calves were used in self experiments by the author in order to test local and general reactions. The site of injection remained slightly swollen and sensitive to pressure for a few days, but then these phenomena subsided. For pancreatic cultures material was obtained from a human fetus and in vitro cultures of several days were injected under the fascia lata of the thigh in a patient with diabetes mellitus. The injection was immediately effective, the blood sugar decreased and the patient, who previously had required 20 units of insulin daily, now feels well without insulin. The author admits that 1 case is not sufficient to demonstrate the efficacy of a method. It is possible that much larger doses should be given. The administration of the cultures is without danger. Discussing the possible mode of action of this method, the author considers (1) the hormones contained in the fragment, (2) the living cells of the matrix of the explantation and (3) the living cells of the growth zone. He stresses that after the injection of cultures of endocrine tissue a much larger biologically active surface is created. The third method of culture mentioned, the explanation of complete endocrine glands, is still in its beginnings and according to Bauer's observations is not suitable for all endocrines. The best results are obtained with thyroids, gonads and organs having a large amount of smooth muscle. Tissue cultures have been administered intramuscularly in more than 50 cases. In the majority of the cases there was a subjective improvement.

Journal de Médecine de Lyon

29:867-918 (Dec. 20) 1948. Partial Index

- *One Year of Treatment with Streptomycin at Tuberculosis Clinic of Lyon; Results and Considerations. A. Dufourt and H. Despeignes.—p. 867.
Insufficiencies and Calamities of Our Antituberculous Armamentarium. A. Dufourt, J. Brun and E. Berthet.—p. 873.
Pulmonary Shadows Originating from Lymph Nodes Following Primary Infection in Children and Adults. A. Dufourt.—p. 879.
Streptomycin and Surgery of Pulmonary Tuberculosis. M. Bérard and P. Juttin.—p. 885.

Streptomycin Treatment for Tuberculosis.—Dufourt and Despeignes treated 120 tuberculous patients with streptomycin. The total dose of the drug varied from 60 to 120 Gm. Of 11 patients with miliary tuberculosis, 6 were cured, 2 recovered temporarily but later died of meningitis in spite of roentgenographic improvement; 1 showed considerable and 1 fair improvement, and 1 was a failure. Of 4 patients with bronchopneumonia, 1 was cured, 2 showed considerable and 1 fair improvement. Of 13 patients with diffuse infiltrations, 1 was cured, 6 showed considerable and 4 fair improvement and 2 were failures. Of 47 patients with limited infiltrations, 11 were cured, 10 were considerably improved, 14 slightly improved and 12 were failures. Of 45 patients with cavities, 10 were cured, 10 others showed considerable and 14 showed fair improvement and 11 were failures. Streptomycin exerts a remarkable effect in cases of miliary tuberculosis and in recent acute cases of congestive type.

Definite improvement may result in fresh pneumonic processes and in beginning infiltrations. Good results may be obtained in diffuse bronchopneumonic forms which are not yet far advanced. Results vary from patient to patient in cases of chronic fibrocaseous tuberculosis. Usually the effect of streptomycin is only a relative one and may be exhausted before complete return to health. The volume of some cavities may be diminished, and some may disappear completely. It is likely that the collapse of the cavities depends primarily on the effect on the lesions of the draining bronchi. The streptomycin is effective in tuberculosis of the bronchi as well as in that of the larynx. This antibiotic makes it possible that a large number of tuberculous patients may be benefited by thoracic surgical treatment who otherwise would not because of the gravity and the extent of their lesions.

Nederlandsch Tijdschrift v. Geneeskunde, Amsterdam

92:3597-3704 (Nov. 6) 1948. Partial Index

- *Frequency of Eclampsia in Wartime. J. L. Mastboom.—p. 3604.
*Less Frequent Secondary Effects of Treatment with Neosarsphenamine: II. Anhidrosis After Dermatitis Caused by Neosarsphenamine. C. Blom-Ides and M. K. Polano.—p. 3625.
Connection Between Goiter and Congenital Defects. F. Pasma.—p. 3630.
Diagnosis of Coarctation of Aorta in Children. J. I. de Bruyne, S. van Crevel and H. A. P. Hartog.—p. 3636.

Eclampsia During Second World War.—Mastboom presents the results of an investigation on the incidence of eclampsia and other toxemias of pregnancy during the second world war in Amsterdam. A definite reduction was observed in all forms of toxemias of pregnancy. The author evaluates various factors which may be responsible for this decreased incidence and suggests that it is chiefly due to deficient nutrition which reduced the tonus in the vascular wall and caused a general lowering of the blood pressure. This loss of tonus increases the reserve of circulation. Lack of this reserve involves an insufficient blood irrigation of the intervillous spaces, which is the probable basis for the development of the toxemias of pregnancy.

Anhidrosis After Treatment with Neosarsphenamine.—Blom-Ides and Polano report 2 patients who experienced considerable discomfort when they were exposed to high temperatures. It was found that they had anhidrosis over the major part of their skin. In one of these patients a lichenoid neosarsphenamine exanthem had preceded; in the other, a Negro, an exfoliative neosarsphenamine erythrodermia, which had caused an extensive depigmentation. The authors point out that these cases recall Sulzberger's report on tropical anhidrotic asthenia following lichenoid dermatitis caused by treatment with quina-crine.

Nordisk Medicin, Stockholm

40:2077-2132 (Nov. 12) 1948. Partial Index

- Roentgen Diagnosis of Bone Tumors. S. Welin.—p. 2077.
*Experiences with Folic Acid. J. Waldenström and L. Andér.—p. 2079.
Premortary Symptoms in Cardiac Infarction. O. Storstein.—p. 2084.
*Clinical Significance of Right Axis Deviation in Electrocardiogram. K. Ørning.—p. 2089.
Primary Sarcoma of Pericardium. K. Ørning.—p. 2096.
Arteritis Temporalis—Universal Allergic-Rheumatic Disease of Arteries? Case with Necropsy. Annalise Dupont and L. Heerup.—p. 2098.

Experiences with Folic Acid.—Waldenström and Andér found that folic acid treatment of 25 patients with pernicious anemia gave satisfactory hematologic effect in all cases. The results in the 10 patients treated earlier with liver were comparable to those attained by liver treatment. The formation of erythrocytes was perhaps slightly slower with the folic acid dosage applied, which was kept as low as possible. Three cases of megaloblastic anemia refractory to liver responded to treatment with folic acid; in 1 case the effect of massive doses of folic acid lasted for almost two years. Otherwise no storage of folic acid with durable effect occurred. Observation on 15 patients controlled for five months or more seemed to indicate that treatment with folic acid protects against the development of neurologic symptoms but does not affect neurologic symptoms already present. In 1 instance, with neurologic symptoms developed on admission, initial improvement of the symptoms on administration of folic acid gave way to progression of the symptoms, and liver treatment was instituted. Treatment with folic acid alone is not advisable in patients with neurologic complications, and careful control of the nervous system is

imperative in continued treatment with folic acid. The authors query whether the low incidence of neurologic complications in their cases depends on the low folic acid dosage applied or on a low incidence of such complications in their Uppsala cases. A special field for treatment with folic acid is in patients with aggravated hypersensitivity to liver extract.

Clinical Significance of Right Axis Deviation in Electrocardiogram.—Ørning says that examination of the electrocardiograms of 7,700 patients revealed right axis deviation in 245. In patients with heart disease it appeared most often in mitral stenosis, 60 cases, and in congenital heart disease, 9 cases. In mitral stenosis it was greater in the patients with auricular fibrillation and in those with decompensation. Right axis deviation increases if the heart disease is intractable and tends to increase with the duration of the mitral stenosis, is somewhat more pronounced in cyanotic than in noncyanotic patients in congenital heart disease and is less marked in cases of hypertension than in cases of mitral stenosis. Right axis deviation in the electrocardiogram of patients with various pulmonary diseases appeared more often in cases of chronic disease and was rare in acute pulmonary disease; of the 28 patients with pulmonary disorders 13 had chronic bronchitis. Fifty patients with right axis deviation had gastrointestinal disorders, especially peptic ulcers. Twenty-three patients with right axis deviation, of whom 19 were under 40, had various internal diseases.

Schweiz. Ztschr. f. Pathol. & Bakteriöl., Basel
11:553-644 (No. 6) 1948

- *Coli-Theory of Appendicitis. F. Kauffmann.—p. 553.
Technic for Demonstration and Count of So-Called Silver Cells in Islands of Langerhans. G. T. Hultquist, M. Dahlén and C. G. Helander.—p. 570.
Degeneration of Intervertebral Disk in Juvenile Patients; Contribution to Pathogenesis of Scheuermann's Disease. R. Laederer.—p. 590.
Effect of Sexual Hormones on Growth. B. Cagianut.—p. 598.
Cloudy Swelling and Mitochondria; Phase Contrast Microscopic Study. H. Zollinger.—p. 617.
New Technic of Biologic Titration of Penicillin. V. Bonifas and E. Edlinger.—p. 635.

Colon Bacillus Theory of Appendicitis.—Kauffmann considers the frequent presence of certain serologic colon bacillus type with K antigens in the normal appendix as an important predisposing factor for appendicitis. The causative agent is on the spot, able at any time to assert its pathogenic faculties as soon as any disorder or injury happens to the mucous membrane of the appendix. Whether or not necrotizing appendicitis develops may largely depend on the presence or absence of necrotizing *Escherichia coli* strains in the appendix. This may be compared with the significance of certain pneumococcal types to the course of an attack of pneumonia. One knows just as little about the reason why under the given circumstances pneumonia develops in certain persons, as why appendicitis starts. The same *Esch. coli* types as observed in appendicitis may also be obtained in cultures from peritoneal pus in cases of appendicitic peritonitis in the same patients. The same types are encountered also in infections of the urinary tract and bile ducts, and their etiologic part here cannot be denied. Hence to designate certain serologic *Esch. coli* types as particularly pathogenic seems justified. They do not always induce infection. In this respect they are not on the same level as highly pathogenic micro-organisms such as plague bacillus and *Vibrio comma*; they merely possess a conditional pathogenicity. The clinical aspect of acute appendicitis, a true infectious disease, may be explained easily as an infection with certain serologic types of the *Esch. coli* group. In some cases the possibility of a mixed infection with certain serologic types of enterococci or other bacteria may be taken into account.

Semana Médica, Buenos Aires

55:1049-1086 (Nov. 10) 1948. Partial Index

- *Hematogenous Tuberculosis: Prognosis. A. P. Heudtlass and A. J. Tassara.—p. 1075.
*Streptomycin in Treatment of Whooping Cough and Complications. J. M. Albores.—p. 1082.

Prognosis of Hematogenous Tuberculosis.—According to Heudtlass and Tassara the factors which have an influence on the prognosis of hematogenous tuberculosis are the virulence and number of tubercle bacilli, and the natural resistance and

the immunobiologic and economicosocial condition of the patient. The character of the lesion depends on these factors. An early etiopathogenic diagnosis and continued prolonged observation of the patient with clinical, roentgen and laboratory examinations are important. General hematogenous tuberculosis with involvement of all viscera is acute, and almost always fatal. The prognosis is favorable in types of prolonged, slow evolution, except when these types, through the presence of certain determining factors run in successive bouts to either a tertiary form or into a rapidly acute form and death. The response of the patient to the treatment is a reliable prognostic index, especially in types with local foci and in hematogenous cavitation. The classic treatment should be resorted to. Streptomycin is still in the experimental phase in man. In making a prognosis it is advisable to evaluate the fact that the sequels of an early dissemination, the prognosis of which is favorable, can be complicated by superimposed lesions of a new hematogenic focus. Patients with secondary lesions of primary infection should be isolated from the source of contagion and should be protected against factors which favor an unfavorable prognosis. Early diagnosis and serial and prolonged observation of the patient are of great value.

Streptomycin in Whooping Cough.—Albores reviews the literature and comments on the value of early administration of streptomycin. The drug is administered by the intramuscular route. The daily dose for infants and children, respectively, varies from 0.50 Gm. for the former to 1 Gm. for the latter. This dose is administered in either four or six fractional doses which are administered at regular intervals. The treatment is given for five or ten consecutive days. Streptomycin nebulizations are given in the course of the intramuscular treatment in acute forms. The author concludes that the drug is indicated in the following cases: (1) in infants less than 1 year of age; (2) in acute forms complicated with dyspnea, cyanosis or nervous and pulmonary symptoms and (3) as a preventive measure. In such cases the drug is given in nebulized form to infants and children who are living in an epidemic environment and who begin to cough.

Wiener medizinische Wochenschrift, Vienna

98:545-566 (Dec. 18) 1948

- *Symptomatology of Traumatic Diaphragmatic Hernia. H. E. Stocker.—p. 545.
Pathogenesis of Malignant Neoplasms. H. Flamm.—p. 547.
Tasks of Social Worker in Psychiatry; Part Played by Mental Deficiency in State of Neglect. A. Juda.—p. 549.
Continuous Spinal Anesthesia. H. Karnitschnigg.—p. 552.

Traumatic Diaphragmatic Hernia.—Stocker reports 4 cases of traumatic herniation in 4 men between the ages of 22 and 54. In 1 patient the herniation resulted from blunt trauma occurring from a fall against the edge of a table, while in the 3 other patients it resulted from penetrating gunshot wounds. These 4 cases revealed that rupture of the diaphragm may be manifested months or even years after the original trauma. Rupture may be the result of a slight subcutaneous injury of the diaphragm, which first could not be demonstrated. Fibrous healing of the wound of the diaphragm presents a spot of lessened resistance where a tear may result from a relatively slight trauma or even from exertion because resistance can no longer be offered to an increased burden. These are the premises for the occurrence of acute symptoms of herniation through the diaphragm, which in the author's cases were manifested two and a half months to eleven months after the original trauma, and in 2 of them after a forced march for several hours. Escape of abdominal viscera into the thorax with prolapse of the spleen occurred in 2 of the cases of percutaneous rupture of the diaphragm. In one, death occurred eight days after surgical intervention in which the adhesions between the spleen and the internal thoracic wall were loosened and the spleen returned to its normal position, while fatal peritonitis resulted from spread of an infection with streptococci. In the other case the prolapsed spleen was left in the thoracic cavity; the patient recovered and there were no harmful sequelae.

Book Notices

Human Biochemistry. By Israel S. Kleiner, Ph.D., Professor of Biochemistry and Director of the Department of Physiology and Biochemistry, New York Medical College, Flower and Fifth Ave. Hospitals, New York. Second edition. Cloth. Price, \$7. Pp. 649, with 77 illustrations. C. V. Mosby Co., 3207 Washington Blvd., St. Louis 3, 1948.

The practice of medicine today is difficult without some understanding of human biochemistry. Often the books that are prepared are intended more for the medical student and chemical student than for the practitioner; such books are too technical for the audience that could use them to considerable advantage. This volume does not provide so much detail that the reader becomes lost in the pages. It offers comparatively brief discussions that can be quickly read and easily understood. Included in the chapters are discussions on physical chemistry, carbohydrates, lipids, proteins, body tissues, milk, blood, enzymes, digestion, chemical changes within the large intestine, vitamins, foods, physiologic oxidations, nitrogen metabolism, carbohydrate metabolism, lipid metabolism, mineral metabolism and water balance, urine, the chemistry of respiration and acid-base balance, energy metabolism, changes in the chemical composition of blood, hormones, and certain clinical applications which involve function tests and other problems of clinical significance.

Formulary Bellevue Hospital. (Prepared by Bellevue Hospital Committee on Drugs and Formulary.) Dr. Edward L. Bernecker, Commissioner, Department of Hospitals, City of New York. Dr. William F. Jacobs, Medical Superintendent, Bellevue Hospital, New York. Paper. Pp. 72. The New York Physician, 1440 Broadway, New York 18, 1948.

This formulary lists the agents found acceptable by the Bellevue Hospital Committee on Drugs and Formulary for the dispensing of drugs to treat patients at Bellevue Hospital. The purpose of the formulary is "first, to assure that the patients treated at Bellevue Hospital are given the benefit of the most effective and accepted therapy; second, the institution, because of its vast teaching facilities, has the obligation to the physician to have available to him the most recent advances in therapy." The formulary is not a textbook of therapeutics or pharmacology, and provides no indication of the therapeutic use of the contained drugs. This is the way hospital formularies should be prepared, and the committee is right in feeling "strongly that no one should use a drug until he is thoroughly familiar with its pharmacologic action, therapeutic indications, dosage, and signs of toxicity. Such information could never be adequately contained in a pocket Formulary." However, a therapeutic classification, offered as a guide only, is included at the end of the formulary. This booklet is an adequate testimony to what can result from a careful study of drugs that are used in a hospital and the formation of a formulary committee to assure the proper use of these drugs.

Practical Orthodontics. (Original Text by the Late Martin Dewey.) Revised by George M. Anderson, D.D.S., Professor of Orthodontics, Baltimore College of Dental Surgery, Baltimore. With Chapters by Bernhard Wolf Weinberger and others. Seventh edition. Cloth. Price, \$10. Pp. 556, with 640 illustrations. C. V. Mosby Co., 3207 Washington Blvd., St. Louis 3, 1948.

There is much valuable fundamental material covered by the seventh edition of this book. It contains a chapter on the field of orthodontics as a dental specialty, including definitions, objectives and benefits of this science. There is an inclusive and pertinent history on the background and progress of modern orthodontics. The volume continues with lengthy discussions on etiology, diagnosis, classification and the mechanical methods of treatment and retention of malocclusions of the teeth. A parallel is drawn between medical and orthodontic diagnosis. The former is generally concerned with a pathologic condition and is determined symptomatically or by the exclusion of other diseases. Orthodontics for the most part does not involve a pathologic condition, but presents a problem in diagnosis concerned with growth and development (or lack of) of the body as a whole, and the teeth, jaws and face in particular. In its own field each has the same importance in relation to prognosis and treatment. Fortunately for orthodontics, the diagnosis need not be made in haste, but periodic observation gives a splendid opportunity to observe the growth pattern, habits and general

health of the patient. While there is a chapter by Broadbent on his original roentgenographic cephalometric growth studies, there is not a discussion of the clinical application of cephalometrics to case analysis and treatment planning as used by Downs, Thompson and Wylie and others. There is no comprehensive discussion on the growth of the mandible, its effect on the denture pattern and the influence of mandibular rest position on case analysis and treatment planning. A chapter is devoted to extraction in its relation to orthodontic treatment. The profession has generally been divided into three classes in their attitude toward this subject, and the author attempts to show that there is a place for extraction in orthodontics but warns that if the privilege is abused by poor judgment, the removal of teeth will produce its repercussions and poor results. This book is a fine source of information and is considered to be one of the five or six standard texts in the field of orthodontics.

The Netherlands Red Cross Feedingteam Report on Nutritional Survey in the Netherlands East Indies Conducted During October 1945 till June 1946. Boards. Pp. 119, with illustrations. Netherlands Red Cross Society, The Hague, 1948.

Immediately on the capitulation of Japan a Netherlands Red Cross Nutrition Research Team was organized, and within a week an advance contingent was on its way to Java. There they found chaos but set to work to aid and to study the large population groups malnourished after years of life in military internment camps and prisons. This report of their work is a valuable contribution to our knowledge of nutrition, of tropical disease and the problems of organized medical relief work. A large part of the report, which reflects the orientation of the research program, is concerned with the laboratory evaluation of the state of vitamin nutrition, but the notes on clinical findings are perhaps more interesting. Simple caloric deficiency was not extreme, but the results of prolonged malnutrition were numerous and puzzling. Many unexpected problems arose and some of these were solved by ingenious improvisation. The high infant mortality was checked by a "wonder milk" produced from dried milk by bacterial culture. The forensic medical problem of appraising the evidence in suspected cannibalism was solved by a study of the crystals formed in congealing fat. However, as in other contemporary studies on famine victims, the recognition of unsolved problems is perhaps the most important feature of the report. The lack of vascular, thermal and other reactions of standard stimuli in the underfed, combined with the disappearance of allergic complaints, poses problems—and perhaps gives a clue to their study—which have many ramifications.

The Story of the Johns Hopkins: Four Great Doctors and the Medical School They Created. By Bertram M. Bernheim, M.D. Cloth. Price, \$3.50. Pp. 235, with 10 illustrations. Whittlesey House, McGraw-Hill Book Company, Inc., 320 W. 42d St., New York 18, 1948.

A story of the development of Johns Hopkins Medical School from 1889 to the present day with particular emphasis placed on human interest. The author states that he has been associated with the school for the past fifty years. The book deals with the founding and subsequent development of the Johns Hopkins Medical School and Hospital. Development is related to the lives of its four best known founders, Dr. W. H. Welch, Dr. W. Osler, Dr. W. Halsted and Dr. H. Kelly. The lives of these men, who contributed to the flowering of Johns Hopkins Institution, and the near and distant impact of the traditions of Johns Hopkins on medicine are described. Chapters are devoted to special historical occurrences at Johns Hopkins, such as the admission of women, the development of the resident system, Harvey Cushing and the Hunterian laboratory, and development of the "Welch Institute of the History of Medicine." Contributions of other men are mentioned, such as Hugh Young, in urology, J. W. Williams in obstetrics and M. T. Finney in surgery.

A chapter is devoted to the decision of Johns Hopkins to adopt complete full time employment of physicians with comment on the probable effect of this decision on the future of the institution.

Much of the material is of interest to all physicians, particularly the chapters which refer to the four outstanding founders of Johns Hopkins. Other sections will interest only those associated with Johns Hopkins, as former students or staff.

Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. THEY DO NOT, HOWEVER, REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS, BUT THESE WILL BE OMITTED ON REQUEST.

HEREDITY AND TUBERCULOSIS

To the Editor:—Do children born of tuberculous parents have a hereditary susceptibility or a tuberculous diathesis?

Edward K. Disney, M.D., Outwood, Ky.

ANSWER.—Scientific evidence does not justify the belief that children born of tuberculous parents have a hereditary susceptibility or a tuberculous diathesis. Expressions to that effect are based entirely on personal opinion. Galen (131-201 A. D.) was of the opinion that approximately one half of the cases of tuberculosis were due to heredity and the other half to contagion. He became the authority in medicine for the next 1,500 years, or until the Renaissance in medicine. Throughout these centuries there were two schools of thought, one clinging to the hereditary nature of tuberculosis, and the other to its contagiousness. The school believing in the contagious nature of tuberculosis became strong enough to cause the enactment of laws in Italy and Spain in the last half of the eighteenth century to control the contagiousness of the disease. The inheritance theory became so firmly implanted in the human mind, however, that it has been carried down to the present day despite the overwhelming evidence that the disease is caused by a micro-organism, and therefore is contagious, and the total lack of scientific evidence for inheritance.

Even congenital tuberculosis is relatively rare, as determined by necropsy examination of stillborn infants and those who die from various causes soon after birth. It is a great rarity for a newborn infant to react to tuberculin. Chadwick administered the test to 156 newborn infants of tuberculous mothers, and not one reacted. Apparently congenital tuberculosis occurs only when the placenta becomes involved so that its barrier effect is lost.

Early in this century Grancher of France demonstrated that when infants did not have contact with their tuberculous mothers after birth but were placed in foster homes they did not subsequently contract more tuberculosis than the children of the general population. This observation has been confirmed many times. Children of tuberculous mothers or fathers do contract more tuberculosis than those of the general population if they remain in contact with the parents. Children of tuberculous parents who do not have contact with the parents after birth but who at some subsequent time are exposed to contagion do not contract more primary tuberculosis than children under the same circumstances of parents not having tuberculosis. Moreover, the children of tuberculous parents who subsequently have primary lesions are not more likely to have the acute and chronic reinfection forms of the disease than are those from homes where there is a total absence of tuberculosis.

The theories which permit the fatalistic point of view that the child of tuberculous parents is more susceptible to tuberculosis because of heredity, or the opposite, that the child of nontuberculous ancestry is more susceptible because of the absence of inherited immunity, are untenable. The entire problem resolves itself into one of infection with tubercle bacilli, which usually occurs after birth. All children have an effective defense mechanism against the first invasion with this organism. However, this is not adequate to destroy tubercle bacilli, and thus some of them subsequently have acute and chronic reinfection forms of clinical tuberculosis, regardless of the presence or absence of this disease in their ancestors.

POSTNASAL DISCHARGE

To the Editor:—What are the common causes of "postnasal drip"? What are the most successful ways of treating this condition? Is antrum lavage of benefit?

M.D., New York.

ANSWER.—"Postnasal drip" is the term used to describe the chronic accumulation of secretion in the nasopharynx, from where it may "drip" down into the pharynx. Such secretions usually originate in the nose or sinuses and are carried back by the ciliary mechanisms into the nasopharynx. There are several

possible causes for such an accumulation, some of which are chronic inflammatory states in the nose and sinuses caused, for example, by infections or irritants, allergic reactions in the nose or a simple vasomotor response either to external, systemic or neurogenic factors.

Antrum lavage is indicated only when the antrum is the site of chronic infection and retains an accumulation of secretion which may thus be removed. The recovery of ciliary action and normal emptying of the sinus is thereby promoted.

HYPOCHLOREMIA

To the Editor:—A paracentesis was performed on a 45 year old patient with nodular cirrhosis; 2,000 cc. of fluid was removed and the wound allowed to drain. After four days extreme weakness developed and the patient could "hardly lift his glass of water." Blood chlorides were 120 mg. per hundred cubic centimeters and nonprotein nitrogen 120 mg. The patient was given 13 Gm. of sodium chloride intravenously and by mouth that day, and in a few hours his strength and general appearance improved. Chlorides and nonprotein nitrogen returned to normal in three days. There has not been a recurrence. The patient had been on a salt-poor diet previous to this episode. He does not have findings suggestive of Addison's disease. What explanation can be offered for this and what future care is suggested?

M.D., New Jersey.

ANSWER.—It has recently been shown that a considerable shift of chloride ion into extracellular spaces may occur in primary hepatic disease, but it is rare to find any significant depression in blood chlorides. However, after tapping in cirrhosis, a significant hyponatremia may develop which is frequently masked by hemoconcentration (Cantarow, A.: *Am. J. Clin. Path.* 8:142-152 [March] 1938). It is certainly most unusual to encounter a chloride deficiency of this degree in a cirrhotic patient, and, unless the laboratory methods employed are known and whether the determinations were made on whole blood or serum, it would be impossible to reduce the deficiency to terms of milliequivalents per liter. The amount of sodium chloride (13 Gm.) which was required to relieve the patient's symptoms and bring the blood chlorides to a normal level is rather small, a fact which indicates the possibility of a laboratory error.

It would seem advisable to observe the blood chloride levels in this case before and after tapping, while the patient is taking a normal amount of sodium chloride. Calculation of the chlorides in the ascitic fluid and hematocrit readings on the patient's blood would then permit a fairly accurate appraisal of the chloride losses. This would, of course, simplify the problem of replacement of chlorides.

TREATMENT OF MENOPAUSE

To the Editor:—A white woman aged 50, nulliparous, has had menopausal symptoms for the past ten years. She began menses at age 11 and had severe dysmenorrhea until her late twenties, at which time the dysmenorrhea abated somewhat. Her menstrual periods were frequent, beginning with seven day intervals and advancing to twenty-one day intervals at 30 years of age. At age 40 she had irregular menses and hot flashes. In 1943 she had only two menstrual periods. She was given estrone every three weeks for nine weeks. At the end of this time she flowed profusely and the therapy was discontinued. In 1946 she had estrogen therapy and flowed profusely each time after receiving 10,000 units. In January 1947 she took diethylstilbestrol 0.5 mg. every three or four days. She did not flow but had the sensation of impending menstruation. I saw her on Nov. 6, 1948, for the first time. She continues to complain of hot flashes, nervousness and headaches. Her last menstrual period was in October 1943. Pelvic examination is negative. What therapy can be recommended?

M.D., Nebraska.

ANSWER.—A patient bleeding as irregularly as the patient mentioned deserves a diagnostic curettage for diagnosis. Following this determination of basal metabolic rate and cholesterol should be performed to determine thyroid function. If these are normal or subnormal give thyroid to tolerance starting with ½ grain (30 mg.) and raising it ½ grain every three to four weeks until the morning pulse rate before arising is just under 80.

Phenobarbital, ½ grain one to three times a day, will help remarkably.

If curettings are negative for carcinoma, then the patient can be started on 1 mg. diethylstilbestrol a day until symptoms are relieved, but not for more than thirty days. The dose then should gradually be cut down to the least compatible with symptom abatement. Many physicians believe that estrogen should not be given more than about three fourths of the time; that is, give it for twenty-one days, stop for ten days, and then start again.

It must be remembered that not all patients with the symptoms complained of are suffering from menopause. A large psychic factor occurs.

HEREDITY IN EPILEPSY

To the Editor:—A couple consulted me as to the advisability of parenthood. They are both 30 years of age and are second cousins (grandfathers were brothers; mother of wife and father of husband are first cousins). There is a history of grand mal epileptic seizures in the wife's father, her father's brother and sister. Epilepsy does not occur on the husband's side. Would the chances of epileptic offspring be influenced by the family interrelationship? What are the chances of the parents' having an epileptic child and also the chances of future development of epilepsy in the wife?

T. E. Swegart, M.D., Maquoketa, Iowa.

ANSWER:—Because the wife's blood relationship to her husband was through her mother, and not through her father (the epileptic), consanguinity would not add anything to the chances of epilepsy in the children of the couple named. The wife's father is the only affected limb of the family tree. Information is lacking about any family history of migraine, or whether some acquired condition might have been responsible for the epilepsy of the father, uncle and aunt of the wife. At the age of 30 her chances of having clinical symptoms are slight, certainly much less than the 1 in 40 chance of the average near relative of an epileptic. If the husband does not carry a predisposition, the chances of their having an affected child are reduced still further. Electroencephalograms of the couple might define the chances more clearly (Lennox, W. G.: *Marriage and Children for the Epileptic*, *Human Fertil.* 10: 97-106 [Dec.] 1945).

PERMANENT BRAWNY EDEMA

To the Editor:—A 33 year old para III gravida III has had massive pitting edema of the entire leg from thigh to foot since an attack of phlebitis following the birth of her first child in 1938. The edema is greater in the left leg and fluctuates somewhat from day to day. Signs of cardiovascular disease are absent. What treatment is recommended?

M.D., Indiana.

ANSWER:—The condition is difficult to improve if the usual methods have been tried and have failed. Usual methods consist of bed rest for several days with leg elevated, full length elastic stockings (made to order by fitting when swelling is least) whenever patient is up and bed rest twice a day for one hour with leg elevated.

If the swelling can be decreased scar tissue is less likely to form in the edematous tissue. Such fibroblastic proliferation causes the permanent brawny edema.

Any suspicion of dermatophytosis between the toes must be treated thoroughly with fungicides. Veins should not be injected with sclerosing solutions and should not be ligated, because venous collaterals should be preserved. If much brawny edema has already formed the treatment is surgical. The Kondoleon operation consists of removal of large amounts of such tissue.

TREATMENT OF BREAST AMPUTEES DURING PREGNANCY

To the Editor:—A patient, para III, about four months pregnant, had both breasts amputated because of hypertrophy in 1944. Diagnosis was unknown by the patient. She has some breast tissue at present and is beginning to become uncomfortable. What type of treatment should be given to this patient?

J. B. Carlyle, M.D., Burlington, N. C.

ANSWER:—The breasts usually stop developing during pregnancy between three and four months; therefore treatment is not necessary now. At delivery start the patient on 5 mg. of diethylstilbestrol each night at bedtime for four or five nights and use an ice bag if pain develops. Limit fluid intake moderately.

Breast tissue without ducts is common in the axilla during pregnancy, and the described treatment is usually all that is necessary.

EDEMA OF RETINA

To the Editor:—A month ago a 37 year old man looked at a telephone pole and noticed that it seemed to bow much to his left if he used his left eye only. Straight edges seemed to bow down when the same eye was used. After correction of mild hyperopia, astigmatism and exophoria for far range, bowing in both directions remained the same. Retinoscopic examination was normal. History of injury is absent. The patient complains of mild pain near the left temple and in the left occiput. Please suggest diagnosis and treatment.

O. C. Amstutz, M.D., Bellefontaine, Ohio.

ANSWER:—The image distortion suggests a localized elevation or edema of the retina near the fovea, probably immediately superior and nasal to it. This may occur in early choroiditis, retinal detachment, macular edema or cyst. Such lesions may be almost impossible to detect except by ophthalmoscopy with red-free light. Treatment must be directed toward the cause.

VERTIGO FROM STREPTOMYCIN

To the Editor:—A patient with draining tuberculous sinuses (inguinal and posterior 'liac) of twenty years' duration was treated with 1 Gm. of streptomycin daily. Streptomycin was discontinued after fifteen days because of severe vertigo. The sinuses are healed. After three weeks the eighth nerve impairment seems to be improving. Is there any therapy for relief from this vertigo? If the sinuses reoccur would another course of streptomycin be advisable, assuming a recovery from the present vestibular dysfunction?

W. W. Montgomery, M.D., West Rutland, Vt.

ANSWER:—Therapy for the relief of vertigo following damage by streptomycin to the vestibular apparatus is not known. However, it has been found that after a few months, even without regeneration of the vestibular nerve, the patient improves greatly because of cerebellar compensation.

Recurrence of the draining sinuses once healing has taken place is unusual. However, dihydrostreptomycin in equal dosage has proved to be equally effective, and less toxic in its action over a longer period of time. A dosage of 0.5 Gm. daily is probably as effective in the treatment of draining tuberculous sinuses as 1 Gm.

OPTICAL LENSES

To the Editor:—What methods may be used to determine the qualities of optical lenses in spectacles needed for good vision? What apparatus can be used in the office to make such tests?

Joseph Bagan, M.D., Washington, D. C.

ANSWER:—Ophthalmologists do not regularly use precise methods to determine whether or not the optical lenses which they prescribe for patients have special qualities suitable for good vision. The manufacturers all supply lenses which are perfectly adequate. Even glass which has aged through many years of exposure to the sun's rays and has acquired a slight yellowish color apparently does not prevent the patient from seeing just as well, in every detail, as he can through brand new glass. The Bureau of Standards, Washington, D. C., can furnish further detailed information.

HYDROCEPHALUS

To the Editor:—In *Queries and Minor Notes* (The Journal, January 15, p. 194) the question was asked whether occurrence of hydrocephalus or other abnormalities in one child might indicate probable occurrence of abnormalities in subsequent offspring of the same woman.

The answer stated that a subsequent child might suffer from hydrocephalus, that this was extremely unlikely to occur but that hydrocephalus had been observed in several members of the same family. In the absence of a family history of hydrocephalus, the advice was given that, in having additional children, the parents of a hydrocephalic child run no greater risk in having another hydrocephalic child than do all other parents.

Murphy (Murphy, D. P.: *Congenital Malformations: A Study of Parental Characteristics with Special Reference to the Reproductive Process*, ed. 2, Philadelphia, J. B. Lippincott Co., 1947) studied the outcome of all conceptions of 890 women, each of whom had given birth to a congenitally malformed child.

He discovered 1 malformed brother or sister in every 8 who were born alive after the birth of the first defective child. In the general population he found only 1 malformed child for every 200 infants that were born alive. Translated into other terms, a mother of a congenitally malformed child, irrespective of the type of defect, is twenty-five times more likely to have another defective offspring than is a mother in the general population.

Anomalies of the central nervous system represented 60 per cent of all of the body defects which Murphy studied, and hydrocephalus accounted for nearly half of these.

Forty of the 890 original families had 2 or more defective offspring. Nine of these 40 families contained hydrocephalic children. Seven of the 9 families each had 2 hydrocephalic children. Four of these 9 families each had an anencephalic child, and 2 of the 4 families had 2 anencephalic children in addition to a hydrocephalic one.

Murphy's study showed also that there is nearly 1 chance in 2 that a subsequent malformed child will exhibit the same defect as that possessed by its earlier born defective brother or sister. This is a high frequency for the reduplication of a defect in a family in view of the great variety of anomalies which may appear at birth.

In view of these observations, and also because, in many instances, normal brothers and sisters resemble one another in many respects, the outlook for the birth of normal offspring does not appear to be as bright for the parents of a hydrocephalic child as for parents in the general population.

Douglas P. Murphy, M.D., Philadelphia.

To the Editor:—I have delivered babies with mongolism. One baby was the second child in a family in which the previous child was normal. The second baby was the third child in a family in which the first child was mongolian and the second child normal. The third baby was the fifth child in a family where the first child was normal, the second had mongolism, the third and fourth children were normal and the fifth had mongolism.

These children have all been seen by recognized pediatricians.

In my experience mongolism does appear more than once in the same family.

Peter B. Rudy, M.D., Spokane, Wash.

The Journal of the American Medical Association

Published Under the Auspices of the Board of Trustees

VOL. 140, No. 3

CHICAGO, ILLINOIS
COPYRIGHT, 1949, BY AMERICAN MEDICAL ASSOCIATION

MAY 21, 1949

ESSENTIAL HYPERTENSION

Laboratory Studies in Human Beings with Drugs Recently Introduced

ROBERT W. WILKINS, M.D.
EDWARD D. FREIS, M.D.
and
JOSEPH R. STANTON, M.D.
Boston

The urgent need for satisfactory medicinal therapy in essential hypertension has led to the investigation of a wide variety of pharmacologic agents. In this clinic, particular emphasis has been laid on the elucidation of the mode of action of the various drugs employed, in the hope of providing a rational basis for the chemotherapy of the disease.

Of the preparations tried in this clinic,¹ two have appeared to be of sufficient practical value to warrant detailed study. These are veratrum viride, the administration of which leads to generalized but integrated vasodilatation, and dihydroergocornine, which inhibits sympathetic vasoconstriction. Effective by mouth, and adequately lasting in action, both are suitable for long term clinical trial. Unfortunately, administration of veratrum often leads to nausea and vomiting, and occasionally to collapse, especially when dosage is not carefully controlled. Therefore, its clinical use frequently is restricted to patients with severe hypertension in whom the benefits warrant the occasional unpleasant side effects. Likewise, dihydroergocornine, while fulfilling many of the criteria of a desirable sympatholytic agent, including oral effectiveness, is of limited clinical usefulness because it lowers the arterial pressure in only a small proportion of hypertensive patients. However, in spite of these shortcomings, both drugs have been of sufficient aid in the management of some cases of severe hypertension to merit investigation of their pharmacologic properties and physiologic effects in normal and hypertensive subjects.

From the Evans Memorial, Massachusetts Memorial Hospitals, and the Department of Medicine, Boston University School of Medicine, Boston. These studies were supported in part by grants in aid from the Squibb Institute for Medical Research and from the Dart Foundation.

Read in a Symposium on Hypertension in a joint meeting of the Section on Experimental Medicine and the Section on Internal Medicine at the Ninety-Seventh Annual Session of the American Medical Association, Chicago, June 25, 1948.

1. (a) Freis, E. D.: Recent Advances in the Medical Treatment of Essential Hypertension with Particular Reference to Drugs, *M. Clin. North America* 32:1247, 1948. (b) Freis, E. D., and Wilkins, R. W.: Effect of Pentammine in Patients with Hypertension, *Proc. Soc. Exper. Biol. & Med.* 64:455, 1947. (c) Freis, E. D., and Stanton, J. R.: A Clinical Evaluation of Veratrum Viride in the Treatment of Essential Hypertension, *Am. Heart J.* 36:723, 1948. (d) Freis, E. D.; Stanton, J. R.; Culbertson, J. W.; Litter, J.; Halperin, M. H.; Burnett, C. H., and Wilkins, R. W.: The Hemodynamic Effects of Hypotensive Drugs in Man: I. Veratrum Viride, *J. Clin. Investigation* 28:353, 1949. (e) Freis, E. D.; Stanton, J. R., and Wilkins, R. W.: The Effects of Certain Dihydrogenated Alkaloids of Ergot in Hypertensive Patients, *Am. J. M. Sc.* 216:163, 1948. (f) Freis, E. D.; Stanton, J. R.; Litter, J.; Culbertson, J. W.; Halperin, M. H.; Moister, F. C., and Wilkins, R. W.: The Hemodynamic Effects of Drugs in Man: II. Dihydroergocornine, to be published.

VERATRUM VIRIDE

This controversial drug, of ancient vintage, has had a colorful history. Used intermittently in the past by obstetricians and general practitioners, it has only recently been made available in a fairly stable, biologically standardized, oral preparation (vertavis®)² suitable for clinical trial in essential hypertension. Its most dramatic hypotensive effect occurs on acute administration and is particularly useful in cases of encephalopathy and/or myocardial failure secondary to severe hypertensive crisis.^{1c}

Since veratrum viride has long been presumed to be a cardiac depressant, laboratory studies of cardiac output under controlled conditions seemed necessary.³ Measured by the Fick method, cardiac output was never found to be decreased, but occasionally to be moderately increased after the drug, particularly in 2 patients in whom it was already low as a result of acute left ventricular failure (fig. 1). In these patients the increase in cardiac output after the drug was taken was associated with a striking reduction in pulmonary arterial pressure, a slowing of the pulse rate and a disappearance of pulsus alternans. A similar disappearance of pulsus alternans was also observed in 3 other patients after the administration of the drug and usually was associated with an improvement in the ballistocardiogram (fig. 2).

In order to corroborate the evidence of a decrease in peripheral resistance after administration of veratrum and also to determine its location, blood flow through various body areas was determined. Since blood flow varies directly with arterial pressure and indirectly with resistance, one would expect the flow to be increased or unchanged, if peripheral resistance is reduced after administration of veratrum, despite the resultant decrease in arterial pressure. Estimations of hepatic-portal (splanchnic, exclusive of renal and adrenal) blood flow by the sulfobromophthalein sodium method⁴ showed an initial reduction to occur with the first fall in arterial pressure, followed by a rise to or above the control values when the lowered arterial pressure became stabilized after a parenteral dose of the drug (fig. 3).⁵ Peripheral blood flow (plethysmographic) in the forearm and calf⁶ was found initially to increase,

2. The vertavis® used in this study was supplied by the Irwin-Neisler Co., Decatur, Ill., and the dihydrogenated alkaloids of the ergotoxine group by the Sandoz Chemical Works, Inc., New York.

3. (a) Freis and others.^{1d} (b) Halperin, M. H.; Freis, E. D.; Culbertson, J. W., and Wilkins, R. W.: The Effects of Various Types of Hypotensive Therapy upon Cardiac Output in Hypertensive Patients, to be published.

4. Bradley, S. E.; Ingelfinger, F. J.; Bradley, G. P., and Curry, J. J.: The Estimation of Hepatic Blood Flow in Man, *J. Clin. Investigation* 24:890, 1945.

5. (a) Freis and others.^{1d} (b) Culbertson, J. W.; Freis, E. D.; Stanton, J. R., and Wilkins, R. W.: The Effects of Certain Hypotensive Drugs upon Hepatic Function and Blood Flow in Hypertensive Patients, to be published.

6. Litter, J.; Freis, E. D., and Wilkins, R. W.: The Peripheral Circulatory Effects of Certain Hypotensive Agents in Normotensive and Hypertensive Man, to be published.

decrease or remain the same in the falling phase of the hypotensive response to veratrum, but usually to return to or above control levels in the stable phase.

Likewise, measurements of renal blood flow with para-amino-hippurate (sodium) (PAH) revealed an

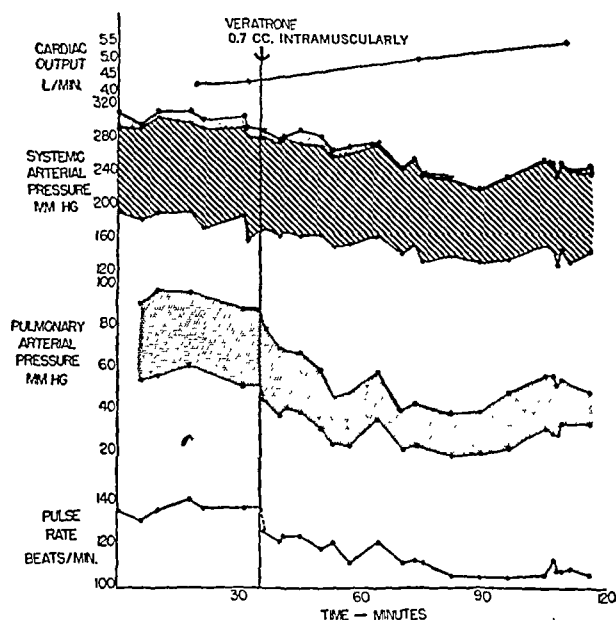
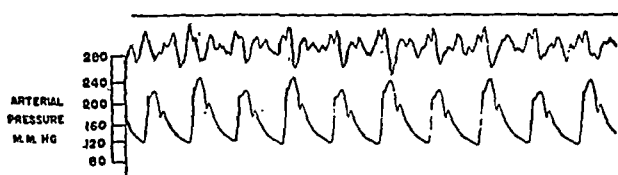


Fig. 1.—Chart of cardiac output, systemic arterial pressure (with double systolic readings denoting the amount of pulsus alternans), pulmonary arterial pressure and pulse rate in a hypertensive patient before and after the parenteral administration of veratrum viride (veratrone,® Parke, Davis & Company).

initial decrease, then a return to control values when arterial pressure was established at a lower level after administration of veratrum (fig. 4).⁷ Although cerebral blood flow has not yet been measured, examination of the optic fundi confirmed the observations of Willson

BEFORE DRUG



AFTER DRUG



Fig. 2.—Optical records of the ballistocardiogram and the arterial pressure (Hamilton) of a hypertensive patient before and after the parenteral administration of veratrum viride (veratrone®).

and Smith⁸ that visible arterial and arteriolar dilatation may occur in the retinal blood vessels after administration of veratrum. Thus, in all of the areas where blood

flow was estimated, there was evidence, after an initial adjustment period, of a decrease in peripheral resistance, indicating that the vasodilating effects of the drug were not confined to any one area, but were generalized.

The outstanding change in renal function following the parenteral injection of veratrum viride⁷ was the development of oliguria, a phenomenon which could not be explained by a decrease in either renal plasma flow or glomerular filtration rate. Following an early and usually moderate decrease in filtration rate (inulin) and plasma flow (PAH) there was a return of these functions to or above control levels despite a continuance of the hypotension and the oliguria. While the concentration of the clearance substances in the plasma did not rise, their concentration in the urine was greatly increased during the period of oliguria. However, the renal extraction of PAH as measured directly in renal venous blood was not significantly changed. These results were interpreted as indicating that the kidneys were clearing the blood as efficiently after administration of veratrum as before, but were doing so by the production of a small volume of highly concentrated urine. The antidiuretic effect of veratrum seemed to be temporary, since continuous oral administration of

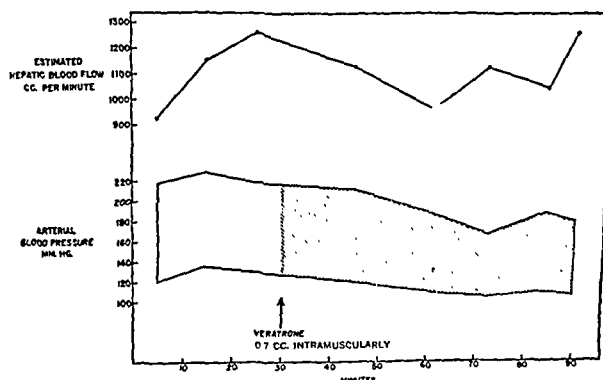


Fig. 3.—Chart of estimated hepatic-portal blood flow (BSP) and arterial pressure in a hypertensive patient before and after veratrum viride (veratrone®) given parenterally.

the drug did not result in oliguria, even with sustained reductions of arterial pressure.

Vascular distention during venous congestion⁹ in the forearm and calf was usually increased after administration of veratrum.¹⁰ Skin temperature in the hands and feet showed no significant change, and vasomotor responses to "noxious" stimuli remained intact. Likewise, vasopressor overshoots of arterial pressure in response to blood pressure lowering procedures¹¹ were maintained (fig. 5),¹² and postural hypotension did not develop following subtoxic doses of the drug. Finally, atropine, while abolishing the bradycardia commonly found after administration of veratrum, did not block the hypotensive effects.¹⁴ Thus, there was no evidence that the hypotensive action of veratrum was primarily either sympatholytic or parasympathomimetic as defined by

9. Litter, J., and Wilkins, R. W.: "Venous Tone" in the Forearm and Calf of Man: I. Plethysmographic Measurement of Vascular Distention During Venous Congestion, to be published.

10. (a) Litter, J., and Wilkins, R. W. (b) Litter, J., and Wilkins, R. W.: "Venous Tone" in the Forearm and Calf of Man: II. The Effects of Physical and Pharmacological Agents, to be published.

11. Wilkins, R. W., and Culbertson, J. W.: The Effects of Surgical Sympathectomy upon Certain Vasopressor Responses in Hypertensive Patients, *Tr. A. Am. Physicians* 60:195, 1947. Wilkins, R. W., Culbertson, J. W., and Smithwick, R. H.: The Effects of Various Types of Sympathectomy upon Vasopressor Responses in Hypertensive Patients, *Surg., Gynec. & Obst.* 87:661, 1948.

12. Wilkins, R. W.; Freis, E. D., and Stanton, J. R.: The Effects of Certain Forms of Hypotensive Therapy upon Vasopressor Responses in Hypertensive Patients, to be published.

7. Stanton, J. R.; Freis, E. D.; Burnett, C., and Wilkins, R. W.: The Effects of Various Renal Function as Measured by Clearance Techniques, to be published.

8. Willson, J. R., and Smith, R. G.: The Peripheral Circulatory Action of Veratrum Viride, *J. Pharmacol. & Exper. Therap.* 79:208, 1943.

these criteria. Nevertheless, it is of considerable interest that the available pharmacologic evidence in animals¹³ indicates that the vasodilating action of the veratrum alkaloids is mediated over nervous pathways. This suggests that functions of the nervous system other than sympathetic vasoconstriction and parasympathetic vasodilatation may play a part in controlling peripheral vascular resistance and in regulating blood pressure.

DIHYDROERGOCORNINE

Dihydroergocornine (DHO 180, Sandoz Chemical Works, Inc.) has been found to have a hypotensive effect in some hypertensive patients when administered parenterally or orally.¹⁴ In contrast to veratrum, however, it has a clearcut sympatholytic effect. This is demonstrable most readily by the production of postural hypotension which differs from that produced by such agents as tetra-ethyl ammonium salts (TEA) in being seldom accompanied with significant tachycardia.

Sympatholysis after administration of dihydroergocornine was also evidenced by the abolition or decided diminution of vasopressor overshoot responses to blood-pressure-lowering procedures (fig. 6), similar to that observed after surgical sympathectomy¹¹ or the use

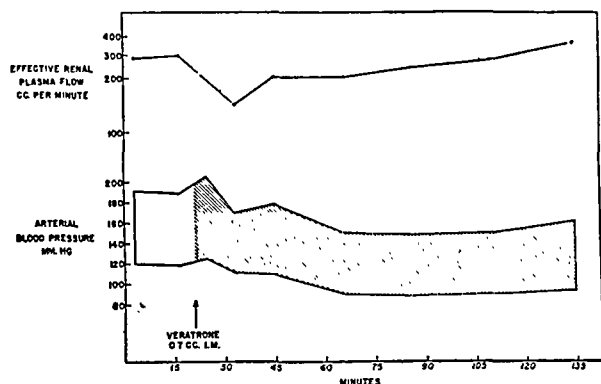


Fig. 4.—Chart of renal plasma flow (PAH) and arterial pressure in a hypertensive patient before and after veratrum viride (veratrone®) given parenterally.

of other sympatholytic drugs.¹² In occasional patients its sympatholytic effect was also seen in a rise in skin temperature, in a decrease of vasoconstrictor reflexes in the fingers and toes⁶ and in the inhibition of the cold pressor response.¹² However, there was no constant relationship between its hypotensive effects on the basal arterial pressure and its sympatholytic actions in the extremities. On the other hand, there was in general a good correlation between its basal hypotensive and its postural hypotensive effects. In any case, the hypotensive activity of dihydroergocornine was unpredictable, being negligible in some subjects and profound in others regardless of the route of administration.

After administration of dihydroergocornine the cardiac output (Fick), when measured in both normotensive and hypertensive subjects, was found to be either essentially unchanged or moderately increased (fig. 7).¹⁵ In contrast to the cardioacceleratory effect often seen after TEA, the pulse rate was usually slowed.

13. Krayer, O., and Acheson, G. H.: The Pharmacology of the Veratrum Alkaloids, *Phys. Rev.* 26:383, 1946.

14. (a) Freis and others.^{14a} (b) Bluntschli, H. J.: Clinical Observations on the Sympathetic Inhibitory Effects of a New Ergot Alkaloid, *South African M. J.* 21:21, 1947. (c) Bluntschli, H. J., and Goetz, R. H.: The Effect of a New Sympatholytic Drug (Dihydroergocornine) on the Blood Pressure with Special Reference to Hypertension, *South African M. J.* 11:382, 1947.

15. Freis and others.¹⁴ Halperin, Freis, Culbertson and Wilkins.¹⁶

Hepatic-portal blood flow decreased (fig. 8), especially when the arterial pressure dropped precipitously. In some cases, it subsequently returned toward the control levels.¹⁶ Renal blood flow likewise decreased early and rose again during the stable phase of the hypotensive action of the drug.⁷

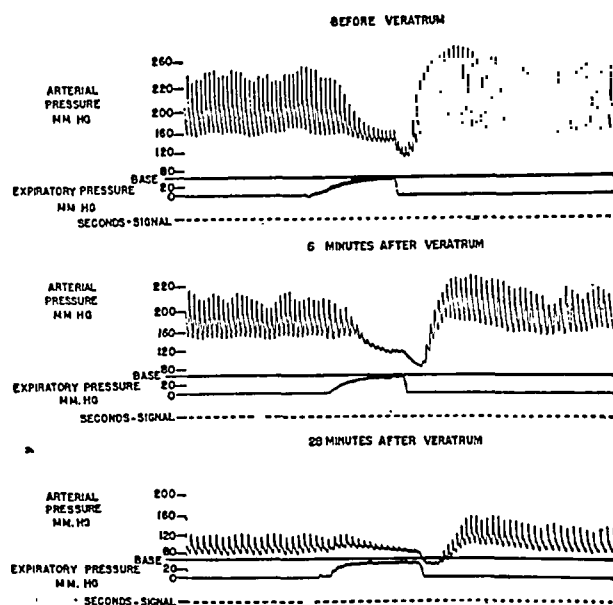


Fig. 5.—Optical records of arterial and expiratory pressures (Hamilton) in a hypertensive patient performing the Valsalva maneuver before, five minutes after and twenty-eight minutes after the parenteral administration of veratrum viride (veratrone®).

Peripheral blood flow in the arms and legs (plethysmographic) either increased or remained essentially unchanged after administration of dihydroergocornine.⁶ However, during venous congestion in these areas vascular distention showed a decided decrease,^{10b} in contrast with the decrease found after administration of veratrum.

COMMENT

The studies reported here and elsewhere¹⁶ on the physiologic effects of veratrum and of dihydroergocornine reveal both to be agents that may cause a reduction of arterial pressure with an associated decrease in total peripheral resistance. It is interesting that two drugs as fundamentally different (as judged

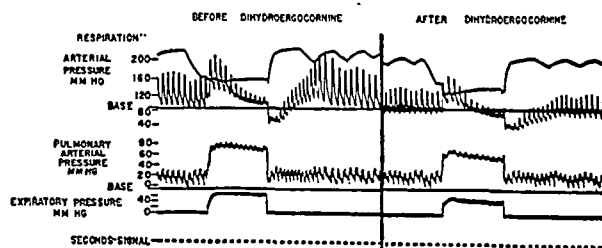


Fig. 6.—Optical records of respiration (inspiration down) and systemic arterial, pulmonary arterial, and expiratory pressures (Hamilton) in a hypertensive patient performing the Valsalva maneuver before and after the parenteral administration of dihydroergocornine.

by animal experiments and the present results) should have similar hemodynamic effects, both sequentially and selectively. Possibly this explains their apparent syner-

16. Freis and others.¹⁴ Freis, Stanton and Wilkins.^{14a} Freis and others.^{14b} Halperin, Freis, Culbertson and Wilkins.¹⁶ Culbertson and others.^{16a} Litter, Freis and Wilkins.⁹ Freis and others.⁷ Litter and Wilkins.⁹ Litter and Wilkins.^{10b} Wilkins and others.¹⁴ Wilkins, Freis, Stanton and Culbertson.¹² Krayer and Acheson.¹³ Bluntschli.^{14b} Bluntschli and Goetz.^{14c}

gistic, or additive, effects when administered together to certain hypertensive patients.¹⁷ Furthermore, it is of interest and possibly of importance that both drugs, though acting by different mechanisms, do so through the central nervous system. In this respect they differ from other vasodilator drugs, such as the nitrite group, and from other sympatholytic agents, such as dibena-

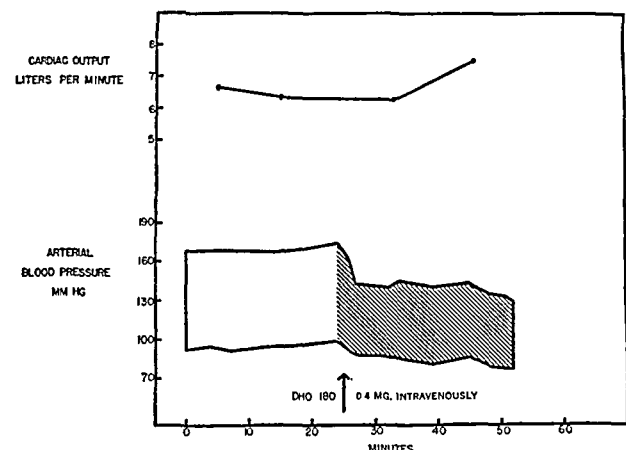


Fig. 7.—Chart of cardiac output (Fick) and arterial pressure (Hamilton) in a hypertensive patient before and after parenteral administration of dihydroergocornine.

mine® (N,N-dibenzyl-beta-chloroethylamine) and the tetraethyl ammonium salts, which are said to act peripherally.

The results so far with these drugs appear to indicate that their primary action in lowering the arterial pressure is to change relationships in the blood-pressure-regulating and integrating mechanisms in the central nervous system. As a result of this and perhaps also of their peripheral vasodilating effects, blood flow in the various organs becomes readjusted so as not to be seriously compromised by the lowering of arterial pressure. This allows an adequate venous return of blood to maintain cardiac output. The slowing of heart rate pre-

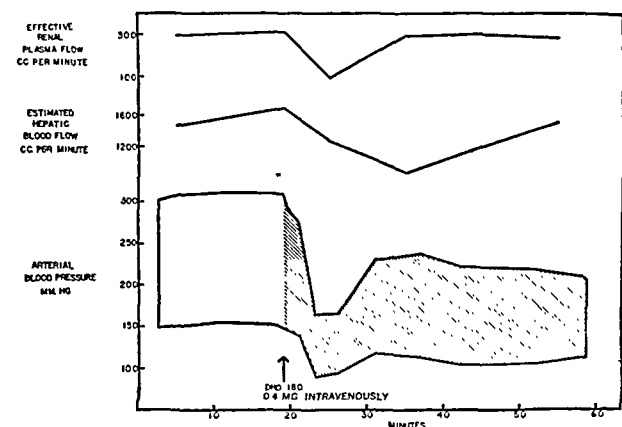


Fig. 8.—Chart of renal plasma flow (para-amino-hippurate sodium), hepatic-portal blood flow (Sulfobromophthalein Sodium), and arterial pressure (Hamilton) in a hypertensive patient before and after the parenteral administration of dihydroergocornine.

vents the tachycardia and palpitation that ordinarily result from reflexes arising in the aortic and carotid sinus areas when such a lowering of arterial pressure occurs. Such a combination of events would prevent the

signs, symptoms and physiologic consequences of collapse that otherwise might ensue. Thus, these drugs, unlike the peripherally acting vasodilators, seem to maintain the patient in a state of circulatory equilibrium, but with a lower arterial pressure. Whether or not these explanations are correct, the fact remains that both of these long-acting, orally effective drugs in therapeutic doses are capable of lowering arterial pressure in certain hypertensive patients without compromising the circulation in the major organs so far studied. This fact supports the presumption that satisfactory medicinal agents will eventually be found to lower hypertensive arterial pressure physiologically and without untoward side effects.

SUMMARY

Detailed laboratory studies of the physiologic effects of *veratrum viride* and of dihydroergocornine reveal both to be capable of lowering the arterial pressure of certain hypertensive patients without reducing, except initially, the cardiac output or the blood flow through the kidneys, liver or extremities as measured in the resting horizontal position. The nature and mode of action of each of the drugs are discussed.

NOTE.—Since this paper was presented, further studies in this laboratory (Moister, F. C., Stanton, J. R., and Freis, E. D.: Observations on the Development of Tolerance During Prolonged Oral Administration of Dihydroergocornine, *J. Pharmacol. & Exper. Therap.*, to be published) have shown that patients become resistant to the hypotensive and sympatholytic actions of dihydroergocornine after long-continued oral administration.

ABSTRACT OF DISCUSSION

DR. HANS H. HECHT, Salt Lake City: With the presentation by Dr. Wilkins and his co-workers, another sympatholytic compound has come into its own. I should like to stress briefly the relationships and differences of various agents recently introduced that are supposed to perform, or that is hoped some day will perform, what might be termed a chemical sympathectomy. None has really been demonstrated to do just that as yet. They all have different sites of action. The first compound that received general attention was the tetraethylammonium ion. Tetraethylammonium simply blocks autonomic ganglions and, therefore, causes a number of effects over and in addition to its sympatholytic properties. For instance, with tetraethylammonium one can temporarily shorten an abnormally prolonged auriculoventricular conduction (PR interval). It is a drug that has a wide range of action. The next agent that has been used for some time, but only recently more extensively in this country, is prisol® (2-benzyl-4,5-imidazole hydrochloride), structurally similar to privine® hydrochloride (naphazoline hydrochloride), a vasoconstrictor. Prisol® is an ordinary peripherally acting vasodilator, but, as Dr. Hendrix has shown, it becomes truly sympatholytic in large doses. The two effects are not easily separated. A third compound is called dibenamine® (N,N-dibenzyl-beta-chloroethylamine). It is a nitrogen-mustard derivative which was developed during the war and, in contrast to all the other agents, is specifically directed toward blocking only the excitatory effect of epinephrine at the peripheral muscle. It has a small focus of action, which is of value, and, again in contrast with other compounds, it asserts a prolonged action, which is measured in days rather than in minutes. Dihydroergocornine appears as an important new development. Ergotamine has been used in animal experiments for a long time to block the sympathetic system, but dihydroergocornine as now developed has a pronounced and more specific sympatholytic effect. Ergotamine is also a local vasoconstrictive agent. I am grateful to Dr. Wilkins and his co-workers for their presentation. Before long, chemical sympathectomy will have been presented, but, supposing that an agent which performs a chemical sympathectomy is discovered, the problem

17. Freis,^{1a} Wilkins, R. W.; Culbertson, J. W., and Halperin, M. H.: The Hemodynamic Effects of Sympathectomy in Essential Hypertension, *Ann. Int. Med.* 30: 291, 1949.

of Raynaud's syndrome, the problem of peripheral vasospasm and, above all, the problem of the hypertensive syndrome will still not have been solved.

DR. S. K. ROBINSON, Chicago: I have been coming to these meetings on hypertension for about fifteen years, and I think that progress is now being made, especially after hearing the presentation by Dr. Wilkins and his co-workers. A good many of you undoubtedly heard Dr. Wakerlin's presentation. I want to repeat a statement he made: "Ninety per cent of essential hypertension is of nonrenal origin." That is of tremendous importance. As long as one has the idea that a primary disease like hypertension can be produced by a vegetative organ like the kidney, there will not be much progress in hypertension. The next differentiation I would like to make is between high blood pressure and hypertension. High blood pressure can be produced by the injection of various substances, or by ligation of the renal artery and is not the same disease as occurs in human beings. The experimenters have produced high blood pressure. Hypertension is not entirely a question of hemodynamics; it may involve distant organs and systems. When the hypertensive patient comes to the doctor he may complain of dizziness, dyspnea, fatigue, and, according to certain workers, these symptoms can be resolved by psychotherapy. Other symptoms and signs may be edema, high basal metabolic rate—and let me say here that no examination of the hypertensive patient is complete without a basal metabolism test—impending cardiac failure, anemia and diabetes. First and foremost in therapy is weight reduction. The rice diet contains only about 20 Gm. of protein, and one cannot keep a patient on that diet very long without injury to the liver. Shemm's diet for edema, with the water thrust, is very effective. The elevated pulse rate responds, according to Bram, to treatment with neostigmine bromide. It is necessary that one discover hypertension early, before the patient comes to the doctor with blood pressure of 200 or so. By the routine measuring of the blood pressure the hypertensive patient with a blood pressure of 160 or so can be discovered. The early conditions respond better. There are two syndromes that are frequently associated with hypertension: the gastrocardiac syndrome and the so-called hyperthyroid hypertension. In treatment of the former, the avoidance of gassy foods is helpful. In hyperthyroid hypertension the elevated basal metabolic rate is more easily reduced than the hypertension; useful aids are vitamin A in large doses and, as mentioned before, neostigmine bromide, and propyl thiouracil. When all methods fail, the use of roentgen rays to the sympathetic chain and the pituitary may give good results.

DR. SIBLEY W. HOOBLER, Ann Arbor, Mich.: Since other sympatholytic drugs have been discussed, it might be interesting to summarize similar studies with the autonomic blocking agent, tetraethylammonium. As a rule the reduction in blood pressure with this drug is not the result of a decrease in cardiac output as measured in the human subject by the direct Fick or ballistocardiographic technics. The renal blood flow is well maintained despite the decline in blood pressure, thus suggesting a certain degree of vasodilatation. There is an increase in peripheral blood flow as measured in the plethysmograph, despite the fall in blood pressure. My co-workers and I also studied the effect of tetraethylammonium on the splanchnic blood flow in the manner described by Dr. Wilkins and his co-workers, and were unable to demonstrate significant vasodilatation in this vascular bed. These observations with various sympatholytic agents demonstrate that sympathetic vasoconstrictor tone plays an important role in the maintenance of the increased peripheral resistance in hypertension. The best sympatholytic drug has not yet been found, but the observations of Dr. Wilkins and his co-workers and Dr. Hecht are certainly stimulating to further research in this direction.

DR. ROBERT W. WILKINS, Boston: I wish to thank the discussers for their consideration of this paper. I think that we are all perhaps more aware of the action and possible implications of the sympatholytic drugs than we are of the nonsympatholytic drugs. If I were to give emphasis to either one of these two different classes of agents, if only for the reason that everyone else has emphasized the sympatholytic

drugs, I would call attention again to the possibility of lowering blood pressure with agents that definitely are not sympatholytic. Krayer and Acheson have given an excellent review in *Physiological Reviews* (23: 383, 1946) on the subject of the veratrum alkaloids. Regarding the questions handed me, "Do hypertensive patients differ in their reactions to dihydroergocornine in terms of possible etiologic aspects of the hypertension?" the answer is: not as far as we are able to tell. It is fair to say that only a small proportion of these patients have a satisfactory lowering of their basal arterial pressure with administration of this drug, and so far we have not been able to attribute their responsiveness to any particular underlying mechanism or disease. To the question, "Veratrum viride is an old drug. Are you using a new form?" the answer is: No, we are using the same old drug. We hope to have (and they are becoming available) pure alkaloids of the drug such as those used by Krayer and his group in their pharmacologic studies. They are as yet not available except for experimental work in human beings. The request has been made, "Explain dosage and administration and preparations available. What percentage of patients respond?" Since this is not a clinical presentation but merely a laboratory study, I think that it would be inappropriate at this time to go into the details of the clinical management of patients with these agents. It is still decidedly on an experimental basis, and I would be unwise, without taking a great deal of time, to try to explain how painstakingly one must manage the dosage of the various drugs used.

PERSONALITY FACTORS IN ARTERIAL HYPERTENSION

GREGORY C. GRESSEL, M.D.

FRANK O. SHOBE, M.D.

GEORGE SASLOW, M.D.

PHILIP H. DuBOIS, Ph.D.

and

HENRY A. SCHROEDER, M.D.
St. Louis

Numerous students of this subject have concluded that personality malfunctioning is unusually frequent in hypertensive persons. The general pattern of maladjustment in interpersonal relations (in such persons) has been variously considered to be habitual unexpressed or displaced hostility (Wolfe,¹ Miller,² Rennie,³ Saul,⁴ Alexander,⁵ Weiss⁶ and Binger and his co-workers⁷); lifelong emotional lability with frequent depression, anxiety or both (Rennie,³ Gold⁸); lifelong anxiety, perfectionism, compulsiveness or difficulty with authority (Dunbar,⁹ Binger and his co-workers⁷). The studies have rarely involved more than a few subjects and have rarely included nonhypertensive persons for comparison; hence the comparative frequencies

From the Department of Neurophysiology, Department of Psychology and Department of Internal Medicine, Washington University.

Read in a Symposium on "Personality and Disease" at the meeting of the Section on Experimental Medicine and the Section on Internal Medicine at the Ninety-Seventh Annual Session of the American Medical Association, Chicago, June 25, 1948.

1. Wolfe, T.: Dynamic Aspects of Cardiovascular Symptomatology, *Am. J. Psychiat.* 91: 563, 1934.

2. Miller, M. L.: Blood Pressure in Relation to Inhibited Aggression in Psychotics, *Psychosom. Med.* 1: 162, 1939.

3. Rennie, T. A.: Personality in Hypertensive States, *New England J. Med.* 221: 448, 1939.

4. Saul, L. J.: Hostility in Cases of Essential Hypertension, *Psychosom. Med.* 1: 153, 1939.

5. Alexander, F.: Psychosomatic Study of a Case of Essential Hypertension, *Psychosom. Med.* 1: 139, 1939.

6. Weiss, E.: Psychosomatic Aspects of Hypertension, *J. A. M. A.* 120: 1081 (Dec. 5) 1942.

7. Binger, C. A. L.; Ackerman, N. W.; Cohn, A. E.; Schroeder, H. A., and Steele, J. M.: Personality in Arterial Hypertension, *Psychosomatic Medicine Monographs*, New York, American Society for Research in Psychosomatic Problems, 1945.

8. Gold, L.: Mental Characteristics Associated with "Essential" Hypertension, *Psychiatric Quart.* 17: 364, 1943.

9. Dunbar, F.: *Psychosomatic Diagnosis*, New York, Paul B. Hoeber, Inc., 1943, chap. 5, pp. 248-293.

of occurrence of various possibly relevant personality patterns in hypertensive and nonhypertensive persons are not known.

As part of a comprehensive study of hypertension, we have therefore decided to examine this matter afresh. After careful review of our own and others' experience, we have taken our departure from the following points:

1. The presence or absence of a relevant crisis in the habitual pattern of life of the subject is not likely to be a helpful indicator. Weiss⁶ was not satisfied that he could establish the presence of such crises in more than a few of 93 subjects, but Dunbar⁹ considered that such crises had been detected in 90 per cent of her subjects. Our own experience is like Weiss's: the detection of hypertension need be associated with no crisis that is temporally or otherwise significant.

2. The presence or absence of specific patterns of the earliest childhood conditioning is not likely to be a helpful indicator. Such patterns are exceedingly difficult to establish, and even more difficult to establish as to comparative frequency in a representative sample of hypertensive and nonhypertensive persons. Thus Alexander⁵ reported 1 case; Saul⁴ described 7. "Theoretical" predictions of such frequencies have been based on the prolonged study of a few subjects (Halliday,¹⁰ page 99), in the related field of gastrointestinal psychosomatic disorders, but apparently such predictions are premature generalizations, for they are completely contradicted by a careful study of the same problem by Klein¹¹: few of her group of 100 subjects had had the predicted lifelong preoccupation with the intestinal tract, or diarrhea, constipation or feeding or eating difficulties in childhood. In any case, such specific patterns if present presumably have correlates in the later recurrent patterns of interpersonal relations and of reaction to crisis; these are easier to study and have not yet been studied with respect to comparative frequency of occurrence.

3. It does not seem probable that a specific "personality structure" will be found to distinguish hypertensive subjects from subjects with other accepted "psychosomatic affections" (asthma, ulcer, colitis). Halliday¹⁰ (page 51), who in one place writes as if a specific personality structure (symbolized by "preoccupation with security" or "preoccupation with work," etc.) does correspond to a given psychosomatic disease, contradicts himself in subsequent places (e. g., page 52), pointing out that the same person may have several psychosomatic diseases during his life either simultaneously or in irregular succession and that it is hardly conceivable that his "personality structure" is multiple or changes each time. Careful reading of Halliday's examples of specific personality structures shows that, in persons with psychosomatic diseases, there are: (a) a general pattern of interpersonal relations, involving overinhibition; overconformity; displaced, delayed or inadequate overt emotional expression, and (b) diverse verbal symbolizations of this pattern related to the diverse early verbal conditionings associated with inculcation of the general pattern. That there is such a general pattern in such

persons is our own experience and that of Ludwig.¹² There are other observations of the occurrence of more than one psychosomatic disease in one subject.¹³

4. It seems to us reasonable, therefore, as a first order approximation, to compare the frequencies of certain types of personality functioning in hypertensive persons as a group with the frequencies in two other groups from which the commoner other psychosomatic diseases are excluded (asthma, colitis, rheumatoid arthritis, migraine, ulcer). The inclusion of other psychosomatic disorders in the control population might serve only to blur distinctions indicated by the crude methods with which we must begin.

5. From what has been said, it seems reasonable also to compare the groups in terms of (a) habitual patterns of interpersonal relations or habitual patterns of reaction to crisis, (b) patterns which could be described fairly explicitly and (c) (for purposes of statistical analysis) patterns which show several discriminable degrees of severity of disability.

6. Since patterns of personality disorder (and presumably of habitual personality functioning) differ in frequency in diverse groups that differ in population density of community of origin, dominant stock in the cultural pattern, education, occupation and socioeconomic level, color and sex (for example, Hyde and Kingsley¹⁴), the three groups compared were matched for these or similar characteristics. Individual matching was not feasible. The degree of group matching achieved is shown in table 1.

7. The groups should be matched approximately as to age, since the frequency of hypertension varies with age.

8. There are different types of essential hypertension (neurogenic, endocrine, renal, mixed, etc.).¹⁵ These groups need to be considered separately, before we can be sure that they are homogeneous as to personality functioning.

9. There are different stages of essential hypertension.¹⁶ These need to be considered separately until we can be sure that they are homogeneous as to personality function. The present report does not take adequate account of this variable.

10. It is possible that an unknown number of our nonhypertensive subjects are "prehypertensive." The effectiveness of the cold pressor test in detecting prehypertensive persons is uncertain.¹⁷ Hence, for the present, groups have not been matched so that "hyperreactors" have been identified and excluded from groups II and III (nonhypertensive).

METHOD

About 50 consecutive subjects with essential hypertension were studied (group I). They were referred to us after necessary medical studies had been made and the diagnosis established. The sources of referral

10. Halliday, J. L.: *Psychosocial Medicine*, New York, W. W. Norton & Company, Inc., 1948, p. 99.

11. Klein, H. R.: A Personality Study of One Hundred Unselected Patients Attending a Gastro-Intestinal Clinic, *Am. J. Psychiat.* **104**: 433, 1948.

12. Ludwig, A. O.: The Practical Importance of Modern Concepts of Psychosomatic Relations, *New England J. Med.* **238**: 175, 1948.

13. Bauer, W.: Some Psychosocial Factors in Cases of Severe Medical Disease, *Appl. Anthropol.* **7**: 1, 1948; cited by Ludwig.¹²

14. Hyde, R. W., and Kingsley, L. V.: Studies in Medical Sociology: I. The Relation of Mental Disorders to the Community Socio-Economic Level, *New England J. Med.* **231**: 543, 1944; II. The Relation of Mental Disorders to Population Density, *ibid.* **231**: 571, 1944; Hyde, R. W., and Chisholm, R. M.: Studies in Medical Sociology: III. The Relation of Mental Disorders to Race and Nationality, *ibid.* **231**: 612, 1944.

15. Schroeder, H. A., and Steele, J. M.: Studies on "Essential" Hypertension: I. Classification, *Arch. Int. Med.* **64**: 927 (Nov.) 1939.

16. Schroeder, H. A.: Personal communication to the authors.

17. Page, I. H., and Corcoran, A. C.: *Arterial Hypertension: Its Diagnosis and Treatment*, Chicago, The Year Book Publishers, Inc., 1946.

were (a) internists on the staff of Washington University School of Medicine, (b) the teaching medical wards of Barnes Hospital and (c) the Hypertension Clinic of the medical school. All necessary medical studies were carried out by the hypertension research group under the direction of one of us (H. A. S.). The patients met the criteria (a) of having sustained blood pressure values exceeding 140 mm. of mercury systolic and 90 mm. of mercury diastolic, (b) of having essential hypertension and (c) (after psychiatric evaluation) of being nonpsychotic.

The composition of group I was tabulated in relation to age, sex, education and other factors. Attempt was then made to match this composition with about 50 subjects (group II) chosen consecutively. In addition to meeting the matching criteria, the subjects in group II (a) had had careful medical study, (b) had had several blood pressures recorded during such study with no readings exceeding 140 systolic and 90 diastolic, (c) had received a diagnosis of psychiatric illness in a clinic for psychosomatic medicine conducted by one of us (G. S.), or in our work with hospital psychiatric referrals or private psychiatric patients (G. S., F. O. S.), (d) were not psychotic and (e) did not have one of the more common accepted psychosomatic disorders (asthma, ulcer, etc.). Many of this group had been studied and treated psychiatrically just before the present investigation began; the necessary data were obtained from their clinic, office and hospital records, wherever, these records were adequate.

In a similar way, we attempted to study about 50 subjects (group III) who, in addition to meeting the matching criteria, (a) had chronic medical or surgical disorder, in which psychologic factors are considered to have low etiologic relevance,¹⁸ and (b) were not psychotic. Sources of referral were medical and surgical services of Barnes Hospital. All of this group were interviewed specifically for this investigation, while they were in the hospital. Their records did not have the necessary data. Comparative composition of the groups, in terms of the matching criteria, is shown in table 1.

The personality ratings of many of the group I subjects had been carried out before work was begun on groups II and III. This occurred as a natural consequence of our having started with the hypertensive subjects, more of whom needed to be studied before we could set up a set of matching criteria, as in table 1, against which prospective members of groups II and III could be judged as suitable for study. About half the ratings were made as group judgments (G. C. G., F. O. S., G. S.); the rest were made by only one of us. During group discussions, only rarely did differences of opinion about a rating exceed one unit on the scale for a given pattern. The data used for rating were obtained in psychiatric interviews. For groups I and II from one to four interviews were used, as a rule; where necessary, more. For group II (patients undergoing or who had undergone psychotherapy), many more interviews were available; we did not notice that there were any significant changes in our ratings depending on our use of the first few interviews or the use of the entire set of interviews. No over-all tabulation of the data was begun until the investigation was nearly completed. The careful classification of the

subjects with hypertension (as to type of hypertension) was carried out with Dr. Schroeder's assistance, toward the end of the investigation.

For the personality ratings, we experimented with a number of habitual patterns of reaction to crisis and of interpersonal relations, of which only the following seemed feasible: hysteria, anxiety, depression, obsessive-compulsive behavior, subnormal assertiveness and impulsiveness. We dropped excessive insecurity, inhibited impulsiveness, precipitating crisis and various others.

TABLE 1.—Composition of the Groups Studied

	Group I (30 Subjects)		Group II (49 Subjects)		Group III (44 Subjects)	
	No. of Subjects	Per- centage*	No. of Subjects	Per- centage*	No. of Subjects	Per- centage*
Age						
20-35 yr.†.....	9	18	21	43	12	27
36-50 †.....	25	50	15	31	18	41
51+†.....	16	32	13	27	14	32
Sex						
Male.....	16	32	15	31	16	36
Female.....	34	68	34	69	28	64
Color						
White.....	44	88	43	88	35	86
Negro.....	6	12	6	12	6	14
Education						
3-8 yr.....	31	62	27	55	28	64
9-12 yr.....	12	24	16	34	11	25
13+ yr.....	7	14	6	12	5	11
Habitat						
Rural ‡.....	10	20	13	27	15	34
Mixed §.....	2	4	4	8	6	14
Urban ¶.....	38	76	32	65	23	52
Culture						
American.....	39	78	42	86	42	95
European.....	11	22	7	14	2	5
Occupation						
Class †						
0.....	1	2	1	2	0	0
1.....	7	14	13	27	16	36
2.....	8	16	9	18	3	7
3.....	4	8	0	0	0	0
4.....	23	46	21	43	22	50
5.....	7	14	5	10	3	7
6.....	0	0	0	0	0	0

* Percentage to nearest whole number.

† For convenience, only these age groups are used in the table. In the computation of coefficients of correlation, age was coded in 11 steps.

‡ More than ten years of early life in a community of less than 2,500 population.

§ One to ten years of incidental residence in a rural area, but not on an operating farm.

¶ Never lived on a farm or in a rural area.

† Occupational class (listing modified from Kinsey and his co-workers [Kinsey, A. C.; Pomeroy, W. B., and Martin, C. E.: *Sexual Behavior in the Human Male*, Philadelphia, W. B. Saunders Company, 1948, pp. 77-78]): 0, dependent, if adult other than a spouse, and completely dependent; 1, day labor and semi-skilled labor; 2, skilled labor, lower and upper white collar group; 3, professional group, business executives, the extremely wealthy; 4, a minor or spouse dependent upon supporting adult of class 1; 5, a minor or spouse dependent upon supporting adult of class 2; 6, a minor or spouse dependent upon supporting adult of class 3.

The patterns were rated on the scale 0, 1, 2, 3 and 4. Samples of the definitions of the pattern at the different rating levels follow.

Impulsiveness

- 0: Very infrequently acts on impulse, and only in minor matters.
- 1: More impulsive than average of his fellows; lifelong pattern. Gets on fairly well. Infrequent outbursts with consequent loss of spouse, friends, jobs.
- 2: Regularly has difficulty with spouse, subordinates, co-workers, superiors, because of impulsive actions. Rare anti-social actions (e.g., stealing, sexual deviations), but in general manages to stay within social bounds.
- 3: Lifelong history of impulsive actions, with severe childhood conflicts with authority, some police experience, frequent change of sex partner or of job or similar actions. No remorse. Considered not desirable by most in the community.

18. Examples of the disorders present in subjects of group III are: bronchiectasis, cystic disease of the lung, Hodgkin's disease, hypoplastic anemia, sickle cell anemia, cirrhosis (nonalcoholic), lymphoma, pernicious anemia, Addison's disease, chronic otitis media and carcinoma.

- 4: Lifelong antisocial behavior, with no remorse. Frequent and severe difficulty with the law (stealing, sex "crimes," homicide); chronic alcoholism; behavior compatible with that of primary or secondary psychopathic personality.¹⁹

Subnormal Assertiveness²⁰

- 0: Regularly expresses his views, differences and dislikes in nearly all interpersonal relations; occasional antagonism provoked by him.
- 1: Shows appropriate assertiveness regularly in at least one major area of interpersonal relations (family, work, school, church, army, etc.); but as a rule in most other areas experiences impulses to differ, to be hostile, without appropriate overt activity; can easily verbalize the felt resentment, anger or disappointment at such times.
- 2: Rarely shows overt assertiveness; when he does, experiences distress (anxiety, guilt), tends to overshoot the mark and subsequently withdraws to habitual pattern or for a time becomes excessively ingratiating, submissive, apologetic.
- 3: Has hardly ever shown overt assertiveness since childhood; is aware of feelings of anger or hostility, but has difficulty verbalizing these even to physician.
- 4: Practically never shows overt assertiveness, denies any awareness of hostile feelings or attitudes, but makes excuses for persons who misuse him (as authority figures).

Obsessive-Compulsive Behavior

- 0: No history elicited of habitual or recurrently episodic meticulousness, overconscientiousness, ruminative thinking, repetitive acting, ritualistic behavior.
- 1: Habitual or recurrently episodic meticulousness and the like (as in 0), which do not decrease subject's general effectiveness and do not produce symptoms.
- 2: Habitual or recurrently episodic meticulousness and the like, with noticeable associated decrease in general effectiveness or associated presence of symptoms. The repetitive patterns can be interrupted without production of great anxiety.
- 3: Well established repetitive thinking, acting, with obvious disorganization or anxiety symptoms resulting directly from interruption of the patterns.
- 4: Disabling obsessive-compulsive neurosis, as hand-washing neurosis, with inability to carry on life pattern like that of subject's peers.

Depressive Behavior

- 0: Very infrequent sadness, in relation to habitual mood.
- 1: Mild but definite episodic sadness or reduced activity level ("sad," "blue," "down in the dumps"). Decrease in social life, slight changes in sleep pattern or in appetite. Changes not obvious to casual friends.
- 2: Pronounced changes in appetite, sleep, energy level, social activity, self esteem, outlook for the future, mood, ability to concentrate. May be much crying. Occasional suicide ideas, no serious attempts. Able to sustain major obligations (work, family), but with decreased efficiency. Changes noticeable to casual lay observer.
- 3: Changes severer than in 2. Except in special circumstances, unable to sustain major obligations. Decided reduction of interaction with people. Maintains contact with reality.
- 4: Psychotic depression: maximal withdrawal from interactional activity. Little speech. May need to be fed.

19. Karpman, B.: *The Myth of the Psychopathic Personality*, Am. J. Psychiat. 104: 523, 1948.

20. We have used this relatively impersonal term to connote a group of phenomena having to do with the subject's "trend toward increased autonomy" (Angyal, A.: *Foundations for a Science of Personality*, New York, Oxford University Press, 1941): spontaneity, initiative, aggressiveness, difference, anger, hostility and hatred and their overt expression. The ratings emphasize the facts that so many of our subjects have decided inability to show overt expression of impulse that is appropriately graded, directed and timed and that they live in a state of habitual recurrent blocking of impulses to act, punctuated by covert or overt explosions of dysfunction.

Anxiety

- 0: Anxiety symptoms (heart pounding, sweating, fear, over-breathing, blurred vision) only in close temporal relation to a severe ongoing disruption of the habitual pattern of life (crisis), e. g., bereavement, loss of job, loss of career.
- 1: Anxiety symptoms in close temporal relation to ongoing moderately severe crisis, e. g., jilting in a casual affair, definite but not serious fall in scholastic standing, subject's child ill with influenza. Symptoms appear excessive in duration and intensity, in relation to the crisis as met by similar subjects.
- 2: Frequent anxiety symptoms; in relation to recurrent ordinary hazards, difficulties, frustrations, memories of unhappy events, anticipations of anniversaries of unhappy events. Symptoms soon cease when stimulus ceases; source of symptoms fairly easily demonstrated.
- 3: As in 2, but with anxiety symptoms of much longer duration after being set up; relationship to evoking situation not easily demonstrated; definite free periods between anxiety episodes still exist.
- 4: Constant chronic anxiety state.

Hysteria²¹

- 0: Very infrequent hysterical symptoms.
- 1: Five to ten episodes of hysterical symptoms, intermittent, with long free periods. Subject never considered the symptoms a serious illness.
- 2: Lifelong history of frequent episodes of vague illness, with complete recovery despite absence of definitive diagnosis or of specific treatment; chronic complaints involving more than one of the types of dysfunctions listed.²¹ Not more than one episode of invalidism or hospitalization for such dysfunctions.
- 3: Never healthy; many episodes of severely disabling illness involving several types of dysfunctions, but with no definitive "organic" diagnosis established or even likely. Usually there have been several surgical procedures, long periods of invalidism or hospitalizations for study.
- 4: Complete continuous invalidism with history as in 3; conspicuous "belle indifférence"; disabling phobias; pseudo-psychotic symptoms.

RESULTS

Group I has been subdivided into two groups: Ia (neurogenic hypertension) and Ib (other types of hypertension). Table 2 shows the number of subjects in group Ia, group Ib and group I (Ia plus Ib) who were assigned ratings of 0, 1, 2, 3 or 4 for each of the personality patterns considered.

It should be noted that the patterns rated have little to do with either the age at detection of hypertension or the duration of hypertension; with few exceptions, the patterns defined were present at the rated levels long before the detection of hypertension.

We have tested the hypotheses that differences between groups Ia and Ib exist in each of the patterns rated. For a difference to be considered statistically significant at the 5 per cent level, the critical ratio (C. R.), or difference between the means of the ratings for a given pattern, divided by the standard error of that difference should exceed 2.45. In no case was the critical ratio greater than 1.29. Hence no significant difference between the two subgroups of hypertensive subjects is apparent for any of the patterns rated. This is a completely unexpected result, in that nearly half (11 of 26) of the "other types of hypertension" were endocrine, in relation to pregnancy.

21. In the absence of a generally accepted definition of the term, we have taken it to mean a *lifelong disorder, characterized by multiple transient dysfunctions* (motor, sensory, autonomic, emotional, intellectual, social, pseudoneurologic, pseudopsychotic), most of which are easily identified (on study) as consequent on definable changes in the life situation.

Table 3 shows the means of the ratings for each pattern in the two subgroups, the difference between the means for each pattern and the critical ratio of each difference.

From this point on, groups Ia and Ib will no longer be considered separately, but will be lumped together as group I, for purposes of subsequent comparisons.

Table 4 shows the number of subjects in group II (personality disorder without hypertension) and group III (chronic somatic disorder) who were assigned ratings of 0, 1, 2, 3 or 4 for each of the personality patterns considered.

In order to test the degree of association between each of the rated patterns in group I, II and III and

TABLE 2.—Number of Patients with Hypertension:
Distribution of Ratings

Rating	Hysteria	Anxiety	Depres- sion	Obses- sive- Com- pulsive Behavior	Sub- normal As- sertive- ness	Im- pulsive- ness
Group Ia,* Neurogenic Hypertension						
0	10	1	7	3	2	20
1	3	2	7	1	1	2
2	3	7	7	9	6	1
3	6	10	3	9	10	1
4	2	4	0	2	5	0
Group Ib,† Other Types of Hypertension						
0	13	3	8	3	3	23
1	2	3	5	4	5	1
2	6	8	8	4	5	1
3	4	10	5	15	13	1
4	1	2	0	0	2	0
Group I,‡						
0	23	4	15	6	5	43
1	5	5	12	5	4	3
2	9	15	15	13	11	2
3	10	20	8	24	23	2
4	3	6	0	2	7	0

* Twenty-four patients.

† Twenty-six patients.

‡ Total of group Ia and Ib (50 patients).

TABLE 3.—Comparison of Group Ia (Neurogenic Hypertension)
and Group Ib (Other Types of Hypertension)

	Hys- teria	Anxiety	Depres- sion	Obses- sive- Com- pulsive Behavior	Sub- normal As- sertive- ness	Im- pulsive- ness
Mean rating, Ia....	1.46	2.58	1.25	2.25	2.63	0.29
Mean rating, Ib....	1.15	2.19	1.39	2.19	2.31	0.23
Difference between means (D).....	+0.31	+0.39	-0.14	+0.06	+0.32	+0.06
Critical ratio.....	0.81	1.29	0.44	0.19	0.98	0.30

the presence or absence of hypertension, point biserial coefficients of correlation were computed. The point biserial is an algebraic variant of the ordinary Pearsonian coefficient of correlation. It is used to indicate the degree of association between a continuous variable and a dichotomous variable, when no assumption is made as to the normality of the distributions. In computing the coefficients, the presence of hypertension was arbitrarily assigned the numerical value of one and absence of hypertension was assigned the value 0. Consequently, positive coefficients indicate a higher mean rating of a pattern for the hypertensive subjects, while negative coefficients indicate the reverse. In the same way, the presence of personality disorder was assigned the numerical value 1 and absence of personality disorder the value 0.

To test the significance of these correlations, we have used the standard error of a zero coefficient of

correlation ($r = 0.0$), which, for these samples, is 0.10. A correlation coefficient (in table 5) greater than 0.30 would be considered to indicate a statistically significant degree of association.

Table 5 shows the point biserial coefficients of correlation between hypertension and absence of hypertension

TABLE 4.—Number of Patients Without Hypertension:
Distribution of Ratings

Rating	Hysteria	Anxiety	Depres- sion	Obses- sive- Com- pulsive Behavior	Sub- normal As- sertive- ness	Im- pulsive- ness
Group II,* Personality Disorder						
0	22	4	12	16	15	40
1	7	9	12	19	11	6
2	6	16	13	4	11	1
3	6	13	11	10	9	1
4	8	7	1	0	3	1
Group III,† Somatic Disorder						
0	34	13	25	23	30	35
1	6	18	10	9	7	7
2	4	12	6	7	5	1
3	0	1	0	5	1	0
4	0	0	0	0	1	1

* Forty-nine patients. † Forty-four patients.

on the one hand and personality ratings on the other, for (a) groups I and II and (b) groups I and III (columns A and B).

In groups II and III there is no hypertension. As has been stated, group II patients are psychiatrically ill and group III patients have chronic somatic illness, without personality disorder. For these patients the correlations were computed between personality disorder and absence of personality disorder as the dichotomous variable and personality ratings as the other variable; these correlation coefficients are shown in column C.

The ratings of obsessive-compulsive behavior and of subnormal assertiveness differentiate significantly

TABLE 5.—Point Biserial Coefficients of Correlation Between
Personality Ratings and the Clinical Entities Studied *

	A † Coefficient of Correlation of Hypertension (Group I) and Personality Disorders (Group II)	B ‡ Coefficient of Correlation of Hypertension (Group I) and Somatic Disorders (Group III)	C § Coefficient of Correlation of Personality Disorders (Group II) and Somatic Disorders (Group III)
Hysteria.....	-.04	+.41	+.41
Anxiety.....	+.08	+.58	+.51
Depression.....	-.03	+.41	+.47
Obsessive-compulsive behavior	+.44	+.53	+.14
Subnormal assertiveness.....	+.38	+.67	+.38
Impulsiveness.....	-.03	-.02	+.01

* In columns A and B hypertension or absence of hypertension is the dichotomous variable. In column C the dichotomous variable is presence or absence of personality disorder.

† Ninety-nine patients.

‡ Ninety-four patients.

§ Ninety-three patients.

hypertensive persons from those having personality disorders without hypertension; the other ratings (hysteria, anxiety, depression, impulsiveness) do not so differentiate. The ratings of all the patterns except impulsiveness differentiate significantly hypertensive persons from those with chronic somatic disorders.

As between the two groups of patients without hypertension, namely, those with personality disorders (group

II) and those with chronic somatic disorders (group III), four patterns were found to differentiate significantly: hysteria, anxiety, depression and subnormal assertiveness. Two patterns, obsessive-compulsive behavior and impulsiveness, do not differentiate these two groups significantly.

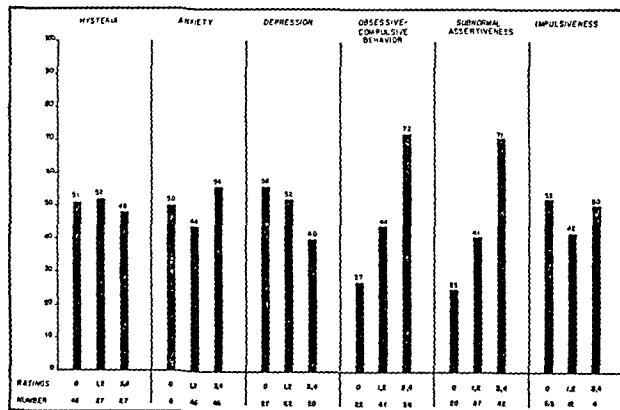


Fig. 1.—Relation of presence of hypertension to ratings of six personality patterns (50 patients with hypertension and 49 with personality disorders without hypertension). The vertical column of figures on the left shows the percentage of hypertensive subjects.

As has been stated, in differentiating the hypertensive persons from those with personality disorders without hypertension, the patterns that are most differentiating are obsessive-compulsive behavior ($r = 0.44$) and subnormal assertiveness ($r = 0.38$). The correlation coefficient between these two variables is 0.49, which shows that these two rated patterns have a considerable degree of communality. Nevertheless, the multiple correlation coefficient between hypertension and absence of hypertension and these two patterns considered in combination is 0.49, which indicates that combinations of the rated patterns may be found which may be more differentiating than any one pattern in isolation.

The best combination of patterns for differentiating group I (hypertensive) and group III (chronic somatic disorders) appears to be depression and subnormal

While the possibility of using the multiple correlation technic for increasing the differentiating power of the rated patterns has not been fully explored, the inter-correlations among the patterns are such that no great increase is to be expected. This, however, is a subject for further investigation.

Since it was impossible to match the three groups perfectly for age (table 1), the variability associated with age was held constant by means of the partial correlation technic for those patterns significantly associated with hypertension. While the corresponding coefficients of correlation dropped slightly when age was partialled out, the greatest decrease was from 0.44 to 0.40 for the correlation between obsessive-compulsive behavior and hypertension. In no case was a correlation coefficient decreased to a significant degree. In our data, therefore, the relationship between the ratings and hypertension cannot be attributed to age.

In figures 1, 2 and 3 are represented graphically the data which have been described in statistical terms in table 5. The ratings were grouped in the classes 0, 1 and 2, and 3 and 4, in order to provide as large samples as possible over the extent of the rating scale; but the statistical analysis indicates that the general

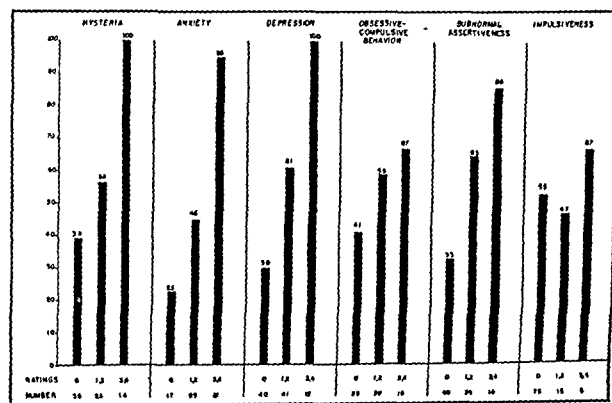


Fig. 2.—Relation of presence of hypertension to ratings of six personality patterns (50 patients with hypertension and 44 with chronic somatic disorders). The vertical column of figures on the left shows the percentage of personality disorders.

facts shown graphically would be the same, no matter how the ratings were grouped. The graphs were made up as follows (fig. 1, left corner): 27 subjects from groups I and II were rated 3 or 4 for the pattern hysteria. Of these 27, 13, or 48 per cent were hypertensive (group I). Twenty-seven subjects from groups I and II were rated 1 or 2 for the pattern hysteria. Of these 27, 14, or 52 per cent, were hypertensive. Forty-five subjects from these two groups were rated 0 for the pattern hysteria; of these 45, 23, or 51 per cent, were hypertensive.

Thus approximately 50 per cent of the subjects in groups I and II who were rated at any level of the pattern hysteria were hypertensive; the rest were not. This amounts to saying that the rating for the pattern hysteria does not differentiate significantly the hypertensive subjects from those with personality disorders without hypertension; a conclusion put more concisely in table 5, where the relevant coefficient of correlation is shown to be -0.04 , which is not significant.

What has been said of hysteria applies to anxiety, depression and impulsiveness, but not to obsessive-compulsive behavior or to subnormal assertiveness, for groups I and II (fig. 1).

Figures 2 and 3 are to be interpreted similarly: The necessary data for the three figures are in tables 2 and 4.

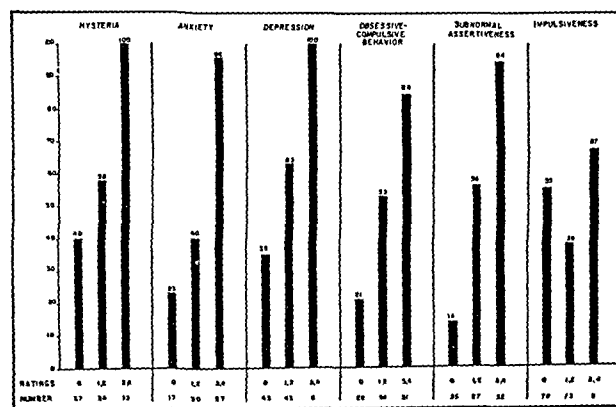


Fig. 3.—Relation of presence of hypertension to ratings of six personality patterns (50 patients with hypertension and 44 with chronic somatic disorders). The vertical column of figures on the left shows the percentage of hypertensive patients.

assertiveness, which yield a multiple correlation coefficient of 0.69. Approximately the same multiple is yielded by the combination of anxiety and subnormal assertiveness. However, these multiples are only 0.02 higher than the zero-order correlation coefficient of 0.67 between subnormal assertiveness and hypertension.

COMMENT

The significant association of hypertension with obsessive-compulsive behavior and subnormal assertiveness is in agreement with Halliday's¹⁰ (page 52) general experience, and many of our observations are in general agreement with those of Binger and his co-workers.⁷

The latter report indicates that one or both of these patterns were present to a handicapping extent in 22 of the 24 hypertensive subjects studied. Nineteen of their subjects had conspicuous difficulty in asserting themselves, but only 3 are described as obsessional. Decided inability to grade assertiveness, severe degree of anxiety, depression and hysteria are noted also in a fair percentage of their subjects.

Additional rough checks on the adequacy of our method are indicated by the facts that (a) the complex patterns rated, though highly intercorrelated, discriminated effectively the three rather different groups studied, (b) a pattern found relatively infrequently among adults in our society, "impulsiveness," occurred in the three groups with a uniformly low frequency and (c) the ratings differentiate between hypertension and somatic disorders and between personality disorders and somatic disorders more effectively than between hypertension and personality disorders. Only two of the personality ratings differentiate significantly between groups I and II, while five of the ratings do so between groups I and III and four do so between groups II and III. Furthermore, the significant point biserial coefficients are highest between groups I and III, next highest between groups II and III and lowest between I and II. The cited facts are evidence that hypertensive persons resemble those with personality disorders much more closely than they resemble persons with somatic disorders, as has recently been the general psychiatric supposition and the experience of Halliday¹⁰ (pages 54 and 55).

A surprising observation is the absence of significant differences in the ratings for neurogenic and for other types of hypertension (endocrine, renal, mixed). The report of Binger and his co-workers⁷ also indicates great similarity in the personality patterns of subjects with various types of hypertension.

It should be emphasized that the described positive associations between presence of hypertension and certain personality ratings do not signify an etiologic relation between the significant patterns and hypertension, but only that there is concomitant variation of the two variables. What could be the nature of such an etiologic relation? How could it be established more surely? We might postulate (a) that persons with the implied makeup of hypertensive persons are recurrently and frequently inhibiting impulses to overt action, (b) that blood pressure rises occur in some of these persons at such times, just as other dysfunctions obviously occur at such times, (c) that in time, and in some such persons, the blood pressure rises begin to outlast the duration of inhibited impulse and (d) that finally hypertension is sustained instead of intermittent. Such postulates would be compatible with (1) the habitual nature of the personality patterns in question, (2) the frequent observation of a period of lability of blood pressure antedating sustained hypertension, (3) the high correlation between even transient elevations of systolic pressure and later sustained hypertension with its complications,²² (4) evi-

dence suggesting that other factors play a partial causative role: somatic, genetic (Ayman,²³ Friedman and Kasanin²⁴); racial-cultural (the existence of anxiety-ridden cultures in which hypertension is not mentioned)²⁵ and (5) experimental evidence that subjection of mammals to recurrent mutually exclusive drives (i. e., to recurrent inhibition of impulses to overt activity) may bring about not only general disorganization²⁶ but, in particular circumstances, sustained hypertension.²⁷

Such postulates could be tested by observations of the effect on the hypertension of demonstrated modifications of the significant personality patterns; by careful studies of the behavioral (operational) correlates of supposedly identical "anxiety" in different cultures (perhaps these correlates are widely different); by careful studies of the association between change in prevalence of hypertension and change in personality patterns in a cultural group (with hitherto low prevalence) that is undergoing rapid acculturation²⁸ and by still other methods independent of the present one.

SUMMARY AND CONCLUSIONS

The degree of association between presence of hypertension and certain personality patterns has been studied, in (a) hypertensive persons and (b) two control groups. Statistically significant degrees of association are found for "obsessive-compulsive behavior" ($r=0.44$ plus or minus 0.10) and for "subnormal assertiveness" ($r=0.38$ plus or minus 0.10). This association implies concomitant variation, rather than proves etiologic relationship.

Neurogenic hypertensive and other types of hypertensive subjects have not been shown to differ significantly in the rated patterns. The method described appears to afford a means of objectifying complex relationships suggested by much more laborious study of far fewer subjects and should prove useful in similar investigations.

ABSTRACT OF DISCUSSION

DR. FRANZ ALEXANDER, Chicago: The inability of self assertion, the propensity to yield in arguments and dissensions is an overt and conspicuous feature of the hypertensive patient which can be easily observed in the patient's manifest behavior. That this chronic state of inhibition under the surface produces a state of emotional tension which can be compared with an overheated steam engine or a rumbling volcano requires a deeper penetration into the more hidden layers of the personality; and that this inhibition to express aggressive and self-assertive impulses is based on the patient's emotional dependence on others whose good will the patient desperately tries to preserve can be ascertained only by a still deeper study of the emotional dynamics. Only after these emotional connections between dependent needs and inhibition of aggressive impulses are understood is it possible to test the validity of these concepts by a statistical study of larger groups. This is what Dr. Saslow attempted by a thorough psychiatric examination of hypertensive patients and control groups. The statis-

22. Levy, R. L.; White, P. D., and Stroud, W. D.: Transient Hypertension: The Relative Prognostic Importance of Various Systolic and Diastolic Levels, *J. A. M. A.* 128:1059 (Aug. 11) 1945.

23. Ayman, D.: Heredity in Arterial (Essential) Hypertension: A Clinical Study of 1,524 Members of 277 Families, *Arch. Int. Med.* 53:792 (May) 1934.

24. Friedman, M., and Kasanin, J. S.: Hypertension in Only One of Identical Twins, *Arch. Int. Med.* 72:767 (Dec.) 1943.

25. Henry, J.; Henry, Z., and Shachtel, A. H.: Rorschach Analysis of Pilaga Indian Children, *Am. J. Orthopsychiat.* 12:4, 1942.

26. James, W. T.: The Formation of Neurosis in Dogs by Increasing the Energy Requirement of a Conditioned Avoiding Response, *J. Comp. Psychol.* 36:109, 1943.

27. Farris, E. J.; Yeakel, E. H., and Medoff, H. S.: Development of Hypertension in Emotional Gray Norway Rats after Air Blasting, *Am. J. Physiol.* 144:351, 1945.

28. Carothers, J. C.: A Study of Mental Derangement in Africans and an Attempt to Explain Its Peculiarities, More Especially in Relation to the African Attitude to Life, *Psychiatry* 11:47, 1948.

tically meaningful frequency of inhibited personality among hypertensive persons was to be expected on the basis of clinical studies by my co-workers and me. The frequency of compulsion-neurotic traits is interesting but does not constitute an independent fact. It can be well explained from the basic observation that these patients have difficulty in handling their aggressive impulses. The compulsive traits represent precisely an attempt to allay anxiety which develops as a reaction to excessive hostile destructive impulses. By the exaggerated observance of social standards of cleanliness and punctuality, these patients try to placate their guilty conscience, just as little children try to placate their mothers by being very, very good. The important issue is that this guilty conscience is reaction to excessive hostile impulses. I should like to mention the interesting observation which is also confirmed by the statistical observations of Dr. Saslow that a fully developed compulsion neurosis with elaborate system of rituals is rare among hypertensive persons. It has been also noted that essential hypertension may disappear in giving way to the development of a full fledged compulsion neurosis. All this amounts to the fact that by compulsive symptoms the patients succeed in draining their hostile impulses, so that the latter do not produce an increase of blood pressure any more. On the other hand, moderate compulsive character traits, such as overpunctuality, meticulousness, overconscientiousness, are common among inhibited persons. There is a causal relationship between a chronic state of inhibited aggressiveness and a chronic state of elevated blood pressure. It is obviously one of the causative factors. Psychotherapy in many cases succeeds in reducing the blood pressure level. It must be emphasized that only understanding of the totality of the psychodynamic structure which is characteristic of these patients makes statistical observations meaningful. Without such an understanding, derived from detailed psychodynamic studies, intelligent statistical studies are impossible. While Dr. Saslow's work is a welcome validation of formulations derived from psychoanalytic studies, it does not contribute anything essentially new to already existing knowledge. In our complex field, however, such statistical corroboration of dynamic formulations cannot be considered as superfluous.

DR. WALTER BAUER, Boston: A question has been sent to the platform by Dr. Campbell of Los Angeles: "Does the essayist know of any series of cases of hypertension which have had prolonged remissions from psychotherapy alone?"

DR. GEORGE SASLOW, St. Louis: Concerning any demonstrated effect of psychotherapy on hypertension, we require studies which show significant correlations between (a) objectively describable modifications, during psychotherapy, of relevant definable personality factors and (b) sustained reduction of hypertensive blood pressures. Each interested psychotherapist has some hypertensive patients treated only psychiatrically. Of these, some are subsequently normotensive for several years. Such observations are not a systematic study. I know of no published systematic study, nor will such a study be undertaken until less laborious methods of defining personality functioning are devised. Our initial research is exploratory: Can such methods be devised? If the crude beginnings have relevance, they can be refined. When subtle enough, they can be used in a psychotherapy experiment. I should like to thank Dr. Alexander particularly for his agreement that the conception of a personality constellation specific to each psychosomatic disorder has no sound foundation. Present evidence from animal experiments indicates that repeated subjection of rats to two mutually exclusive impulses to act (going for food, being stopped by an air blast), i.e., to recurrent inhibition of an impulse to overt action, can result in sustained hypertension. Our hypothesis is that, in personalities such as we described, the recurrent blocking of impulses to act is associated (in some persons) with transient rises in blood pressure, and in others with colonic spasm, bronchospasm or the like. Further, Paul White has demonstrated a strikingly high correlation between even transient rises in systolic pressure and later sustained hypertension (without, or with, its various complications). Our guess is then that the personality patterns we found significant are a large factor in hypertension. It is unlikely that they

are the sole factor, because (a) the correlations are not high enough, (b) Dr. Page's somatic factors are relevant, (c) genetic factors are apparently relevant and (d) cultures are known which appear to be as anxiety ridden and impulse inhibiting as ours, but from which hypertension is not reported. We suggest that hypertension be studied pluralistically. Remedies may then be found in unexpected quarters, as with typhoid. There treatment of the distant water supply of a potential patient was found more effective than treatment of the patient; also inoculation was found more effective. Maybe the discovery we shall make about hypertension is that it is treated best by treating the social-cultural organization which conditions individual personality patterns.

USE OF A SYMPATHOLYTIC DRUG (PRISCOL®)

From the Point of View of a General Surgical Practitioner

MAX P. ROGERS, M.D.
High Point, N. C.

During the past few years, interest in and investigation of the sympathetic nervous system has rivaled that of the field of antibiotics. Much has been done and written concerning the physiology and pharmacology of alteration in sympathetic function, either by surgical procedure or by drugs.

However, most of the work previously reported has come from large hospital centers where facilities for investigational work and where routines of treatment can be easily established. The time has come, though, where the practical widespread use of these methods must be determined, since the manufacturers of various sympatholytic agents are making them available commercially. The medical profession has asked the question often as to how these agents might be used in everyday practice and which of the agents can be dispensed in the usual office or hospital practice with safety.

The ideal sympatholytic agent, from the point of view of the general medical or surgical practitioner, is that one which can be used intramuscularly, intravenously or orally, so that treatment might be rendered whatever the circumstances might be. Currently, three drugs are under investigation in regard to their properties of sympatholysis. Etamon® (tetraethylammonium chloride or bromide) and dibenamine® (dibenzyl beta-chloroethylamine hydrochloride) both have the ability to block effector sympathetic pathways, but they both have the drawback that they must be administered either intravenously or intramuscularly. This is a definite disadvantage when one desires to treat an ambulatory patient. In 1939, Hartmann and Isler first reported on the third drug of the group, priscol® (2-benzyl-4, 5-imidazoline hydrochloride). This drug has the advantage that it can be given orally as well as parenterally and, therefore, is of greater value as a method of ambulatory treatment. Priscol®, then, was chosen for this study, to determine its usefulness to the general medical or surgical practitioner.

Experiments on the effect or action of priscol®, as well as clinical investigation, have been rather extensive. For this paper, ninety-nine articles were reviewed, but only a few of these will be mentioned. Hartmann and Isler found that the phenyl-substituted alkyl imidazolines are depressors of blood pressure, and priscol® is

Ida M. Sykes and Ruby Dellinger assisted in this study. Priscol® (since this paper was written, the name priscol® has been changed to priscoline®) used in this study was furnished by the Ciba Pharmaceutical Products, Inc., Summit, N. J.

the strongest of them.¹ Meier and Mueller stated that the effect of priscol® is characterized by a dilatation of the vessels of the skin and mucosa and that it increases the vascularization of certain regions, the extremities more than others.² Later, Meier and Meyer, working on the peripheral point of attack of priscol® on the vascular system, stated that no cholinergic mechanism is involved in the priscol® action and that, if the site of action is not the central nervous system, priscol® must act on the adrenergic or sympathetico-mimetic system.³ They also stated that administration of atropine in a dose which definitely inhibits the acetylcholine effect has no influence on dilatations produced by priscol®. (There is some question, however, about priscol's® actually having a cholinergic action, because of the appearance of "goose flesh" in some patients taking priscol®. This occurrence is probably effected by stimulating cholinergic pathways in the sympathetic nervous system.)

Braun, working on vasoconstriction in the tail of a rat, stated that ergotamine, as well as epinephrine, caused damage and that priscol® acted antagonistically toward both of these substances.⁴ Bertazzi and de Gennaro showed that priscol®, in doses of 10 to 20 mg., has a definite stimulating effect in gastric motility, manifested not only by improvement in tone and peristalsis but also in quicker gastric evacuation.⁵ Butturini, in 1940, described the reversal of epinephrine effect on priscol®.⁶ Mueller also proved that priscol® has a definite adrenergic effect.⁷ Frieb, in an interesting article on functional effects of priscol® on various organs, reported that, in elderly persons with hyperglycemia, priscol® produced a normal blood sugar level which would indicate that other drugs which influence favorably the diabetes of elderly persons, but not of younger persons, like testosterone propionate, act not specifically but by improving the vascularization of the tissues. He also reported that priscol® has no effect on the coronary arteries.⁸ (This last observation brings up some question, because priscol® does stimulate the heart rate, and coronary blood flow is increased mechanically along with the heart rate).

Lippross showed that the normal peripheral gradient of the skin temperatures is abolished by priscol®.⁹ Still another report on priscol® and diabetes is that of Carvalho.¹⁰ This showed the blood sugar level of normal or diabetic persons decreased after intravenous or subcutaneous injections of priscol®; the higher the level, the more pronounced the effect, subcutaneous

injections being more effective than intravenous. Kohl-mayer reported that priscol® definitely improved the patient with Raynaud's and Buerger's disease (thromboangiitis obliterans).¹¹ Schnetz and Fluch reported rather extensively on the use of priscol® in angioneurosis, vascular spasms, acrocyanosis, acroparesthesia, frostbite, Raynaud's disease, intermittent claudication, Buerger's disease and arteriosclerotic and diabetic gangrene, with good results.¹² Other good reports with use of the drug in clinical patients were reported by Weitzmann,¹³ Buckreus¹⁴ and Brack.¹⁵

Another interesting report was that of Kutschera-Aichbergen, who reported accidentally, so to speak, that in 2 cases of water retention due to acute or sub-acute nephritis, priscol® produced satisfactory diuresis on intravenous injection.¹⁶ Nespore reported both subjective and objective improvement of hands and face in a case of scleroderma.¹⁷ Later Kutschera-Aichbergen had an additional report on his use of priscol® to combat anuria of nephritis.¹⁸ Also, Coste and Hochfeld, in 1945, reported good results from injections of priscol® in cases of coxitis senilis.¹⁹ (A word of caution should be added that many of these reports deal with only a few patients followed for a short period of time.) Priscol® has also been used in the fields of gastroenterology as a diagnostic and testing agent and also in the fields of ophthalmology and rhinology.

The cases in this report deal with clinical use of priscol® during the eleven months prior to writing. The first patient who was given priscol® had been taking the drug almost continuously during that period of time. All patients were followed with frequently repeated studies of blood and urine, and no significant changes resulted from treatment with priscol®. The material will be presented in three main divisions: (1) observation in the use of the drug in the treatment of peripheral vascular disease, (2) the use of the drug in treatment of hypertension and (3) the use of the drug in conditions not clearly defined. In the earlier days of this work, the dosage schedule was probably too small, as more recently developed schedules of treatment with larger doses have given better results. Testing equipment consisted only of the usual laboratory studies, oscillometric studies with Collin's sphygmo-oscillometer and skin temperature studies with a McKesson dermalor®. Although constant temperature rooms are of a great deal of importance, this was not available and skin temperatures could be taken only in a room with the doors and windows closed after patient had been resting for fifteen to twenty minutes, and then observations were made by comparing the temperature of the skin with the temperature of the room.

1. Hartmann, H., and Isler, H.: Chemical Constitution and Pharmacological Effect of Imidazolines Substituted in Position 2, *Arch. f. exper. Path. u. Pharmacol.* **192**: 141, 1939.

2. Meier, R., and Mueller, R.: Vascular Effects of a New Imidazoline Derivative, *Schweiz. med. Wchnschr.* **69**: 1271, 1939.

3. Meier, R., and Meyer, R. T.: On the Peripheral Point of Attack of Priscol on the Vascular System, *Schweiz. med. Wchnschr.* **71**: 1206, 1941.

4. Braun, H.: Vascular Studies in Animals, *Dermat. Wchnschr.* **115**: 1008, 1942.

5. Bertazzi, C. G., and de Gennaro, A.: The Effect of the Chlorhydrate of 2-Benzyl-4, 5-Imidazoline (Priscol) on Gastric Motility (Radiological Research), *Folia med.* **28**: 525, 1942.

6. Butturini, L.: The Pharmacological Action of 2-Benzyl-Imidazoline, *Boll. Soc. ital. di Biol. sper.* **15**: 611, 1940.

7. Mueller, R.: Further Studies on the Pharmacodynamic Properties of Benzylimidazoline (Priscol), read before the Swiss Physiological Society, January, 1942.

8. Frieb, J.: Functional Effects of Priscol on Various Organs (A Comparison with Nicotinic Acid), *Časop. lék. česk.* **81**: 570, 1942.

9. Lippross, O.: Tissue Temperature: III. Thermometric Studies After Sympathectomy, *Ztschr. f. klin. Med.* **141**: 544, 1942.

10. Carvalho, J. M.: Vasodilation and Glycemia, *Portugal méd.* **26**: 486, 1942.

11. Kohl-mayer, H.: Contribution to the Surgery of the Sympathetic Nerves in Peripheral Vascular Diseases, *Wien. klin. Wchnschr.* **52**: 1155, 1939.

12. Schnetz, H., and Fluch, M.: Priscol, a New Vasodilator, *Ztschr. f. klin. Med.* **137**: 667, 1940.

13. Weitzmann, G.: The Treatment of Peripheral Circulatory Disorders with Priscol, *München. med. Wchnschr.* **88**: 99, 1941.

14. Buckreus, F.: The Treatment of Peripheral Circulatory Disorders, *Med. Welt* **15**: 736, 1941.

15. Brack, W.: The Treatment of Frostbite with Priscol, *Schweiz. med. Wchnschr.* **71**: 1559, 1941.

16. Kutschera-Aichbergen, H.: Dehydration, *Wien. klin. Wchnschr.* **55**: 793, 1942.

17. Nespore, E.: An Attempt to Cure Scleroderma with Priscol, *Časop. lék. česk.* **82**: 719, 1943.

18. Kutschera-Aichbergen, H.: Diuretics, *Wien. klin. Wchnschr.* **57**: 93, 1944.

19. Coste, F., and Hochfeld, M.: Use of Benzylimidazoline in the Treatment of Coxitis Senilis, *Rev. du rhum.* **12**: 144-145, 1945.

Side effects of the drug have been dependent entirely on dosage, and these were well described by Grimson and his co-workers in a complete and exhaustive report in June 1948.²⁰ It has been found that oral doses of 25 mg., every three to four hours, in the majority of cases, produce no side effect whatsoever. Occasionally a patient will state that he feels "squeamish in his stomach" at the beginning of his treatment, but no definite nausea and no vomiting have been encountered. The patient's commonest complaint is probably that of a chilly sensation with development of goose flesh and a sensation of crawling of the skin. Intravenous doses produce a sensation of warmth of the face and arms, crawling of the skin and rarely apprehension. Doses of 25 to 50 mg. of priscol® will seldom produce any significant lowering of blood pressure.

USE OF PRISCOL® IN PERIPHERAL VASCULAR DISEASE

Twenty-seven patients with vascular disease or related disorders of the circulation of the extremities received priscol®. Ten patients had arteriosclerotic peripheral vascular disease, and 3 of these had diabetes. There were 4 cases of Buerger's disease, 6 cases of thrombophlebitis, 3 cases of lymphedema, 1 case of trench foot; 1 case of livedo reticularis and 2 cases of causalgia. In all cases the patients were first tested, with either intravenous or oral doses, and then received oral medication over a period of time.

Arteriosclerotic Peripheral Vascular Disease.—In this group of patients all complained of essentially the same thing, that is, a gradual increase of pain in the legs, particularly in the calves on walking, over a period of time. Of this group, 3 of the patients had arteriosclerosis with hypertension and 4 of the patients had no hypertension. All were above 50 years of age and showed the usual cordlike peripheral arteries in the arms and legs.

The first patient was seen before priscol® was obtained and was treated with Buerger's exercises and later with intermittent venous occlusion. She improved somewhat, and her first oscillometric studies showed a maximum of 2 mm. oscillation bilaterally; these increased to 4 and 5 mm. on intermittent venous occlusion. When priscol® was obtained, her maximum oscillation at the time was 5 mm., and she was first tested with 25 mg. of priscol® intramuscularly. Her oscillometric readings increased to 6.5 mm. She was then given the drug orally, and this was continued for four months. During this period she improved to the extent that she rarely had pain. The patient has had a lumbar sympathectomy on one side and is scheduled for treatment of the opposite side soon. There has been no change in the sympathectomized limb during treatment with priscol®.

The second patient, the brother of a doctor, had not had a great deal of difficulty because of a very sedentary occupation. However, he knew that he could not walk for any distance without pain. Oscillometric studies showed a maximum of 0.5 mm. bilaterally. With priscol®, 25 mg. given orally five times daily, his oscillometric readings increased to 2.5 mm. bilaterally; he can now walk a considerable distance without pain.

Another patient gave a history of gangrene of the toe requiring operation one year prior to being seen. He was seen because of cyanosis and early ulceration of another toe. With priscol® therapy the ulceration cleared, the circulation was reestablished and no amputation has been necessary.

The next patient was seen because of an acute arterial occlusion, superimposed on arteriosclerosis with severe pain and cyanosis of the entire foot. With priscol® therapy the color returned, his pain was relieved and he began to be up and about. However, during the time that he was taking priscol®, another rather extensive arterial occlusion developed and amputation was necessary.

The next patient had been treated for arthritis and rheumatism over a period of a year without improvement and stated that cramps appeared in both calves after she walked one block. She was given priscol®, and during the first week her oscillometric readings increased from 0.5 mm. on the right and 1.5 mm. on the left to 1.5 mm. on the right and 2.5 mm. on the left. She can now walk six to eight blocks without pain.

Another patient was interesting because of associated hypertrophic arthritis of the spine as well as arteriosclerotic peripheral vascular disease with intermittent claudication. With priscol® therapy both the intermittent claudication and the arthritic symptoms improved.

The last patient in this group was seen because of a rather sudden onset of pain in the left foot, which was thought to be an endarteritis superimposed on the arteriosclerotic peripheral vascular disease. Oscillometric readings were 0 in the left leg, and there was a difference of 3 degrees in skin temperature between the right and left great toes. In a test with 25 mg. given intravenously, the pain was relieved, the skin temperature increased, so that there was only 1 degree difference between the right and left foot, and the patient was able to walk without pain.

Arteriosclerotic Peripheral Vascular Disease with Diabetes.—There were 3 patients in this group, and 2 of them were Negro. The first patient, a 59 year old Negro woman, came to the hospital because of a large infected area on the left ankle with cellulitis and early abscess formation. During the early days of her hospital stay the level of her blood sugar was rather high, and after taking priscol® the patient went into insulin shock on several occasions before it was realized that the insulin requirement decreased with this medication. When her insulin dosage was reestablished, while she was receiving priscol® she improved rapidly. The abscess was drained; she no longer complained of pain in her leg and was discharged from the hospital with only a granulating area on the ankle. With continued priscol® therapy, this healed rapidly and the patient has been asymptomatic.

The second patient, a 75 year old Negro man, was also admitted because of an infected ulcer of the foot, diabetes and arteriosclerosis with hypertension. With priscol® therapy the relief of pain was rather dramatic. His diabetes was easily controlled, and the patient was discharged with a small dressing on his foot. About a month later, however, after discontinuing the use of priscol®, this patient had acute myocardial failure and died. The effect of priscol® here, with respect to his heart lesion, is not clearly defined, although it is believed that his demise was due to natural causes of the hypertensive cardiovascular disease.

²⁰ Grimson, K. S.; Reardon, M. J.; Marzoni, F. A., and Hendrix, J. P.: The Effects of Priscol (2-Benzyl-4, 5-Imidazoline HCl) on Peripheral Vascular Diseases, Hypertension and Circulation in Patients, *Ann. Surg.* 127: 968, 1948.

The next patient not only complained of pain in her feet and legs, but also of a great deal of numbness and tingling. With priscol® therapy her diabetes was readily controlled, her pain and numbness disappeared and, as of the time of writing, she had been taking priscol® for approximately two months with no ill effects whatsoever.

Buerger's Disease (Thromboangiitis Obliterans).—There were 4 patients in this group. All of the patients were under 40 and gave a typical history of intermittent claudication with a definite history of a fluctuating course of exacerbations and remissions. They were all seen during an exacerbation and showed diminished pulsations of the dorsalis pedis and the posterior tibial artery with paleness, blanching on elevation and dependent rubor. The first patient was a former army officer who had experienced his difficulty while in the army, where a diagnosis of quadrilateral Buerger's disease was made, and he was sympathectomized bilaterally. He did fairly well for approximately one year, but then began to have recurrence of his symptoms. When he was first seen he could walk only about one block without pain. After two weeks of priscol® therapy, he could walk four to five blocks and oscillometric readings had increased to an average of 2.5 mm. bilaterally. Priscol® therapy was continued for four months and was then stopped, as the patient was apparently in a remission. The improvement with priscol® after sympathectomy affords speculation as to mechanisms involved, but the most plausible assumption is that priscol® was again relieving spasm, which in this instance was apparently due to regeneration of sympathetic fibers.

The second patient, who was only 34, had had trouble with his legs for two or three years. His oscillometric readings were 0 bilaterally, and the patient could walk a distance of only 25 yards (23 meters) without pain. With priscol® therapy he rapidly improved to the extent that he could walk four to five blocks. Priscol® therapy was stopped, and all his symptoms returned; on taking priscol® again he was relieved. He has had a lumbar sympathectomy on one side and will be sympathectomized on the other side. Another patient, age 32, complained of aching and burning pain in both legs of three years' duration, with definite exacerbations and remissions. Oscillometric studies showed a maximum of 1.75 mm. bilaterally. Intermittent claudication occurred after he walked two blocks. With priscol® therapy, 25 mg. four times daily, the oscillometric readings increased to normal and symptoms disappeared. Therapy was continued for two months and then discontinued when the oscillometric readings no longer increased.

The last patient had the onset of his disease at the age of 27, and when he was seen five months later he was almost completely incapacitated. His feet were cold and clammy with absent dorsalis pedis and posterior tibial pulsations and maximum of 3 mm. oscillations bilaterally. Priscol®, 40 mg. given intravenously, abolished the gradient of skin temperatures from the toes to the umbilicus, and his pain disappeared. His walking distance doubled during the first week of therapy.

Thrombophlebitis.—In this group there was a total of 6 patients. Four of the patients were seen in the acute phase with the typical symptoms of fever and

pain. All patients in this group, both acute and chronic, had a positive Homan sign. Priscol® was used in these cases as a substitute for paravertebral sympathetic procaine hydrochloride injections.

In 3 of the cases priscol® was first given intravenously with a prompt reduction of pain within a period of three to five minutes. In the other 3 priscol® was given orally with a decrease in pain within a period of thirty to forty-five minutes. After the initial test doses, priscol® was continued orally, and, as long as priscol® was given in adequate dosage, the Homan sign remained negative and the patients were essentially asymptomatic. In 3 cases it was thought that priscol® influenced the course of the disease, inasmuch as after priscol® therapy was instituted without other change in medication there was a prompt reduction of fever. The 2 cases of chronic thrombophlebitis were of approximately six to twelve months' duration, and improvement was prompt and lasting.

Related Vascular Conditions.—*Trench Foot:* One case was that of a veteran who gave a history of onset of trench foot while in the European Theater of War during 1944. Until the time of his discharge from the armed forces, he was in and out of the hospital frequently with pain, chilling and swelling of both feet. He was discharged with 10 per cent disability in 1946. Examination showed that both feet were cold, clammy and moist. Oscillometric readings were normal, but skin temperatures were low. There was a pronounced dependent rubor, but plantar ischemia was absent. He was given priscol® orally and received it daily, 25 mg. every three hours. This was continued for approximately three weeks. During this period of time he had no pain or swelling, and on discontinuing treatment the patient reported to a national guard camp for a period of two weeks. In spite of his tour of duty there, he still had no pain or swelling.

Livedo Reticularis: The patient was a 27 year old woman who was seen because of mottling of both legs of several years' duration, accompanied with burning pain after standing for any length of time, as well as a significant amount of rest pain. Oscillometric studies showed decreased arterial supply bilaterally with the skin temperature gradient of 26 degrees in the great toe to 31 degrees at the umbilicus. There was plantar ischemia on elevation and dependent rubor with mottling of both legs on dependency. Priscol® given intravenously increased the oscillometric readings by 1.5 mm. bilaterally, and the skin temperature gradient was almost abolished. With priscol® therapy her oscillometric readings became normal. She no longer complained of cold feet. Her mottling was less, and her pain, both while standing and at rest, completely disappeared.

Postphlebotic Lymphedema: Three patients were treated in this group, 2 women and 1 man. The average increase in diameter of the affected leg was 1¼ inches (3 cm.) over the normal leg. With priscol® therapy the edema completely disappeared, and the leg remained normal as long as therapy was continued. In 1 patient there was a recurrence of edema after discontinuation of priscol® therapy. In another there were occasional episodes which could be terminated immediately with priscol®, and in the third case there was complete and permanent disappearance of the lymphedema.

Causalgia: There were 2 patients treated for this dyscrasia. The first was that of a 25 year old veteran who sustained a rupture of the distal end of the right triceps tendon while in the service as a result of a jeep wreck. Since the time of the accident he had had a constant dull aching pain in the arm and shoulder with episodes of acute pain, with tingling, numbness and burning of the index and middle fingers of the right hand. Local physical therapy was of no avail, but priscol®, 25 mg., was administered intravenously during an acute episode. The pain was immediately abolished along with the burning and tingling of the hand. Priscol® therapy was continued for one week orally and then stopped with no recurrence of pain.

The second case was that of a 35 year old woman who complained of pain in the throat, gums and teeth, of approximately eighteen months' duration. She had been seen by a number of nose and throat specialists and dentists without relief. She was in excellent physical condition, and no localized cause for her pain had been found. However, priscol®, 25 mg. given intravenously, abolished the pain. Therapy was continued by mouth, and as long as she continued taking priscol® she had no pain.

HYPERTENSION

In this series 2 patients with hypertension were treated with priscol®. The first was a 53 year old white woman with known hypertension of seven years' duration. She was referred to Duke Hospital for checkup in regard to a sympathectomy. Although it was found that she was an ideal candidate, she did not desire a sympathectomy, and for that reason she was given priscol®. Her blood pressure in the beginning varied from 210 to 240 systolic and from 110 to 120 diastolic. At the time that this report was made she had been taking priscol® almost continuously for eleven months. She was given a regular dose of 50 mg. every two and one-half hours. As of the time of reporting she had a standing pressure of 140 systolic and 80 diastolic.

The second patient was a 41 year old man with hypertension of three years' duration. After his studies were completed in regard to sympathectomy, it was decided to attempt to lower pressure with priscol® before proceeding with surgical treatment. Prior to therapy his blood pressure was found to be 252 systolic and 140 diastolic. With priscol® therapy, 75 mg. every two hours, his standing pressure was 170 systolic and 110 diastolic. This patient had been receiving priscol®, at the time this paper was written, for only about two weeks. In both cases the patient tolerated therapy well and had no complaints whatsoever.

MISCELLANEOUS USE OF PRISCOL®

Tabes Dorsalis.—A 58 year old white man, known to be syphilitic with central nervous system manifestations of several years' duration, had been treated in many places for his central nervous system manifestations. When he was seen he stated that he had tabes. His knee jerks were absent, and his chief complaint when seen was that of "lightning pain" in both legs. The patient admitted that during the past few years he had taken large quantities of "headache remedies" for his pain, as well as morphine and codeine. During cold and rainy weather, he would have attacks of severe lancinating, knifelike pains throughout both

legs. Because of this he was able to work little and was in a great deal of pain most of the time. He was seen during an acute attack, at which time he would sit quietly for a few minutes and then suddenly jump and almost scream because of pain through both legs. Priscol® was given intravenously with immediate relief of his pain. Since taking priscol® orally, he has not required any other pain-relieving medication at all, indicating that his pain was undoubtedly associated chiefly with pronounced vascular spasm.

Syphilitic Gastric Crisis.—A 50 year old man with central nervous system syphilis had received much therapy. He had positive signs of syphilis in the blood and cerebrospinal fluid. During the year prior to examination he had had seven admissions to the hospital because of abdominal pain, nausea and vomiting. A diagnosis of gastric crisis was made, but the patient continued to have many attacks of severe pain, requiring considerable amounts of narcotics for relief. During an acute stage, at which time he had been unable to retain food for approximately four days, it was decided to study the role of vascular spasm in such a case. Priscol® was given intravenously in a dose of 25 mg., with approximately 75 per cent reduction of pain. He then received priscol®, 25 mg., every three hours intramuscularly, and within twenty-four hours he had little pain and no nausea or vomiting. Within forty-eight hours he was eating a regular diet, had no pain and was taking no narcotics. Priscol® was then given orally. He was discharged five days after the start of priscol® therapy, eating well and gaining weight.

SUMMARY AND CONCLUSIONS

To augment the clinical reports of the use of priscol® (2-benzyl-4, 5-imidazoline hydrochloride), the results in 31 cases are presented. It appears that priscol® has a definite place in the armamentarium of drugs in the treatment of many types of conditions, particularly in the field of peripheral vascular disease, or for conditions of visceral pain due to vascular spasm. Presumably this drug can be used to a great advantage in those cases in which sympathectomy would be advantageous, and, if the patient responds to priscol® therapy, the results of a sympathectomy will probably be good. It can also be used as a substitute for paravertebral sympathetic block. Immediate results of the drug can be obtained by its administration intravenously or intramuscularly, and it can then be dispensed in dosages of 25 to 50 mg. every two to four hours as a routine office prescription without danger, in the usual case, with adjustment of the dosage for each patient as necessary. However, priscol® should be used with reservation in patients with known coronary insufficiency or cardiac lesion. Particularly from this point of view, priscol® is of importance to a general medical or surgical practitioner.

The results of the use of priscol® in 2 cases of pain resulting from central nervous system syphilis is unusual and interesting, and, in explanation of its mechanism, it is suggested that in view of the present knowledge of the pharmacologic characteristics of priscol®, the action may be explained on a basis of inhibition of stimuli to the vessels. It is also apparent that in certain cases of causalgia, which are always difficult problems, aid is afforded by treatment with priscol®.

LOCATION OF BRAIN TUMORS BY MEANS OF RADIOACTIVE PHOSPHORUS

B. SELVERSTONE, M.D.

A. K. SOLOMON, Ph.D.

and

W. H. SWEET, M.D.

Boston

Precise location of cerebral tumors at operation has been accomplished by means of a miniature Geiger-Müller counter employed as a probe. With such a purpose in view, one of us (B. S.) suggested, on theoretical grounds, that radioactive phosphorus might concentrate in cerebral tumors. In order to demonstrate the feasibility of this technic, it was essential to prove that radioactive phosphorus would actually concentrate in cerebral tumors to a degree significantly greater than

tumor tissue. The concentration in tumor appeared to increase with increasing cellularity, in tumors of the same group. The maximum concentration ratios were usually reached on the second or third day after injection.

Since approximate location of deep brain tumors has not presented a major problem when neurologic examination, electroencephalography and ventriculography have been carefully employed, we have limited the present study to the more difficult question of precise location. The beta radiation emitted by P^{32} penetrates only about 7.5 mm. in brain or brain tumor, permitting location within this maximum distance.² The miniature counters employed were constructed by Dr. Charles V. Robinson of the Harvard Medical School, who subsequently collaborated with us (figure). They are sensitive only in the terminal 1 to 1.5 cm. Our first counters were 5.0 mm. in diameter, which we now

TABLE 1.—Ratio of Counting Rate in Brain Tumor to That in Brain When Probe Counter Was Employed in Location of 14 Brain Tumors.

Case No.	Dose P^{32} , Milli- curies	Time (Hr.) from Injection of P^{32} to Operation	Counter	Depth, Cm.	Corrected Counts per Minute		Ratio of Counts	Comment
					Tumor	Brain		
1.....	3.5	1.8	A	1.0	5,226	961	5.4	Unclassified glioma; no surface presentation; tumor located
2.....	4.2	43.6	A	5.1	13,032	1,207	10.8	Glioblastoma; no surface presentation; tumor located
3.....	1.8	26.9	A	2.3	4,529	783	5.8	Glioblastoma; presented on surface; tumor verified
4.....	0.95	25.6	A	3.2	2,946	482	6.1	Glioblastoma; presented on surface; tumor verified
5.....	3.7	26.8	A	3.5	8,829	349	25.3	Glioblastoma; no surface presentation; tumor located
6.....	1.4	21.0	A	4.1	2,128	222	9.6	Glioblastoma; no surface presentation; tumor located
7.....	3.6	19.3	A	4.0	12,668	2,168	5.8	Glioblastoma; no surface presentation; tumor located
8.....	1.5	46.5	A	3.7	2,885	390	7.4	Glioblastoma; no surface presentation; tumor located
9.....	1.4	21.1	A	4.1	2,125	219	9.7	Atypical glioma; glioblastoma(?); convolutions widened over tumor, but also over non-neoplastic area nearby; no surface presentation; tumor located
10.....	2.5	25.3	A	4.8	30,077	828	36.3	Glioblastoma; no surface presentation; tumor located
11.....	2.3	26.2	A	3.6	4,182	514	8.1	Astrocytoma(?); glioblastoma(?); small surface presentation; tumor verified and outlined for resection
12.....	4.1	61.7	A	2.2	24,232	2,852	8.5	Probable astroblastoma; no surface presentation; tumor located
13.....	1.6	19.7	B	4.0	1,337	67	20.0	Unclassified cerebellar glioma; tumor located through minimal dural openings before cerebellar exposure
14.....	1.9	65.8	A	2.0	2,056	270	7.6	First typical astrocytoma studied; no surface presentation; tumor located by inserting counter from medial surface of hemisphere

in normal gray and white matter.¹ Preliminary experiments were carried out in which tracer doses of radioactive phosphorus, as a buffered phosphate solution, were given intravenously to patients with various types of cerebral tumor. Aliquots of tumor removed at intervals after injection of P^{32} were compared for radioactivity with white and with gray matter removed at the same time. The radioactivity of tumor tissue ranged from 5.8 to 110 times greater than that of adjacent normal white matter. The activity of gray matter was ordinarily somewhat greater (about 1 to 2 times) than that of white matter, but never approached that of

consider too large for routine use. At present we use counters 3.0 mm. in diameter, which are of the same size as cannulas customarily employed in ventriculography.³

This report deals with a preliminary group of 14 cases of brain tumor (including glioblastoma, astroblastoma, astrocytoma and atypical glioma) in which the Geiger-Müller probe counter has been employed at operation. In 3 of these cases the tumor was on the exposed surface; in the remaining 11 instances the counter was employed in order to determine the precise location of tumors which were not on the surface. In each instance the patient received intravenously 0.95 to 4.2 millicuries of radioactive phosphorus (as buffered sterile sodium phosphate solution) at intervals ranging from 1.8 to 65.8 hours prior to operation.

Dr. Selverstone is a Senior Fellow in Neurology, The National Research Council.

The United States Atomic Energy Commission gave the radioactive phosphorus used in this investigation.

From the Neurosurgical Service, Department of Surgery, Massachusetts General Hospital, and the Biophysical Laboratory, Harvard Medical School.

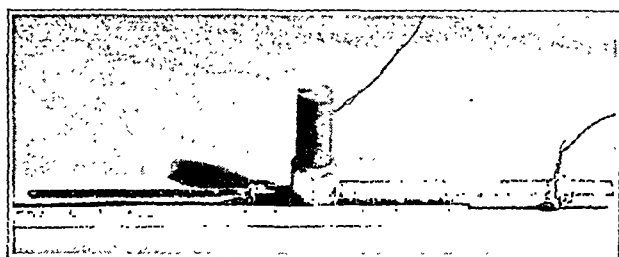
The work reported here has been supported in part by the Proctor Fund of Harvard University, Office of Naval Research, National Foundation for Infantile Paralysis, an anonymous grant administered by Dr. J. C. White and an institutional grant of the American Cancer Society.

1. Selverstone, B., and Solomon, A. K.: *Tr. Am. Neurol. A.*, 1948, p. 115.

2. P^{32} gives off only a 1,690,000 electron-volt (1.69 Mev.) beta ray, with a maximum range of approximately 750 mg. per square centimeter in aluminum (Glendenin, L. E.: *Nucleonics* 2: 12, 1948). The counter wall, of copper or stainless steel 0.16 mm. thick, appreciably reduces the 7.5 mm. range. Brain and brain tumor are assumed to have a density of 1.

3. Robinson, C. V., and Peterson, R. E.: *Rev. Scient. Instruments* 19: 911, 1948.

The counting tube is sterilized either by immersion in a formaldehyde base germicide for one hour or by autoclaving at 120 C. for five minutes. The cathode, the only portion in contact with the brain, is at ground potential. A suitable cathode-follower circuit is provided in order to prevent undue loading of the small counting tube by the capacitance of the 10 foot (25 cm.) line leading to the scaler. The appropriate area of cerebrum or cerebellum is then exposed by means of a craniotomy the location of which is based on the usual clinical and laboratory data. A presumed normal control is first obtained by introducing the counter into a convolution in a neurologically "silent" area chosen as far from the probable site of tumor as the exposure will permit. The counter is then decontaminated by irrigation and wiping with a moist sponge, and the background in air is checked. The counter is then successively introduced into suspected convolutions until the tumor is encountered. The presence of tumor is recognized by an immediate increase in counting rate from 5.4 to 36.3 times that encountered in the control area. Before reintroduction, after tumor has been struck, the counter



Miniature Geiger-Müller counter used in locating deep brain tumors.

is cleansed with hydrogen peroxide and alcohol in order to prevent the possible implantation of malignant cells into normal areas. Ordinarily a statistically satisfactory number of counts is obtained within twelve to twenty-four seconds in tumor and within thirty to sixty seconds in normal brain.

Table 1 shows counting rates obtained at comparable depths beneath the surface in normal brain and in tumor. In each instance where a tumor was present, except in case 15 (not shown in the table), it has

TABLE 2.—Counting Rates at Successive Depths with Introduction of Probe Counter Through Brain to Tumor

Case 7		Case 8		Case 10	
Depth, Cm.*	Counts per Minute	Depth, Cm.*	Counts per Minute	Depth, Cm.*	Counts per Minute
2.0	1,278	2.1	1,213	1.5	1,142
4.0	2,168	3.0	1,627	2.2	992
5.0	14,446	3.7	2,885	3.8	650
...	.....	...	.....	4.8	30,077

* In each instance, the gross margin of tumor was identified between the depth of the final and that of the next preceding count, as accurately as we could determine on subsequent direct inspection.

been possible to locate the tumor.⁴ In this case, a deep metastatic nodule, 1.2 cm. in diameter, was never struck by the counter. Autopsy disclosed that the counter had never come closer than 5 mm. to the tumor.

Table 2 shows counting rates at successive depths at the same site of introduction in cases 7, 8 and 10. It will be noted that there is a striking increase in the number of counts when the probe is advanced a final centimeter or less into gross tumor.

⁴ In cases 3, 4 and 11, the location of the tumor was evident on the surface and the counter served merely to verify its presence.

The theoretical and practical limitations of these techniques and the use of the counter in demarcating tumor from normal brain will be discussed in a subsequent detailed communication.

SUMMARY

Radioactive phosphorus injected intravenously appears in human cerebral tumors in high concentration when compared with normal brain. A small probe Geiger-Müller counter has been successfully employed in 14 cases to determine the precise location of deep brain tumors.

RUPTURE OF THE INTERVERTEBRAL DISK

A Short History of Its Evolution as a Syndrome of Importance to the Surgeon

WILLIAM JASON MIXTER, M.D.
Boston

An account of rupture of the intervertebral disk as an important clinical entity must include not only an evaluation of the pertinent literature, but also the experience of my contemporaries and myself.

There is little in the older literature that has not already been noted, and my function, as I see it, is to use the facts contained in it as a background for the important work leading up to present knowledge of the subject. If I have omitted any important contributions to the subject, I trust that such omissions will be drawn to my attention in order that such an error may be corrected in any future publication.

In an interesting old book by Charles Bell,¹ written in 1824, is an illustration which perhaps is one of the earliest drawings of a rupture of the intervertebral disk, though this, like so many other later references, is concealed under the cloak of misconception of the lesion. Bell called it a fracture, and fracture is present. Nevertheless, allowing for a certain amount of error by the artist, I think that one may assume that the lesion depicted might be a gross rupture of the intervertebral disk into the spinal canal without dislocation of one vertebra on another but accompanied with extensive fracture.

For many years thereafter the occasional mention of damage to the disk had to do with rupture or tearing of the disk as part of a gross dislocation, or as the result of wounds, sepsis and the like.

In 1896, Kocher² wrote a long and most scholarly article on the spine and spinal cord and in it gave many case histories. Case 1 is of particular interest. The man fell 100 feet, landing on his feet. He was able to walk, but complained of burning pain in the scrotum and penis and weakness of his legs. He died some hours later apparently from rupture of the jejunum. Autopsy showed that the first lumbar intervertebral disk had been shattered and squeezed out from between the vertebrae into the spinal canal. No mention is made of fracture or of the condition of the cauda equina. This is indeed a milestone in the history of the ruptured intervertebral disk.

Board of Consultation, Massachusetts General Hospital.
From the Department of Neurosurgery, Massachusetts General Hospital.

Read before the Section on Miscellaneous Topics, Session on History of Medicine, at the Ninety-Seventh Annual Session of the American Medical Association, Chicago, June 25, 1948.

1. Bell, C.: *Observations on Injuries of the Spine and of the Thigh Bone*, London, Thomas Tegg, 1824.

2. Kocher, T.: *Die Verletzungen der Wirbelsäule zugleich als Beitrag zur Physiologie des menschlichen Rückenmarks*, Mitt. ad. Grenzgeb. d. Med. u. Chir. 1:415, 1896.

In his "Surgery of the Brain and Spinal Cord," Krause³ reported a case of enchondroma of the vertebral column compressing the cauda equina and operated on in 1907. This undoubtedly was a true enchondroma from the description and the drawing. However, in 1909, he, with Oppenheim,⁴ reported another case which is of great importance to us. Their patient, a man, had had attacks of low back pain for years. Shortly before they saw him, he had been in a fight and his back had been injured. Pain in the back and left leg ensued followed by pain in the other leg and gradually increasing paralysis of both legs, bladder and rectum. At operation, a tumor was found and removed. It lay anterior to the anterior dura and apparently was opposite the second lumbar disk. The drawing in their article certainly suggests a ruptured disk. Microscopic examination of the specimen showed it to be composed of sparsely cellular cartilage without evidence of necrosis.

In 1911, Middleton and Teacher⁵ in England and Goldthwait⁶ in this country reported cases of severe injury to the intervertebral disk with transverse lesions of the cauda equina.

Middleton and Teacher's case would seem to be, without question, one of rupture of an intervertebral disk. Their patient, a laboring man, was lifting a heavy metal plate. He felt a sudden sharp pain in his back accompanied with severe pain extending into both legs. Within a few hours, complete paralysis of both legs ensued. He died a few days later. At autopsy, a softening of and hemorrhage about the lumbar enlargement was found and, in addition, a mass of

bral disks was carried out. I suspect that they did not realize that the mass was normal cartilage until later, when the specimen removed was subjected to careful pathologic examination. It is probable that the fragment came from the first or second lumbar disk.

Goldthwait's paper is of interest, as his patient was operated on and the cauda equina explored. His patient had sciatica and paraplegia after sacroiliac manipulation. At operation, the dura was opened and narrowing of the sac at the level of the fifth lumbar disk was noted. No exploration of the anterior epidural space was carried out. This case also would seem to be one of ruptured intervertebral disk, probably the fifth lumbar.

During the next seventeen years, no mention is found of isolated injury of the intervertebral disk as described by Goldthwait and by Middleton and Teacher, but there are reports by Frazier,⁷ Elsberg,⁸ Stookey,⁹ Ott and Adson¹⁰ and others, including myself,¹¹ of "enchondromas" which are now known to have been ruptured disks and not true tumors. During the latter part of this period came the studies of Schmorl¹² and others, and one began hearing of Schmorl's nodules, though I am sure that few if any doctors thought of linking them with the enchondromas. I know I did not.



Fig. 2.—Illustration from Oppenheim and Krause's paper (copied from Deutsche med. Wchnschr. 35: 697, 1909).

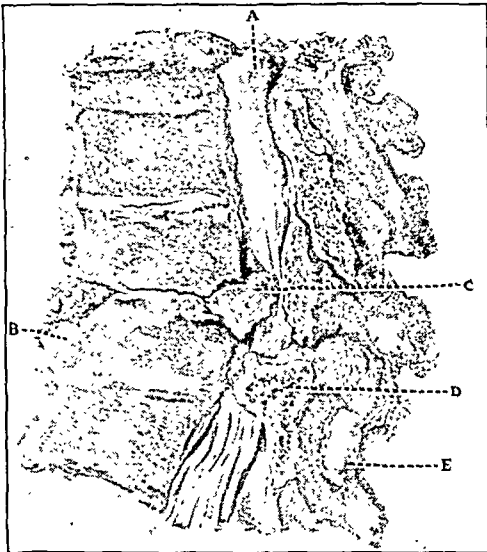


Fig. 1.—Illustration from a monograph by Charles Bell (Thomas Tegg, London, 1824). The fragment (c) apparently partly disk and partly bone from the adjacent vertebrae, may be noted.

cartilage lying in the spinal canal. Apparently at the time of the autopsy, the character of this mass was not suspected and no careful exploration of the interverte-

SCIATICA

In this historical sketch a well known painful syndrome, namely, sciatica, must now be considered. The textbooks of neurology and many articles by neurologists and orthopedists testify to the importance of this common malady. Radiculitis, sepsis near or remote, malformations of the transverse processes or the facets, thickening of the ligamentum flavum, sacroiliac disease, tumors of various sorts and various other causes had been discussed, and many of these may cause sciatic pain. Up to 1929, however, little if any attention had been paid to lesions of the intervertebral disk and no one had considered the intervertebral disk to be implicated in any large percentage of the so-called idiopathic sciaticas.

3. Krause, F.: *Surgery of the Brain and Spinal Cord*, Based on Personal Experiences; Translated by Herman A. Hanbold, New York, Reiman Co., 1912.

4. Oppenheim, H., and Krause, F.: *Ueber Einklemmung bzw. Strangulation der Cauda equina*, Deutsch. med. Wchnschr. 35: 697, 1909.

5. Middleton, G. S., and Teacher, J. H.: *Injury of the Spinal Cord Due to Rupture of an Intervertebral Disk During Muscular Effort*, Glasgow M. J. 76: 139, 1911.

6. Goldthwait, J. E.: *The Lumbo-Sacral Articulation: An Explanation of Many Cases of "Lumbago," "Sciatica" and Paraplegia*, Boston M. & S. J. 104: 365, 1911.

7. Frazier, C. H.: *Surgery of the Spine and Spinal Cord*, New York, D. Appleton & Company, 1918.

8. Elsberg, C. A.: *Tumors of the Spinal Cord*, New York, Paul B. Hoeber, Inc., 1925; *Extradural Spinal Tumors: Primary, Secondary and Metastatic*, Surg., Gynec. & Obst. 46: 1, 1928.

9. Stookey, B.: *Compression of the Spinal Cord Due to Ventral Extradural Cervical Chondromas*, Arch. Neurol. & Psychiat. 20: 275 (Aug.) 1928.

10. Ott, W. O., and Adson, A. W.: *The Diagnosis and Treatment of Tumors of the Spinal Cord Involving the Conus and Cauda Equina*, New Orleans M. & S. J. 76: 169, 1923.

11. Clymer, G.; Mixter, W. J., and Mella, H.: *Experience with Spinal Cord Tumors During the Past Ten Years*, Arch. Neurol. & Psychiat. 5: 213 (Feb.) 1921.

12. Schmorl, G.: *Ueber Knorpelknötchen an der Hinterfläche der Wirbelsbandscheiben*, Fortschr. a. d. Geb. d. Roentgenstrahlen, 40: 629, 1929.

In that year, 1929, Dandy¹³ reported 2 cases of transverse lesions of the cauda equina caused by free fragments of intervertebral disk tissue in the spinal canal. In both, the preoperative diagnosis had been malignant disease on account of the rapid march of signs and symptoms. Two quotations from his paper

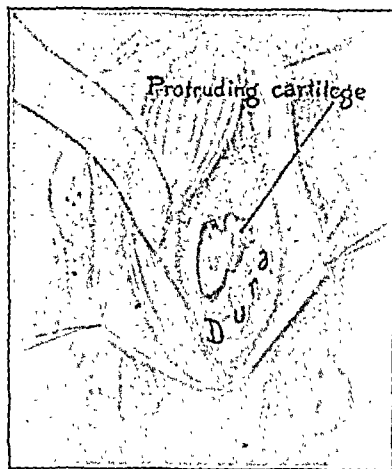


Fig. 3.—Illustration from Dandy's paper, showing the fragment in situ.

sensory paralysis, loss of reflexes and of rectal and vesical control. The lesion is undoubtedly of traumatic origin.

In his summary he stated:

This lesion offers a pathologic basis for cases of "so-called sciatica," especially bilateral sciatica.

Dandy's article did not attract the attention that it deserved. As one looks back, it is easy to see the reasons. His reported cases were but 2 in number; they were both cases of complete transverse lesions; no attempt was made to correlate the lesions in these cases with the enchondromas, and not sufficient evidence was brought forward to prove the connection of the lesion he described with chronic unilateral sciatica. Nevertheless, one must remember that he was the first to report 2 cases in which there was surgical treatment for rupture of the intervertebral disk and the first to postulate that such fragments might be a cause of sciatica.

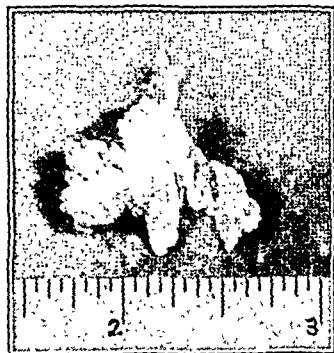


Fig. 4.—Illustration from Dandy's paper. The fragment after removal.

Alajouanine and Petit-Dutaillis¹⁴ and Crouzon, Petit-Dutaillis and Christophe¹⁵ reported 2 similar cases, calling the lesion a fibrocartilaginous nodule. Bucy¹⁶ reported 1 case and collected 15 other similar cases from the literature. He spoke of 3 or more cases reported to him by Peet¹⁷ in a

are given to show the importance of it and to emphasize the clarity of Dr. Dandy's reasoning from the material he presented:

The lesion is a completely detached fragment of cartilage from an intervertebral (lumbar) disk and is surrounded by serum. It bulges dorsally into the spinal canal as a tumor and by compressing the roots of the cauda equina causes motor and

personal communication. Bucy called the lesion in his case an enchondroma.

There the matter stood. Neurosurgeons were showing definite interest in these lesions, but with considerable diversity of opinion as to the character of the pathologic process. It had been suggested that these lesions might be responsible for certain of the fulminating cases of sciatica, particularly those in which transverse lesions developed. No one, to my knowledge, had endeavored to prove that the "enchondroma," the "ecchondroma," the "fibrocartilaginous nodule" or even the lesions in Dandy's 2 cases of detached cartilaginous fragments were related to the common complaint "chronic sciatica" as known to the orthopedist or the neurologist.

SURGICAL EXPERIENCES AND STUDIES

On July 30, 1930, I operated on T. D. Dr. C. S. Kubik, at that time in charge of the Department of Neuropathology and now Neuropathologist and also Chief of Neurology at the Massachusetts General Hospital, made a remark which stayed in my memory,

d the lower portion of the cauda equina to the right. It was incised and the

(signed)

[Signature]

DETAILED ACCOUNT OF OPERATION (TO BE FILLED IN BY HOUSE OFFICER)

Active field

lean or infected

ation in full



removed piece-meal, allowing it to collapse and reure on the root. The wound was closed in layers wither drain outside the dura, and the patient was tra

Fig. 5.—Unretouched sketch from the operation sheet in the Massachusetts General Hospital record of K. N., showing the mass of cartilage beneath the first sacral nerve root.

though for a long time the seed so planted by Dr. Kubik did not germinate. The remark was: "I suppose we must call this lesion a tumor as you found a mass projecting into the spinal canal. The sections certainly look like normal cartilage." Dr. Kubik, in his formal report, stated that it was fibrous and hyaline cartilage and that, considering the location and the histologic appearance, the tumor was probably enchondroma. By this time, I had come to recognize the characteristic appearance of these curious "enchondromas" and to differentiate them from the frank enchondromas of bone. The former were hard small masses, which when incised extruded a mass of tissue looking for all the world like crumpled paper, while the latter were larger and softer and on section had a homogeneous almost translucent appearance.

In June 1932, a patient, K. N., was admitted to the Massachusetts General Hospital. He was recommended to the hospital by Dr. Frank Ober with the request that his case be studied by Dr. J. S. Barr and myself.

13. Dandy, W. E.: Loose Cartilage from Intervertebral Disk Simulating Tumor of the Spinal Cord, *Arch. Surg.* **19**: 660 (Oct.) 1929.

14. Alajouanine, T., and Petit-Dutaillis, D.: Le nodule fibrocartilagineux de la face postérieure des disques intervertébraux, *Presse méd.* **38**: 1657, 1930.

15. Crouzon, O.; Petit-Dutaillis, D., and Christophe, J.: Sur un cas de compression de la queue, d'origine traumatique par une nodule fibrocartilagineux du disque intervertébral: Operation, *Guerison, Rev. neurol.* **1**: 612, 1931.

16. Bucy, P. C.: Chondroma of the Intervertebral Disk, *J. A. M. A.* **94**: 1552 (May 17) 1930.

17. Peet, M. M.: Personal communication to Bucy.¹⁶

K. N. had been hurt in a skiing accident, and the history and observations were what are now known to be classic for ruptured intervertebral disk. Results of the roentgen examination were inconclusive, and examination with iodized oil as then carried out did not reveal any abnormalities. Examination of the spinal fluid revealed no evidence of dynamic block, but the total protein was 108 mg. per hundred cubic centimeters. In view of the fact that he was totally incapacitated and in pain, operation was advised.

The preoperative diagnosis was tumor of the cauda equina. After exploration of the whole lower cauda equina, a small mass was found pressing backward against the first sacral nerve root and arising from the fifth lumbar disk. The operative notes stated that the nodule was evidently an enchondroma. It was incised and the rolled up cartilage removed piecemeal, allowing it to collapse and relieving all pressure on the root.

Dr. Kubik's diagnosis was enchondroma. Figure 5 is an unretouched photograph of my drawing on the operation sheet of K. N.'s record.

Dr. Barr had been much interested in K. N. He had been struck by the fact that this patient had a dual syndrome, namely, some derangement of the low part of the back and accompanying sciatica. He was present at the operation. After the operation, either the same day or the next, Dr. Barr and I met in the corridor of the old Bulfinch Building and stopped to discuss the case. He stated that K. N.'s symptoms had followed an injury, and therefore the diagnosis of tumor was unsound. We recalled the fact that Dr. Kubik had stated that the microscopic sections in a similar case appeared to be normal cartilage, and Dr. Barr suggested that the lesion found in K. N.'s spine might be a Schmorl nodule. Dr. Barr examined the slides and was struck with the lack of cellular material in the specimen. He obtained some material from normal disks, had sections prepared and compared them with the specimen from K. N. The two tissues seemed to him and to Dr. Kubik to be identical, thus confirming the idea that the lesion was not a neoplasm.

Our first step was to review the pathologic specimens of all the patients with "enchondroma" of the spine operated on at the Massachusetts General Hospital. We found that, of these, six of the lesions were undoubted enchondromas or were unclassified and the remaining ten proved to be normal cartilage. This made us certain that we were dealing with a considerable group of lesions previously described as neoplasm, but undoubtedly of traumatic origin. These observations increased our interest. Therefore, we began reviewing the records of these cases for clinical evidence keeping in mind particularly the dual syndrome of low back derangement and sciatica in those cases in which the lesion was in the lumbar region. We were beginning to recognize the importance of the lesion. Desiring to confirm our conclusions, we delayed publication until we had further evidence.

During the next eight months, we found and operated on 7 patients, mostly by investigating the cases of chronic sciatica being followed in the Orthopedic Out-Patient Department of the Massachusetts General Hospital. On Dec. 19, 1932, six months after the operation on K. N., I operated on L. C., with a preoperative diagnosis of ruptured intervertebral disk, and found the lesion. In 1933, we felt that we had sufficient material to warrant publication. Our first paper was read before the New England Surgical Society on

Sept. 30, 1933. This paper was published in the *New England Journal of Medicine*, but not until Aug 2, 1934.¹⁸ Dr. Barr previously had read a paper, in the spring of 1933, before the Peter Bent Brigham Hospital Alumni Reunion, but this report received such an indifferent reception that it was not published.

After the reading of our paper and before its publication, Mauric's¹⁹ monograph on the intervertebral disk came to our attention. His conclusions, based in the main on an exhaustive and critical study of the literature, were similar to those of Barr and myself.

It was some time before resistance to this new explanation of the cause of sciatica quieted down. I can well remember asking permission of the Surgical Executive Committee of the Massachusetts General Hospital to give a clinical demonstration of our material at the meeting of the Massachusetts Medical Society. Permission was refused on the ground that the subject was far too controversial to be given a place in such a meeting. The lesion was difficult to demonstrate to a group, and I finally found that the best way to convince a skeptic was to have him scrub with me and see and feel the protruded fragment for himself before it was removed. Dr. James Love of the Mayo Clinic spent several days with us and then returned to Rochester to comb their cases of unexplained sciatica as we had combed our outpatient department. His series, I suppose, is today larger than that of any other single operator.

The problem of rupture of the cervical disk is perhaps more difficult than that of the lumbar disk. It was a natural sequence that brachial neuralgia should come under suspicion as soon as rupture of the lumbar disk was proved, particularly as the larger percentage of the "enchondromas" reported in the earlier literature were in the cervical region.

COMMENT

Such is the early story of our share, at the Massachusetts General Hospital, in the development of surgical treatment of the intervertebral disk. I shall not attempt to carry it beyond the reading of our paper in September 1933. The work goes on, as there are many problems that need further study. One thing is sure. Now that we are looking for this lesion, we find that sciatica and brachial neuritis are common complaints. Barr and I reported 19 cases in 1933. Today such cases are being reported in hundreds and even in thousands, and from these great groups of cases we should learn much.

In retrospect, it can be seen that the syndrome of the ruptured intervertebral disk lay for many years like the scattered pieces of a picture puzzle. All the pieces were there in the literature and, more importantly for us, in the cases in our own clinic at the Massachusetts General Hospital. Yet Dr. Barr and I might never have completed this picture had we not met that day to discuss at length the case of K. N. in the corridor of the old Bulfinch Building.

Dr. Barr and I both feel that every credit should be given to the long list of surgeons who faithfully reported their cases of "enchondromas," to those who reported the few cases recognized as rupture of the disk, to Schmorl and his co-workers for the discovery of Schmorl's nodules and especially to Dr. Walter

18. Mixter, W. J., and Barr, J. S.: Rupture of the Intervertebral Disc with Involvement of the Spinal Canal, *New England J. Med.* 211: 210 (Aug.) 1934.

19. Mauric, G. J. J.: *Le Disque Intervertebral*, Paris, Masson & Cie, 1933.

Dandy, who was the first, I believe, to hazard the guess, from the 2 cases which he reported, that this lesion might be responsible for sciatica.

SUMMARY

I should like to close leaving this thought: No discovery is ever made by one man or group of men. Had it not been for the reports of the various workers in neurosurgery, in pathology, in neurology and in orthopedics, the focusing of attention on rupture of the intervertebral disk and its importance as a clinical entity would have been impossible.

ABSTRACT OF DISCUSSION

DR. PHILIP LEWIN, Chicago: Many men have been nibbling at this problem, but they did not know what they were nibbling at. Dr. Mixter, Dr. Barr and Dr. Kubik deserve the greatest credit for combining all the links. Further study, observation and collaboration between the neurosurgeon and the orthopedic surgeon, who will teach the general practitioner, will help to clarify the problem of the intervertebral disk. Patients who really have it will be given early treatment. If the conservative treatment fails, then the surgical treatment should be given. There will not be so many recurrences or so many sciatic cripples.

COMBINED (ONE STAGE) SPLENECTOMY AND PORTACAVAL SHUNTS IN PORTAL HYPERTENSION

With Observations on Venous Shunts in the Postsplenectomy
Patient with Recurring Hemorrhage

LOUIS M. ROUSSELOT, M.D.
New York

It is now over fifty years since Guido Banti made his memorable declaration¹ on the etiologic, pathologic and clinical features of the "disease" which bears his name. For many years, no serious challenge of his theories was advanced.

Not until well after the turn of the century did occasional reports appear showing that a variety of unrelated pathologic lesions, all located in the portal venous bed, could produce the clinical picture described by Warthin.² In 1936, the initial report from the Spleen Clinic of the Presbyterian Hospital presented and supported a hypothesis at variance with the older, and then widely accepted, concept.³ This hypothesis has been reiterated in numerous communications.⁴

Continued experience has fortified the original position with a cumulative mass of supporting evidence. This material includes both clinical observations with long term follow-ups and postmortem confirmation of certain earlier cases in which, at the first reporting,

there was little knowledge of the primary lesion. The present understanding of the pathogenesis of Banti's syndrome is that it is the result of mechanical obstruction to the flow of blood within the portal bed. I believe that a state of "portal hypertension" is a concomitant in all cases of portal bed block. Ever since the original report of Thompson and Caughey⁵ it has been my practice to take manometric readings of the portal pressure at operation in all cases of suspected Banti's syndrome. In true congestive splenomegaly, readings are regularly found above 250 mm. of water, and levels above 400 mm. are not rare.

THE OBSTRUCTIVE FACTOR

As mentioned earlier, I believe that in congestive splenomegaly, the obstruction and portal hypertension may be produced by a variety of obstructive factors. This obstruction may be either intrahepatic or extrahepatic. The following outline summarizes my experience proved either at operation or at autopsy.

I. Intrahepatic

A. Cirrhosis of the liver

1. Laennec's cirrhosis
2. Schistosomiasis
3. Biliary cirrhosis
4. Infectious hepatitis

II. Extrahepatic

A. Stenosis of vein

1. Congenital
2. Acquired
 - (a) Phlebosclerosis

B. Compression of vein

1. Inflammatory cicatrix (following pancreatitis, cholangitis, etc.)
2. Pancreatic cyst
3. Tumor
4. Aneurysm of splenic artery

C. Thrombosis of vein

1. Inflammatory
2. Traumatic

D. Cavernomatous transformation of vein

Obviously, cirrhosis of the liver does not produce portal hypertension in all cases. In fact, in only a relatively small percentage of cases of cirrhosis of the liver, probably not over 20 per cent, associated congestive splenomegaly develops.

DIAGNOSIS

A searching discussion of the diagnostic criteria in this disease is not within the scope of this paper. The classic picture of splenomegaly with anemia, leukopenia and thrombopenia and a history of hematemesis with esophageal varices proved roentgenographically requires no great clinical acumen for the establishment of a diagnosis. If, in addition, tests of hepatic function indicate the presence of hepatic disease, then the diagnostic problem is further simplified. The most frequent errors in diagnosis, preoperatively, occur in patients without cirrhosis or without evidence of hemorrhage. The nonspecific blood

From the Department of Surgery, Presbyterian Hospital, New York.

Read before the Section on Surgery, General and Abdominal, at the Ninety-Seventh Annual Session of the American Medical Association, Chicago, June 23, 1948.

1. Banti, G.: La splénomégalia con cirrosi del fegato, *Sperimentale, Firenze* (Com. e riv.) 48:447-452, 1894. Splenomegalie mit Lebercirrhose, *Beitr. z. path. Anat.* 24: 21, 1898.

2. Warthin, A. S.: The Relationship of Thrombophlebitis of the Portal and Splenic Veins to Splenic Anemia and Banti's Disease, *Internat. Clin.* 4: 189, 1910. Wallgren, A.: Contribution à l'enfance, *Acta Paediatr. (suppl.)* 6: 122, 1927. Larrabee, R. C.: Congestive Splenomegaly and Its Relation to Banti's Disease, *Am. J. M. Sc.* 188: 745, 1934.

3. Rousselot, L. M.: The Role of Congestive (Portal Hypertension) in So-Called Banti's Syndrome, *J. A. M. A.* 107: 1788 (Nov. 28) 1936.

4. (a) Rousselot, L. M.: The Late Phase of Congestive Splenomegaly With Hematemesis but Without Cirrhosis of the Liver, *Surgery* 8: 34, 1940. (b) Whipple, A. O.: The Problem of Portal Hypertension in Relation to the Hepatosplenopathies, *Ann. Surg.* 122: 449, 1945.

5. Thompson, W. B.; Caughey, J. L.; Whipple, A. O., and Rousselot, L. M.: Splenic Vein Pressure in Congestive Splenomegaly (Banti's Syndrome), *J. Clin. Investigation* 16: 571, 1937.

picture may be reproduced in leukemia, Gaucher's disease, hypersplenism, giant lymph follicle hyperplasia, lymphoblastoma and kala-azar. Bone marrow biopsy may often serve to differentiate some of the foregoing diseases, but its results are not infallible.

Prior to operation, besides complete hematologic studies, marrow or node biopsy and estimates of hepatic function and renal function should be made. Roentgenograms often demonstrate the presence and extent of esophageal varices.

SURGICAL TREATMENT OF PORTAL HYPERTENSION

The ultimate prognosis and selection of the type of surgical therapy in any given case of portal hypertension will depend on the following factors: (1) the nature of the obstructive factor, (2) its location, (3) the degree of portal hypertension and (4) the efficiency of collateral circulation.

Patients with an intrahepatic block, that is the cirrhotic patients, require the greatest exercise of judgment in timing, before operation is contemplated. When first seen, these patients may be greatly depleted because of varying grades of hepatic decompensation. Recurring gastrointestinal bleeding and ascites may further lower their vital protein stores. A prolonged medical regimen of a high protein, high carbohydrate and low fat diet with vitamin supplements and transfusions, may be necessary before the patient can be accepted as even a reasonable surgical risk.

In the noncirrhotic patients, the anemia associated with the congestive splenomegaly, or from preceding hematemesis, usually requires preoperative transfusion.

It is my firm conviction that splenectomy should always form the basic part of every surgical procedure, i. e., splenectomy with or without portacaval shunt rather than portacaval shunt alone without splenectomy. Most clinicians experienced in this field believe that the spleen in congestive splenomegaly exercises an inhibitory effect on blood formation. After splenectomy alone, there is usually a prompt rise of the granulocytes and thrombocytes to normal or well above normal levels. The erythrocytic rise is a slower process. Furthermore, the greatly enlarged spleen is a reservoir for a considerable volume of blood. The ease and rapidity of contractility of the spleen has been noted by many physiologists and clinicians. As the enlarged spleen in this disease probably carries some 40 per cent of total portal blood flow, its removal minimizes the inevitable sudden thrust of a large volume of blood on the already overburdened esophageal varices.

With a block in the splenic vein close to the hilum of the spleen, due to a thrombotic process or occlusion from pancreatitis or a pancreatic cyst, splenectomy alone will suffice, and a recurrence of hematemesis will be rare. When the block is at any point in the portal bed closer to the liver (that is, from the entry of the inferior mesenteric vein to the liver itself), a more radical operation must be considered. It is in this type of case with recurring gastrointestinal bleeding that combined splenectomy and portacaval shunt in one operation should be seriously considered. Experience has shown that in cases with hematemesis, in which the block is proximal to the inferior mesenteric vein, bleeding will invariably recur if splenectomy alone is done, and the eventual rate of mortality will approach 100 per cent.

In attempting to do shunts in the postsplenectomy case with recurring bleeding I usually found the splenic vein obliterated and unusable for anastomosis; hence my desire to effect a combined splenectomy and portacaval shunt as a one stage procedure.

The surgical treatment in this group of cases has been done entirely by three surgeons in the clinic at the Presbyterian Hospital, Dr. Allen O. Whipple, Dr. A. H. Blakemore and me. During the war years, Dr. Whipple and Dr. Blakemore operated in the cases herein reported and lately Dr. Blakemore and I. Dr. Whipple's and my earlier efforts to anastomose smaller branches of the mesenteric veins to smaller radicles of the caval system uniformly failed. Other reports reveal similar negative results.⁶ The size of the vessels used made the operation technically difficult, and, as this was before the use of anticoagulants, occlusion of the anastomosis regularly occurred.

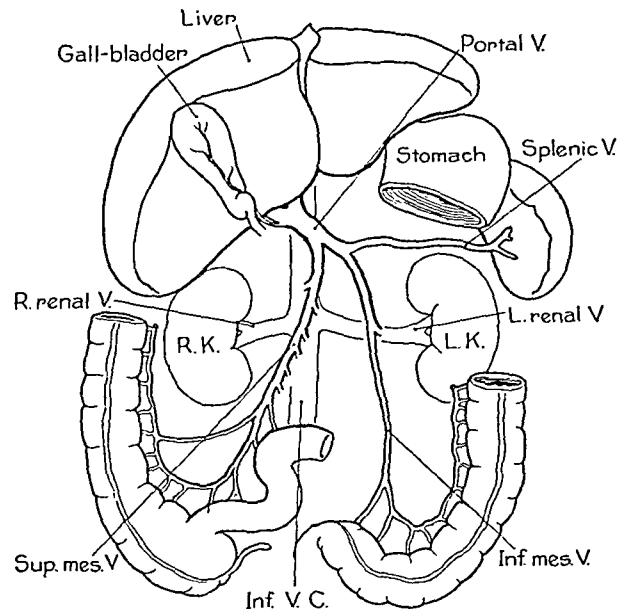


Fig. 1.—Schematic view of portal circulation.

Blakemore early adopted his vitallium tube technic⁷ in an attempt to solve this problem. Most of my earlier cases were treated utilizing the endothelial lined tube. Some of these have an excellent follow-up record.

Practically all the cases handled in the past two years have been by the suture method with preservation of the kidney and the use of the larger veins in the portal bed. At the present time, the choice of portacaval shunts may be essentially divided into two main forms, i. e., either the splenorenal shunts or the portal vein to inferior vena cava anastomosis. The splenorenal diversion is used in most of the cases with an extrahepatic block. The lesion in these cases is predominantly in the portal vein, thus precluding the possibility of the Eck fistula. The Eck fistula, if used at all,^{7a} should be reserved principally in patients with cir-

6. Gunn, K. E. L. G.: Congenital Cystic Kidneys, *Tr. Roy. Acad. M. Ireland* 8:12, 1911. Meursing, F.: Over een zeldzame anastomose tusschen de vena portal en de vena cava, *Nederl. tijdschr. v. geneesk.* 2:1678, 1912.

7. Blakemore, A. H., and Lord, J.: The Technic of Using Vitallium Tubes in Establishing Porta-Caval Shunts for Portal Hypertension, *Ann. Surg.* 122:476, 1945.

7a. Blakemore, A. H.: Indications for Porta-Caval Anastomosis, *Surg., Gynec. & Obst.* 84:645, 1947.

rhosis. In figure 2 some of these procedures are schematically shown. Anatomic variations may dictate the use of other alternatives. Such substitutes are also illustrated. The following outline is a résumé of all the various combinations of operations utilized in this series of cases.

- I. Splenectomy, left nephrectomy; splenic vein to left renal vein
 - (a) end to end, vitallium tube
 - (b) end to end, by suture
- II. Splenectomy, no nephrectomy; splenic vein to left renal vein, end to side, by suture
- III. No splenectomy (Eck fistula); portal vein to inferior vena cava
 - (a) end to side, vitallium tube
 - (b) end to side, by suture

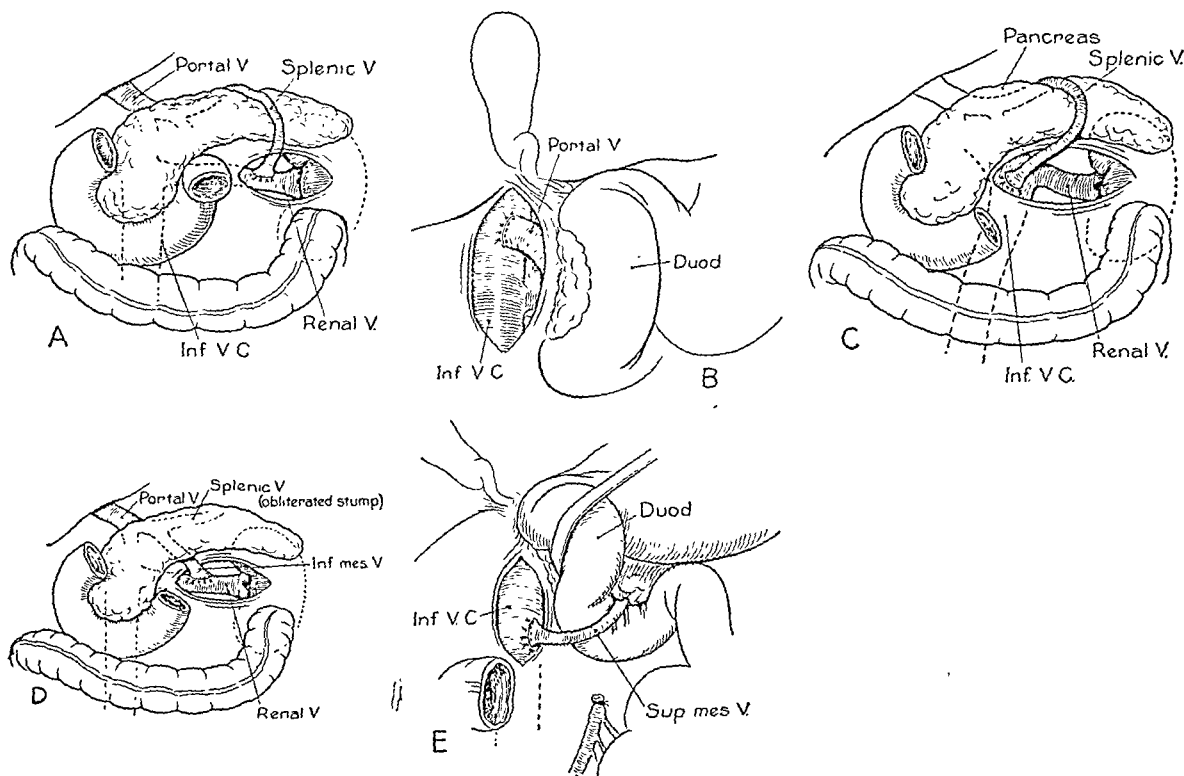


Fig. 2.—Illustrations of types of porta-caval shunts used in this group of cases. A, splenic vein to left renal vein; end to side. B, portal vein to inferior vena cava; end to side (Eck fistula). C, splenic vein to inferior vena cava; end to side. D, inferior mesenteric vein to left renal vein; end to side. E, superior mesenteric vein to inferior vena cava; end to side.

IV. Postsplenectomy

- (a) Superior mesenteric vein to inferior vena cava, end to side, by suture
- (b) Inferior mesenteric vein to left renal vein, end to side, by suture
- (c) Splenic vein to inferior vena cava, end to side, by suture
- (d) Inferior mesenteric vein to inferior vena cava, end to side, by suture
 1. Splenic vein to left renal vein, end to end, by tube
 2. Inferior mesenteric to left renal vein, end to end, by suture (double shunt at bifurcation of left renal vein)

Five patients with portal hypertension with previous splenectomy have been operated on. All these had recurring gastrointestinal bleeding for as long as ten years following their initial splenectomy. As men-

tioned previously, the mortality rate in these post-splenectomy bleeders will approach 100 per cent. Many of these cases are due to extrahepatic blocks, and death will inevitably follow intractable bleeding. The patients do not die from hepatic insufficiency, as cirrhosis is not a part of the pathologic picture.^{4a}

RESULTS

The initial and late results are briefly shown in tables 1 and 2. The hospital mortality rate in the cases of cirrhosis of the liver was 21.4 per cent, and the immediate cause of death is likewise listed in the accompanying tables. In the noncirrhotic group (albeit a smaller number of cases) the hospital mortality rate was 12.5 per cent.

The long term follow-up figures for the two groups are compared in table 2, and again the cirrhotic patients

show a slightly higher death rate. As the total number of cases is so small, one would be foolhardy to read too much into these figures. However, I believe that it is reasonable to predict that for some time to come the patients with cirrhosis will prove to be poorer risks in the immediate postoperative period and later on, with the ever present threat of hepatic decompensation.

Conversely, it is my opinion that those patients with an extrahepatic block will give more encouraging results over a similar period.

Table 3 presents a brief analysis of the late follow-up with reference to persistence of bleeding. In the cases listed as "successful" there was no recurrence of bleeding for the period of time listed; in the "moderately successful" cases there was less severe bleeding at longer intervals than before the shunt; in the "unsuc-

cessful" cases, although the patient was still alive, there continued to be recurrent bleeding of the same severity as before operation.

Five patients in this series had had previous splenectomy but continued to bleed. All of these had shunts of the types shown in the outline. Four of these had an extrahepatic block, and one had cirrhosis of the liver. At the time of writing the cirrhotic patient had

hypertension unless he is prepared to do a splenorenal anastomosis at the same operation, since this may be the only opportunity to construct a satisfactory shunt."

SUMMARY

The historical development of the modern concept of portal hypertension is reviewed. Reference is made to the importance of the obstructive factor and its site and nature.

Various surgeons in this country are attempting to solve the problem of continued gastrointestinal bleeding in this disease by means of portacaval shunts.

The experience of the Spleen Clinic of the Columbia-Presbyterian Hospital in 58 cases is presented. Although I realize it will take more years of continued effort and pooling of data by all those interested in this problem, I am encouraged with results to date and plan to continue the operation of combined (one stage) splenectomy and portacaval shunt.

My experience is in accord with that of Linton—a surgeon should not attempt splenectomy in a case of portal hypertension without being prepared to do a portacaval shunt. The initial operation usually offers the golden opportunity.

ABSTRACT OF DISCUSSION

DR. ROBERT R. LINTON, Brookline, Mass.: I would like to congratulate Dr. Rousselot on his excellent presentation of this subject and to acknowledge the important role he has played along with Dr. Whipple and Dr. Blakemore toward the development of it. An analysis of 108 cases of cirrhosis of the liver seen in the Massachusetts General Hospital from 1934 to 1945 revealed that 41 patients, or 38 per cent, died of hematemesis; and in the same period 20 patients with Banti's disease were seen, and 5, or 25 per cent, died from the same cause. It is the opinion at the Massachusetts General Hospital that the majority of these patients should be treated by splenectomy and end to side splenorenal shunt with preservation of the kidney. My co-workers and I recommend the left thoracoabdominal incision with resection of the ninth or tenth rib and partial division of the diaphragm. The results in the extrahepatic block, the so-called Banti's syndrome, have been better than in the group of cirrhosis, or the intrahepatic block. We have employed surgical treatment in 10 cases of the extrahepatic type, 6 male and 4 female patients, the ages ranging from 4 to 65 with a mean age of 27.7 years. The mortality rate in the Banti's group has been zero. The results in cases of the intrahepatic type have not been so good; there was a higher mortality rate. This we believe is because the patients have been much more critically ill, some of whom probably never should have been operated on. There were 15 in this group, 9 male and 6 female patients, ranging from 26 to 60 years of age with a mean age of 45 years. Eleven patients had splenectomy and splenorenal shunts with preservation of the kidney with a mortality rate of 28 per cent. The ones who have lived have not bled for periods of twelve to twenty-four months since the operation. Since January 1948, 9 patients with the intrahepatic type of block have been operated on and 8 have survived. I have two words of caution. First, this is not an easy type of operation. Second, as Dr. Rousselot has already stated, the surgeon should not do a splenectomy in a case of portal hypertension, especially in the Banti's group, unless he is prepared to do a splenorenal anastomosis at the same operation, since this may be the only opportunity to construct a satisfactory shunt.

DR. PAUL RAVENNA, Chicago: I wish to comment on the pathogenesis of the Banti syndrome. The idea that passive congestion alone is responsible for the splenomegaly is based on the fact that an obstacle to the venous flow of splenic blood is found in many cases. It overlooks the fact that sometimes such an obstruction is not found, either at the time of operation or at autopsy, though carefully searched for. In

TABLE 1. Analysis of Hospital Mortality in Combined, Splenectomy and Venous Shunt

	No. of Cases	Hos- pital Deaths	Mor- tality, Per- cent- age	Cause of Death
Intrahepatic obstructive factor (cirrhosis)	42	9	21.4	Cholelithiasis..... 3 Cerebral accident..... 1 Cardiac failure..... 1 Mesenteric thrombosis (venous)..... 2 Shock (intraabdominal hemorrhage)..... 1 Gastrointestinal hemorrhage..... 1
Extrahepatic obstructive factor (normal liver)	16	2	12.5	Cerebral accident..... 1 Mesenteric thrombosis (venous)..... 1
Total.....	58	11	18.9	

TABLE 2.—Early and Late Mortality Following Portacaval Shunts in Portal Hypertension

	Total Cases	Hos- pital Deaths	Hos- pital Mor- tality (Per- cent- age)	Late Mor- tality from Dis- ease	Late Mor- tality Other Cause	Late Mor- tality (Per- cent- age)	Total Mor- tality (Per- cent- age)
Intrahepatic obstructive factor (cirrhosis).....	42	9	21.4	7	1	16.6	38.0
Extrahepatic obstructive factor (normal liver).....	16	2	12.5	2	0	12.5	25.0

TABLE 3.—Late Results in Surviving Group

Results	Cirrhotic Patients		Patients with Normal Liver (Extrahepatic Block)	
	No. Cases	Period Followed, Mo.	No. Cases	Period Followed, Mo.
Successful.....	15	1 to 12	2	1 to 12
	2	13 to 24	6	13 to 24
	1	25		
Moderately successful...	1	24	1	3
			1	20
Unsuccessful.....	1	15	1	12
	2	26	1	28
	1	43		

been free of bleeding for nine months, one of the non-cirrhotic patients had an episode of bleeding while still in the hospital, but had subsequently been free of bleeding for eighteen months. Linton recently presented a series of 4 cases with shunt procedures.⁸ Three of the patients had had previous splenectomy. This report emphasized the technical difficulties in attempting shunts in the postsplenectomy patient. I am in complete accord with this author's statement, "... a surgeon should not do a splenectomy in a case of portal

8. Linton, R. R.: Porta-Caval Shunts in the Treatment of Portal Hypertension, *New England J. Med.* 238: 723, 1948.

some cases, therefore, an obstruction is not present. One must agree then that an obstacle is not necessary in the development of the Banti syndrome. Furthermore, some cases of fibrocongestive splenomegaly have been described in which a congenital anomalous vein provided a large wide open shunt between the splenic vein and the left renal vein. These are additional cases in which the splenomegaly could not be due to passive congestion. It is my feeling, therefore, that the mechanical obstruction may be complication, but is not the prime cause of the splenomegaly, and that one must recognize that the spleen is the organ primarily involved. I do not deny that mechanical obstruction may be of great importance—and of surgical importance—in cases of Banti syndrome, but I feel that it should be considered a complication and not the one primary factor.

DR. LOUIS M. ROUSSELOT: I greatly appreciate the provocative aspects of the remarks of both of my discussers, particularly Dr. Ravenna's. The problem of the discovery of a mechanical block has naturally been one that has interested my co-workers and me from the start of our studies. All that I can say in answer to Dr. Ravenna is that our evidence has been piling up over a period of years. We have yet to find a case, of the few that have come to autopsy, in which an obstruction was presupposed, in which we have not been able to prove its presence. It is only by a long range study that this question of causation can be finally answered; but with cumulative evidence one is certainly heartened and reassured. I am in complete accord with Dr. Linton's comments.

Council on Physical Medicine and Rehabilitation

The Council on Physical Medicine has authorized publication of the following article. HOWARD A. CARTER, Secretary.

REHABILITATION

HOWARD A. RUSK, M.D.
New York

To the physician the term "rehabilitation" has long connoted "the restoration of the handicapped to the fullest physical, mental, social, vocational and economic usefulness of which they are capable." In general usage, however, the term itself, during the past few years, has lost much of its significance, for it has been used to describe everything from correctional programs in modern penal institutions to the social and economic rebuilding of war devastated countries. With the developing emphasis placed on the processes of restoring handicapped workers, a new term has arisen which describes such processes more aptly and with more vitality. That term is "the third phase of medical care."

The modern concept of this third phase of medicine, which takes the patient from the bed to the job, springs both directly and indirectly from the war. The rehabilitation programs of the military services and the Veterans Administration demonstrated that planned, integrated programs of convalescent care stressing activity as an adjunct to definitive treatment could reduce the period of hospitalization, offset the deconditioning phenomena of bed rest and prevent the harmful psychologic sequelae which often result from extended hospitalization. The technics of physical rehabilitation and retraining for the severely handicapped developed by the military services also have profound implications for the even larger number of our civilian population who are disabled.

HIRING THE HANDICAPPED

Indirectly, the war also created interest in the third phase of medical care, for, because of the wartime man power shortage, many disabled civilians for the first time had an opportunity to take their place on production lines and to demonstrate that, with proper selective placement, they were efficient, reliable, safe employees. Prior to the war, many employers refused to hire handicapped workers on the grounds that they were more accident prone than the able-bodied. The industrial accident rate of eighty-seven of the great industrial plants in America, each having from 50 to 12,000 handicapped employees, has proved that concept fallacious. Studies of their experience show that 56 per cent found the accident rate of the handicapped lower than that of the able-bodied; 42 per cent found the rate the same as for the able-bodied, and only 2 per cent found it to be higher.

The Bureau of Labor Statistics of the Department of Labor has recently completed an exhaustive study of the work performance of 11,000 impaired and 18,000 matched unimpaired workers subjected to the same job incentives and exposed to the same job hazards.¹ The data taken from industry's own record show conclusively that the physically impaired person is not necessarily a handicapped worker if given reasonable job placement consideration. The two groups had identical frequency rates of nondisabling injuries, and the average rates of absenteeism showed no significant difference. The impaired workers, however, produced at a slightly better rate and had relatively fewer disabling work injuries than did unimpaired workers on the same jobs. No matter how different these physically impaired workers may have been in other respects, on the job they were just another group of workers able to meet their unimpaired fellow workers on an equal competitive footing.

It is well recognized that the compensatory laws of nature make adjustments in the abilities of the handicapped worker. We know that the loss of one sense leads to the sharpening of the other senses; that men with no legs develop more capable hands; that men without vision develop their sense of touch to the highest degree. Such compensatory abilities are not automatic; they come only through experience and training. To be of maximum vocational value, their development must be under skilled guidance.

ADVANCES IN REHABILITATION

Immediately following World War I, as today, there was a developing interest in increasing rehabilitation opportunities for the disabled. Unfortunately, this interest died in many quarters in the years between the wars. From it, however, did come some pioneer institutions and some needed legislation, such as the Federal Vocational Rehabilitation Act of 1920. The failure of the movement to gain sufficient stature to become an accepted part of medicine can be attributed to the fact that it was restricted largely to guidance, trade training and the purely vocational aspects of rehabilitation. Few provisions were made for physical restoration or reducing the physical disabilities of the trainees. When the physical condition became static, a program of vocational rehabilitation was planned, "training around" the disability rather than attempting to reduce or eliminate it through medical procedures. In many instances a comparatively large expenditure of time and money was

Dr. Rusk is Professor and Chairman, Department of Rehabilitation and Physical Medicine, New York University College of Medicine.

1. The Performance of Physically Handicapped Workers in Manufacturing Industries, Bulletin 923, United States Department of Labor, Bureau of Labor Statistics, 1948.

necessary for vocational rehabilitation when, by the expenditure of a few weeks and a modest sum, the physical limitations could have been substantially reduced with an automatic increase in employment potentials. Such restrictions made it impossible for the state vocational rehabilitation programs operating under the Federal Office of Vocational Rehabilitation to give adequate service to their clients. Such failure is shown by the fact that, until the basic philosophy of this program was changed by the Barden LaFollette Act of 1943, in twenty-three years only 210,000 persons were rehabilitated, although over 1,000,000 persons were in need of such aid at any given time during that period.²

Although the underlying philosophy of the third phase of medical care is based on logic and common sense, basic and clinical research in medical rehabilitation has been minimal until the past few years. Studies done in the military services, the inquiries of Keys,³ Barr,⁴ and others into the deconditioning phenomena of bed rest, the numerous reports of Powers,⁵ Whipple,⁶ Dock,⁷ Menninger,⁸ Ghormley,⁹ and others on bed rest as it affects their particular specialties are indicative of an increasing mass of scientific data on which such concepts are based. This evidence has been reinforced by the studies of successful experience with the impaired worker in industry, the economic values of rehabilitation as shown by the Office of Vocational Rehabilitation and the success of the Veterans Administration Medical Rehabilitation Program.

REHABILITATION IN THE VETERANS ADMINISTRATION

There was, at the war's end, some skepticism of the value of medical rehabilitation in the Veterans Administration hospitals for veterans of World War I and those of the Regular Army who suffered from chronic illness and long-standing disabilities. Some physicians feared that young veterans of World War II would soon lose ambition, initiative and a desire for personal independence through association with older veterans who had developed "hospitalitis" as a result of boredom, frustration and hopelessness. In the veterans' hospitals where comprehensive, dynamic rehabilitation programs are now in operation, the results have been not only revealing but encouraging.

Typical of the results obtained in the Physical Medicine Rehabilitation program of the Veterans Administration is a study of 130 patients with chronic neurologic disease in one hospital, all but 2 of whom were World War I veterans, and many of whom had not been out of bed in ten years.¹⁰ After nine months of physical medicine rehabilitation, 25 had left the hospital and were employed; 40 others had been discharged to their homes capable of light work, and, of those remaining, 30 were ambulatory and undergoing advanced rehabilitation and 25 were capable of some self care. All but

10 of the group had shown worth while permanent improvement. With a five year expectancy of these patients and a per patient day hospitalization cost of over \$12, rehabilitation of this one group has saved the government, and eventually the taxpayer, over \$1,125,000. It would seem logical that a similar program for the civilian chronically ill would result in comparable savings.

In another study at the Veterans Administration Hospital at Manhattan Beach in Brooklyn, through rehabilitation, 74 of a group of 126 patients suffering from such diseases as arthritis, multiple sclerosis, paralysis and Berger's, Parkinson's and heart disease have been discharged from the hospital and are now at home taking care of themselves.¹¹ All but 13 of the original 126 patients have recovered all or part of their ability for self care. At the beginning of this program, 83 of these veterans were "completely hopeless," but 49 in that group have been rehabilitated to the point of complete independence, and the remainder are capable of self care.

The experience of the Federal Office of Vocational Rehabilitation has also shown how rehabilitation pays off economically. During 1944, 43,997 persons underwent rehabilitation under the joint federal-state vocational rehabilitation programs. Of this group, 22 had never held jobs, and 90 per cent were not employed at the time they started their rehabilitation. Their average annual wage after rehabilitation was \$1,768, as compared with \$148 before. The cost of their rehabilitation was but \$293 per case, a single rather than annually recurring expenditure.¹²

These spectacular results are not attributable to the short labor market of the war. The approximately 44,000 persons rehabilitated in 1947 are now earning at a rate exceeding \$70,000,000 a year, and this year they will pay over \$5,000,000 back to the federal government in federal income taxes alone. The average rehabilitant was 31 years of age. If he works during 85 per cent of his life expectancy, he will pay \$10 in federal income taxes for each dollar the federal government has invested in his rehabilitation.¹³

Prior to rehabilitation, many of these persons now wholly or partially independent were on local relief rolls at an annual cost of \$300 to \$600 per case. In a study of such cases made in 1947 in Michigan, the relief costs of 400 cases were approximately \$250,000 per year. This same group, after rehabilitation, had been removed from the relief rolls, for they were earning more than \$600,000 a year. In another state, the program gave rehabilitation services to a young man of 21 who was drawing \$30 a month, or \$360 a year, in aid to the blind. He was trained to operate a vending stand, and at the end of his first year on the job paid \$250 in income taxes.

THE EXTENT OF THE DISABILITY

The lack of a systematic approach requiring the reporting of cases of physical disability to a central agency, together with varying subjective interpretations of "what constitutes a handicap," makes it difficult to stake out the boundaries of the field of rehabilitation and services to the handicapped in any quantitative fashion.

11. Veterans Administration Hospital, Manhattan Beach, New York, 1948, unpublished data.

12. Annual Report of the United States Public Health Service, Federal Security Agency: Section II, Office of Vocational Rehabilitation, 1946.

13. Press release on the Preliminary Year-End Report of the United States Public Health Service, Federal Security Agency, Office of Vocational Rehabilitation, July 6, 1948.

2. Shortley, M. J.: Rehabilitation of the Disabled Civilian, *Ann. Am. Acad. Polit. & Social Sc.* 239:101 (May) 1945.

3. Keys, A.: Deconditioning and Reconditioning in Convalescence, *S. Clin. North America* 25:442 (April) 1945.

4. Barr, D. P.: Report to the Graduate Fortnightly of The New York Academy of Medicine, October 1945.

5. Powers, J. H.: Report on Early Ambulation in Surgery to the Graduate Fortnightly of The New York Academy of Medicine, October 1945.

6. Whipple, A.: Report on Early Ambulation in Surgery to the Graduate Fortnightly of The New York Academy of Medicine, October 1945.

7. Dock, W.: The Evil Sequelae of Complete Bed Rest, *J. A. M. A.* 125:1083 (Aug. 19) 1944.

8. Menninger, K.: The Abuse of Bed Rest in Psychiatry, *J. A. M. A.* 125:1087 (Aug. 19) 1944.

9. Ghormley, R. K.: The Abuse of Rest in Bed in Orthopedic Surgery, *J. A. M. A.* 125:1085 (Aug. 19) 1944.

10. Treatment of Chronic Neurological Patients in the Veterans Administration Hospital, Minneapolis, Minn., unpublished data.

some cases, therefore, an obstruction is not present. One must agree then that an obstacle is not necessary in the development of the Banti syndrome. Furthermore, some cases of fibrocongestive splenomegaly have been described in which a congenital anomalous vein provided a large wide open shunt between the splenic vein and the left renal vein. These are additional cases in which the splenomegaly could not be due to passive congestion. It is my feeling, therefore, that the mechanical obstruction may be complication, but is not the prime cause of the splenomegaly, and that one must recognize that the spleen is the organ primarily involved. I do not deny that mechanical obstruction may be of great importance—and of surgical importance—in cases of Banti syndrome, but I feel that it should be considered a complication and not the one primary factor.

DR. LOUIS M. ROUSSELOT: I greatly appreciate the provocative aspects of the remarks of both of my discussers, particularly Dr. Ravenna's. The problem of the discovery of a mechanical block has naturally been one that has interested my co-workers and me from the start of our studies. All that I can say in answer to Dr. Ravenna is that our evidence has been piling up over a period of years. We have yet to find a case, of the few that have come to autopsy, in which an obstruction was presupposed, in which we have not been able to prove its presence. It is only by a long range study that this question of causation can be finally answered; but with cumulative evidence one is certainly heartened and reassured. I am in complete accord with Dr. Linton's comments.

Council on Physical Medicine and Rehabilitation

The Council on Physical Medicine has authorized publication of the following article. HOWARD A. CARTER, Secretary.

REHABILITATION

HOWARD A. RUSK, M.D.
New York

To the physician the term "rehabilitation" has long connoted "the restoration of the handicapped to the fullest physical, mental, social, vocational and economic usefulness of which they are capable." In general usage, however, the term itself, during the past few years, has lost much of its significance, for it has been used to describe everything from correctional programs in modern penal institutions to the social and economic rebuilding of war devastated countries. With the developing emphasis placed on the processes of restoring handicapped workers, a new term has arisen which describes such processes more aptly and with more virility. That term is "the third phase of medical care."

The modern concept of this third phase of medicine, which takes the patient from the bed to the job, springs both directly and indirectly from the war. The rehabilitation programs of the military services and the Veterans Administration demonstrated that planned, integrated programs of convalescent care stressing activity as an adjunct to definitive treatment could reduce the period of hospitalization, offset the deconditioning phenomena of bed rest and prevent the harmful psychologic sequelae which often result from extended hospitalization. The technics of physical rehabilitation and retraining for the severely handicapped developed by the military services also have profound implications for the even larger number of our civilian population who are disabled.

Dr. Rusk is Professor and Chairman, Department of Rehabilitation and Physical Medicine, New York University College of Medicine.

HIRING THE HANDICAPPED

Indirectly, the war also created interest in the third phase of medical care, for, because of the wartime man power shortage, many disabled civilians for the first time had an opportunity to take their place on production lines and to demonstrate that, with proper selective placement, they were efficient, reliable, safe employees. Prior to the war, many employers refused to hire handicapped workers on the grounds that they were more accident prone than the able-bodied. The industrial accident rate of eighty-seven of the great industrial plants in America, each having from 50 to 12,000 handicapped employees, has proved that concept fallacious. Studies of their experience show that 56 per cent found the accident rate of the handicapped lower than that of the able-bodied; 42 per cent found the rate the same as for the able-bodied, and only 2 per cent found it to be higher.

The Bureau of Labor Statistics of the Department of Labor has recently completed an exhaustive study of the work performance of 11,000 impaired and 18,000 matched unimpaired workers subjected to the same job incentives and exposed to the same job hazards.¹ The data taken from industry's own record show conclusively that the physically impaired person is not necessarily a handicapped worker if given reasonable job placement consideration. The two groups had identical frequency rates of nondisabling injuries, and the average rates of absenteeism showed no significant difference. The impaired workers, however, produced at a slightly better rate and had relatively fewer disabling work injuries than did unimpaired workers on the same jobs. No matter how different these physically impaired workers may have been in other respects, on the job they were just another group of workers able to meet their unimpaired fellow workers on an equal competitive footing.

It is well recognized that the compensatory laws of nature make adjustments in the abilities of the handicapped worker. We know that the loss of one sense leads to the sharpening of the other senses; that men with no legs develop more capable hands; that men without vision develop their sense of touch to the highest degree. Such compensatory abilities are not automatic; they come only through experience and training. To be of maximum vocational value, their development must be under skilled guidance.

ADVANCES IN REHABILITATION

Immediately following World War I, as today, there was a developing interest in increasing rehabilitation opportunities for the disabled. Unfortunately, this interest died in many quarters in the years between the wars. From it, however, did come some pioneer institutions and some needed legislation, such as the Federal Vocational Rehabilitation Act of 1920. The failure of the movement to gain sufficient stature to become an accepted part of medicine can be attributed to the fact that it was restricted largely to guidance, trade training and the purely vocational aspects of rehabilitation. Few provisions were made for physical restoration or reducing the physical disabilities of the trainees. When the physical condition became static, a program of vocational rehabilitation was planned, "training around" the disability rather than attempting to reduce or eliminate it through medical procedures. In many instances a comparatively large expenditure of time and money was

1. The Performance of Physically Handicapped Workers in Manufacturing Industries, Bulletin 923, United States Department of Labor, Bureau of Labor Statistics, 1948.

necessary for vocational rehabilitation when, by the expenditure of a few weeks and a modest sum, the physical limitations could have been substantially reduced with an automatic increase in employment potentials. Such restrictions made it impossible for the state vocational rehabilitation programs operating under the Federal Office of Vocational Rehabilitation to give adequate service to their clients. Such failure is shown by the fact that, until the basic philosophy of this program was changed by the Barden LaFollette Act of 1943, in twenty-three years only 210,000 persons were rehabilitated, although over 1,000,000 persons were in need of such aid at any given time during that period.²

Although the underlying philosophy of the third phase of medical care is based on logic and common sense, basic and clinical research in medical rehabilitation has been minimal until the past few years. Studies done in the military services, the inquiries of Keys,³ Barr,⁴ and others into the deconditioning phenomena of bed rest, the numerous reports of Powers,⁵ Whipple,⁶ Dock,⁷ Menninger,⁸ Ghormley,⁹ and others on bed rest as it affects their particular specialties are indicative of an increasing mass of scientific data on which such concepts are based. This evidence has been reinforced by the studies of successful experience with the impaired worker in industry, the economic values of rehabilitation as shown by the Office of Vocational Rehabilitation and the success of the Veterans Administration Medical Rehabilitation Program.

REHABILITATION IN THE VETERANS ADMINISTRATION

There was, at the war's end, some skepticism of the value of medical rehabilitation in the Veterans Administration hospitals for veterans of World War I and those of the Regular Army who suffered from chronic illness and long-standing disabilities. Some physicians feared that young veterans of World War II would soon lose ambition, initiative and a desire for personal independence through association with older veterans who had developed "hospitalitis" as a result of boredom, frustration and hopelessness. In the veterans' hospitals where comprehensive, dynamic rehabilitation programs are now in operation, the results have been not only revealing but encouraging.

Typical of the results obtained in the Physical Medicine Rehabilitation program of the Veterans Administration is a study of 130 patients with chronic neurologic disease in one hospital, all but 2 of whom were World War I veterans, and many of whom had not been out of bed in ten years.¹⁰ After nine months of physical medicine rehabilitation, 25 had left the hospital and were employed; 40 others had been discharged to their homes capable of light work, and, of those remaining, 30 were ambulatory and undergoing advanced rehabilitation and 25 were capable of some self care. All but

10 of the group had shown worth while permanent improvement. With a five year expectancy of these patients and a per patient day hospitalization cost of over \$12, rehabilitation of this one group has saved the government, and eventually the taxpayer, over \$1,125,000. It would seem logical that a similar program for the civilian chronically ill would result in comparable savings.

In another study at the Veterans Administration Hospital at Manhattan Beach in Brooklyn, through rehabilitation, 74 of a group of 126 patients suffering from such diseases as arthritis, multiple sclerosis, paralysis and Berger's, Parkinson's and heart disease have been discharged from the hospital and are now at home taking care of themselves.¹¹ All but 13 of the original 126 patients have recovered all or part of their ability for self care. At the beginning of this program, 83 of these veterans were "completely hopeless," but 49 in that group have been rehabilitated to the point of complete independence, and the remainder are capable of self care.

The experience of the Federal Office of Vocational Rehabilitation has also shown how rehabilitation pays off economically. During 1944, 43,997 persons underwent rehabilitation under the joint federal-state vocational rehabilitation programs. Of this group, 22 had never held jobs, and 90 per cent were not employed at the time they started their rehabilitation. Their average annual wage after rehabilitation was \$1,768, as compared with \$148 before. The cost of their rehabilitation was but \$293 per case, a single rather than annually recurring expenditure.¹²

These spectacular results are not attributable to the short labor market of the war. The approximately 44,000 persons rehabilitated in 1947 are now earning at a rate exceeding \$70,000,000 a year, and this year they will pay over \$5,000,000 back to the federal government in federal income taxes alone. The average rehabilitant was 31 years of age. If he works during 85 per cent of his life expectancy, he will pay \$10 in federal income taxes for each dollar the federal government has invested in his rehabilitation.¹³

Prior to rehabilitation, many of these persons now wholly or partially independent were on local relief rolls at an annual cost of \$300 to \$600 per case. In a study of such cases made in 1947 in Michigan, the relief costs of 400 cases were approximately \$250,000 per year. This same group, after rehabilitation, had been removed from the relief rolls, for they were earning more than \$600,000 a year. In another state, the program gave rehabilitation services to a young man of 21 who was drawing \$30 a month, or \$360 a year, in aid to the blind. He was trained to operate a vending stand, and at the end of his first year on the job paid \$250 in income taxes.

THE EXTENT OF THE DISABILITY

The lack of a systematic approach requiring the reporting of cases of physical disability to a central agency, together with varying subjective interpretations of "what constitutes a handicap," makes it difficult to stake out the boundaries of the field of rehabilitation and services to the handicapped in any quantitative fashion.

11. Veterans Administration Hospital, Manhattan Beach, New York, 1948, unpublished data.

12. Annual Report of the United States Public Health Service, Federal Security Agency: Section II, Office of Vocational Rehabilitation, 1946.

13. Press release on the Preliminary Year-End Report of the United States Public Health Service, Federal Security Agency, Office of Vocational Rehabilitation, July 6, 1948.

2. Shortley, M. J.: Rehabilitation of the Disabled Civilian, *Ann. Am. Acad. Polit. & Social Sci.* 239:101 (May) 1945.

3. Keys, A.: Deconditioning and Reconditioning in Convalescence, *S. Clin. North America* 25:442 (April) 1945.

4. Barr, D. P.: Report to the Graduate Fortnightly of The New York Academy of Medicine, October 1945.

5. Powers, J. H.: Report on Early Ambulation in Surgery to the Graduate Fortnightly of The New York Academy of Medicine, October 1945.

6. Whipple, A.: Report on Early Ambulation in Surgery to the Graduate Fortnightly of The New York Academy of Medicine, October 1945.

7. Dock, W.: The Evil Sequelae of Complete Bed Rest, *J. A. M. A.* 125:1083 (Aug. 19) 1944.

8. Menninger, K.: The Abuse of Bed Rest in Psychiatry, *J. A. M. A.* 125:1087 (Aug. 19) 1944.

9. Ghormley, R. K.: The Abuse of Rest in Bed in Orthopedic Surgery, *J. A. M. A.* 125:1085 (Aug. 19) 1944.

10. Treatment of Chronic Neurological Patients in the Veterans Administration Hospital, Minneapolis, Minn., unpublished data.

Although a census of such conditions has been proposed on several occasions (legislation calling for an exhaustive census of the physically handicapped was introduced in Congress by Senator Johnson of Colorado on March 15, 1948)¹⁴ there has never been a complete survey of the extent of disability in the United States. The most comprehensive source of information at present is the National Health Survey, conducted by the United States Public Health Service in 1935-1936.¹⁵ In this survey, 800,000 families in eighty-three cities and twenty-three rural areas of nineteen states were studied. The reliability of this study has been demonstrated in other extensive surveys on the extent of chronic disease and crippling conditions,¹⁶ and although results are not strictly comparable, because of different methods of enumeration, they bear out the fact that the National Health Survey is probably the best source available for such statistics, although later studies indicate that its results are conservative.

Although the focus of attention has been the disabled veteran, the extent of disability among our civilian population is far greater. There were 20,500 amputations during World War II, but over 120,000 major amputations during this same period among our civilian population.¹⁷ Approximately 1,500 men were blinded while in military service during the last war, but 60,000 civilians lost their sight during this period. Some 265,000 men were permanently disabled as a result of combat injuries during the war, but 1,250,000 civilians were permanently disabled by disease and accidents in the corresponding four years.¹⁸

There were some 23,000,000 persons in the United States handicapped to some extent by disease, accidents, maladjustment or war.¹⁹ One third of all draftees were rejected as unfit, and more than 1,000,000 had to be discharged shortly after induction.²⁰ In 1946, 10,400,000 persons suffered disabling accidents, and, of these 370,000 were disabled permanently.²¹ It is estimated that there are over 7,000,000 persons in the United States disabled by diseases of the heart and arteries, 6,850,000 from rheumatism and arthritis and 2,600,000 from orthopedic conditions.²²

These are the numbers, but they cannot tell the story of pain, anxiety, suffering and all the vital secondary problems that disease and disability leave in their wake. Aside from pain and wearing personal and family anguish, the economic costs of disease and disability are staggering.

CHRONIC DISEASE

Today, as medical science moves forward in the prevention and cure of infectious disease, chronic illness has become the nation's primary medical problem. In

1900, seven chronic diseases (cancer, diabetes, intracranial lesions of vascular origin, diseases of the heart, diseases of the arteries, cirrhosis of the liver and acute and chronic nephritis) were responsible for 25.7 per cent of all deaths in New York State. Between 1900 and 1940, a period in which the population of New York State increased by 85 per cent and the total number of deaths increased by only 13 per cent, the number of deaths from this group of chronic diseases increased by 200 per cent; it now includes over two thirds of all deaths in the state.²³

Whereas diabetes ranked twenty-seventh and arteriosclerosis thirty-fourth as causes of death in 1900, they were eighth and tenth in 1944.²⁴ Added to this is the tremendous long term toll of chronic illness and disability. Acute infectious disease usually results in rapid recovery or death, but chronic illness may linger for years. Its social and economic costs cannot be measured by mortality tables alone.

One of the principal causes of the increasing prevalence of chronic disease has been the great advances in medical and surgical care which have prevented death and produced an aging population. Two thousand years ago the average length of life was 25 years; at the turn of the century it was 49; today it is 66. In 1900, 1 person in 25 was 65 years of age or older; it is estimated that in 1980 the ratio will be 1 in 10. The chances are now 2 out of 3 that a young man now starting his working life at the age of 18 will live to his retirement age of 65. A 45 year old man today has 70 in 100 chances of reaching the age of 65, and the chances for a 55 year old man are 78 in 100. White men now at the age of 65 can expect to live an additional twelve and one-half years on the average, and white women an average of fourteen and one-quarter years.²⁵

As persons become older, their medical needs change, and they require more medical service. In 1940, the 26.5 per cent of the nation's population over 45 required over half the nation's medical services. By 1980, it is expected that the number of persons over 45 will constitute nearly half of the population.

The incidence of chronic disease is definitely related to economic status. It develops most frequently among families of low income, and when it strikes, results in further reduced income and depletion of financial reserves. In the National Health Survey of 1936, chronic illness was found to be nearly twice as great among persons on relief as among those earning \$3,000 a year and over. A more recent study in Illinois showed that 23 per cent of all public assistance recipients was chronic invalids.²⁶ In Connecticut, the percentage of old age assistance are chronically ill.²⁷

As chronic disease is usually nonreportable, reliable statistics as to its extent are difficult to find. Most currently used figures spring from the National Health Survey, from which the figure of 23,000,000 was derived. Later reports, based on smaller samplings,

14. S. 2319: A Bill to Provide for a Survey of Physically Handicapped Citizens, introduced by Senator Johnson of Colorado on March 15, 1948, and referred to the Committee on Post Office and Civil Service.

15. *The Magnitude of Chronic Disease Problems in the United States*, in *The National Health Survey, 1935-1936*, United States Public Health Service, 1938.

16. (a) Bigelow, G. H., and Lombard, H. L.: *Cancer and Other Chronic Disease in Massachusetts*, Boston, Houghton Mifflin Company, 1933. (b) Jarrett, M. C.: *Chronic Illness in New York City*, New York, Columbia University Press, 1933. (c) Downes, J.: *Findings of the Study of Chronic Disease in the Eastern Health District of Baltimore*, Milbank Mem. Fund Quart. 22:337 (Oct.) 1944. (d) Unpublished Survey of Chronic Disease in New Haven, Connecticut, by the School of Public Health, Yale University College of Medicine, 1948.

17. Klopsteg, P. W.: *Terminal Reports on Artificial Limbs*, Washington, National Research Council Committee on Artificial Limbs, 1947, p. 7.

18. Rusk, H. A.: *Rehabilitation in Operation*, South M. J. 41: 57 (Jan.) 1948.

19. Karpinos, B. D.: *The Physically Handicapped*, Pub. Health Rep. 58:1 (Oct. 22) 1943.

20. Bornstein, J. H.: *Application of Physical Standards in Mobilization*, Mil. Surgeon 101:315 (Oct.) 1947.

21. *Accident Facts*, Chicago, National Safety Council, 1947.

22. Perotti, G. St. J., in a paper read before the joint session of American Psychiatric Association and American Society for Research in Psychosomatic Problems, May 15, 1944; *Problem of Chronic Disease*, Psychosom. Med. 7: 21, 1945.

23. *A Program for the Care of the Chronically Ill in New York State*, Legislative Document No. 69 (1947) Albany, New York State Commission to Formulate a Long Range Health Program, 1947, p. 42.

24. Crampton, C. W.: *What Geriatrics Means to the Medical Profession*, New York Med. 3: 10 (May 20) 1947.

25. *Two of Three Eighteen Year Olds Will Live to Retirement*, Science Newsletter 53: 185 (March 20) 1948.

26. *Interim Report to the Sixty-Fourth General Assembly*, June 7, 1945, Springfield; State of Illinois Committee to Investigate Chronic Diseases Among Indigents, 1945.

27. *Need for a State Infirmary for Care and Treatment of Aged, Infirm and Chronically Ill Persons*, Hartford; State of Connecticut Public Welfare Council, 1944.

28. *Report on Chronic Disease Problems in New Jersey*, Trenton; State of New Jersey Department of Institutions and Agencies, 1932.

however, have indicated that chronic disease is even more prevalent. In a recent survey in New Haven conducted by the School of Public Health of the Yale University College of Medicine, it was found that 121 persons for each 1,000 in the population suffered from chronic illness and that one third of this number were totally disabled.²⁹

Although chronic disease is more prevalent in older persons, authorities state that 16 per cent of all persons with known chronic disease are under 25 years of age. The Yale study found the percentage to be 33.

REHABILITATION IN GENERAL HOSPITALS

Though it would seem logical that medical rehabilitation would be an important service in every civilian general hospital, there has been little or no attempt until recently to establish such programs in civilian hospitals. Of the 1,468,714 hospital beds in the United States in 1946, 44 per cent were in general hospitals, but these 641,331 beds cared for over 92 per cent of all patients.³⁰ Rehabilitation, in varying degrees, has been available in some tuberculosis, mental and other specialized hospitals, but little provision has been made for dynamic convalescent care and rehabilitation for the over 14,000,000 persons who are patients in general hospitals each year.

The first comprehensive, total, medical rehabilitation program in any community hospital in this country was started in the spring of 1947 at Bellevue Hospital in New York. Operated under the professional direction of the Department of Rehabilitation and Physical Medicine, the service has facilities for 80 patients and offers a program of physical medicine, physical therapy, occupational therapy, corrective physical rehabilitation, social service, corrective speech, psychologic services, vocational guidance, education and planned recreation. It operates as a service department to the other departments of the hospital, in much the same manner as the roentgenologic department and laboratory, and treats both inpatients and outpatients on reference from the other services of the hospital.

The rehabilitation service in Bellevue Hospital, which will be enlarged to six hundred beds when presently planned construction is completed, is the first step in a plan by the Department of Hospitals of the City of New York to provide all patients in municipal hospitals of the city with medical rehabilitation services. The extent to which this rehabilitation has entered into future planning in New York City, in both public and private hospitals, is shown by a recent report of the Hospital Council of Greater New York, in which it was suggested that 25 per cent of the bed capacity of the city's general hospitals should be allocated for convalescence and rehabilitation.³⁰ This would mean one such bed for each 1,000 of the city's population.

The interest in extending medical rehabilitation services in general hospitals is not limited to New York or other large urban areas. The Veterans Administration has recently established such services as major departments, with specified bed allocations in all Veterans Administration Hospitals. Today, there are approximately one hundred and fifty communities in the nation which have expressed interest in establish-

ing rehabilitation centers.³¹ In some communities, such centers will be a part of, and will be located within, community general hospitals. In others, they will be adjacent to a community hospital. In still others, they will be separate community centers serving a number of hospitals. It is significant, however, that most are following the recommendations of the Baruch Committee on Physical Medicine that such centers be medically directed, and be associated with civilian hospitals and medical schools if possible.³²

THE INSTITUTE OF REHABILITATION AND PHYSICAL MEDICINE

This is the pattern being followed in the new Institute of Rehabilitation and Physical Medicine which recently opened as one of the first operating units of the new New York University-Bellevue Medical Center. Patterned after the recommendations of the Baruch Committee, the institute offers a complete program of physical medicine and rehabilitation, including physical rehabilitation and retraining, psychosocial adjustment and vocational evaluation and guidance for physically handicapped persons. It provides an integrated program of physical therapy, occupational therapy, physical rehabilitation, social service, vocational guidance and testing, and recreation, designed to teach the patient who has a physical disability "to live within the limits of his disability, but to the hilt of his capabilities." With facilities to care for an inpatient census of 30 and a daily outpatient load of 100, the institute places special emphasis on retraining in elevation, ambulation, crutch walking and the physical skills necessary for the activities inherent in daily living.

The institute's service and facilities are available to any patient, either on an inpatient or outpatient basis, who, in the opinion of the referring physicians and the institute's staff, could benefit from rehabilitation and retraining. It is expected that the majority of patients will be those needing definitive physical medicine or rehabilitation as the result of injuries, arthritis, orthopedic and neurologic disabilities, and diseases of the heart and arteries. Special facilities are available for a limited number of paraplegic and hemiplegic persons. Although the institute is not prepared to do vocational training of the handicapped *per se*, special workshops are available for vocational evaluation and guidance and job hardening under medical supervision for patients with arrested tuberculosis and cardiac disease. Complete vocational and guidance services are available for all types of persons with physical disabilities.

One of the special features of the institute is the prosthetic service, in which consultation and recommendations are made on the selection, fitting and adjustment of prosthetic devices of all types, and intensive training is given in their use. The institute does not manufacture or sell prosthetic devices, but has skilled technicians available for services for all types of amputations and for the minor adjustments and fittings frequently necessary to make artificial limbs more comfortable and efficient to the wearer.

Although we have in this country the finest institutions in the world for definitive medical care and for vocational training, outside of the military services

29. Hospital Service in the United States, report of the Council of Medical Education and Hospitals, J. A. M. A. 133:1065 (April 12) 1947.

30. Long Term Illnesses Seen as a Major Community Problem Requiring Extension of Medical Service, Bull. Hosp. Council of Greater New York 3:8 (Aug.) 1947.

31. Annual Report of the Baruch Committee on Physical Medicine, New York, The Baruch Committee on Physical Medicine, 1947, p. 164.

32. A Community Service and Center (Functional Plan), New York, The Baruch Committee on Physical Medicine, 1946.

and the Veterans Administration there are but a small handful of civilian agencies and organizations equipped to provide for the patient with a physical disability the necessary retraining in physical skills which are a requisite for later vocational training. The physician in the past has thought too much about the physiologic and clinical aspects of the patient's disability. The vocational counselor too frequently has thought only in terms of physical skills which could be utilized vocationally. Between the two, however, there is a wide area through which most physically handicapped persons must go when their definitive medical care is completed but before they are ready to undergo vocational training. In this area lies the physical retraining in skills necessary for the carrying on of the activities inherent in daily living and common to all types of work.

Except in a few isolated instances, the physically handicapped person must be retrained to walk and travel, to care for his daily needs, to use normal methods of transportation, to use ordinary toilet facilities, to apply and remove his own prosthetic devices, and to communicate either orally or in writing. These are such simple things that they are frequently overlooked, but the personal, vocational and social success of the handicapped person is dependent on them.

THE PRACTICE OF REHABILITATION

The practice of rehabilitation for any doctor begins with the belief in the basic philosophy that the doctor's responsibility does not end when the acute illness is ended or surgery is completed; it ends only when the patient is retrained to live and work with what is left. This basic concept of the doctor's responsibility can be achieved only if rehabilitation is considered an integral part of medical service. Any program of rehabilitation is only as sound as the basic medical service of which it is a part. The diagnosis and prognosis must be accurate, for it is on them that the feasibility of retraining is determined.

In addition to the general diagnostic studies, the medical evaluation of the orthopedically handicapped must include muscle tests, determination of joint range of motion and tests for the inherent needs in daily living. In the rehabilitation service at Bellevue Hospital, a check list of ninety-six items is used to determine these factors. They include: (1) bed activities, such as moving from place to place in bed, and the ability to sit erect; (2) toilet activities; (3) eating and drinking; (4) the ability to dress and undress, such as tying shoe laces, manipulating buttons, zippers and other fasteners, and applying and removing braces; (5) hand activities—for example, winding a watch, striking a match and using various door knobs and latches; (7) wheel chair activities, getting from the bed to the wheel chair, the wheel chair to bed, and in and out of the bathtub, and (8) elevation activities, which include the needed abilities for walking, climbing and traveling.

•At first glance, such a test list sounds formidable and time consuming, but, in reality, the information may be easily obtained by a therapist, nurse, a well trained volunteer or a member of the patient's family. From special check sheets used for charting the activity accomplishments, information is readily available both on the status of the patient at the time of admittance and his progress while undergoing rehabilitation.

The use of such a check list is particularly helpful if personnel are not available to do definitive muscle

testing and accurate range of motion determination, for the daily activities test can be completed in the hospital, the physician's office or the patient's home. The subsequent training program is designed to teach the patient the various skills and activities which he cannot perform.

In Bellevue Hospital and the Institute of Rehabilitation and Physical Medicine, after the basic medical work-up, and the range of motion, muscle and needs of daily living tests, the physician, in conference with other staff members, prescribes a five-hour a day program for the patient. These prescribed activities include training in the ambulation and elevation rooms and the remedial gymnasium, occupational therapy, physical therapy, speech therapy or any other activity which may be helpful in meeting the specific needs of the patient.

In a comprehensive rehabilitation program, vocational guidance specialists should also be available to do guidance and testing, in order that the patient may be started on a prevocational exploratory and work testing program as soon as it is medically feasible. However, good basic rehabilitation can be carried out with the personnel available in the ordinary general hospital, if such a program is properly organized, supervised and prescribed by the physician.

The rehabilitation of the hemiplegic person is a typical example. There are a number of simple progressive procedures in the rehabilitation of the hemiplegic, who suffers from one of the commonest disabilities seen in general practice. In the early stages of treatment, the following procedures should be instituted to prevent deformities: (1) footboard or posterior leg splint to prevent foot drop; (2) sandbags to prevent outward rotation of the affected leg; (3) a pillow in the axilla to prevent adduction of the shoulder, and (4) quadriceps setting to maintain muscle strength. All of these procedures are relatively simple and require no special equipment. Their use, however, will prevent crippling anatomic deformities and hasten the rehabilitation of the patient.

The next procedure indicated is the institution of pulley therapy. This can be done simply with a small pulley attached to a goose neck pipe over the head of the bed, the ordinary clothes line rope being used with a 1 inch (2.5 cm.) webbing for the hand loop. With the stretching and passive exercise provided by pulley therapy, the range of motion can be increased and adhesions prevented.

Pulley therapy has the advantage over the usual stretching exercises that are done passively, for the patient, knowing his own pain threshold, will proceed to fully tolerated motion much more quickly. Pulley therapy can also be used to aid in the reestablishment of reciprocal motion patterns.

The patient, at this stage, should be encouraged to sit erect in order to reestablish balance. Speech therapy, if indicated, should be instituted at this time. In the absence of a trained speech therapist, the speech reeducation can be started under medical supervision by any teacher who has had some experience in this field. In the case of aphasia, it is well for the physician to point out to the patient and family the nature of the condition, in order that the inability to use the tools of language may not be interpreted as loss or diminishing of the ability to think and reason.

The next progressive stage in retraining the hemiplegic person is ambulation, which should be started

by: (1) the practice of balance in the standing position, progressing to parallel bars; (2) the teaching of a heel and toe gait to minimize clonus and to reestablish normal walking habits stressing reciprocal motion, and (3) a short leg brace, which will be needed in approximately half of all cases to correct foot drop. All of the equipment for training in ambulation is simple and readily obtained by the general practitioner. If parallel bars are not available, two kitchen chairs may be substituted.

In the advanced stages of retraining, ambulation is continued with (1) instruction in crutch walking, starting usually with the alternate four point gait, and (2) teaching elevation, stressing climbing steps, curbs, stairs and ramps. Concurrently with the training in ambulation, attention should be given to retraining in the activities of self care and daily living.

Obviously, the physician himself cannot undertake the actual administration of the retraining, but the therapist, nurse, volunteer or even a member of the family can conduct the activities under his supervision. With such a program, many of the complications usually following apoplexy can be avoided and a great deal of time and ability salvaged.

Although the general practitioner is forced to call on the services of medical specialists when dealing with amputee patients, he must assume the responsibility for preparing his patient physically and psychologically for the amputation and for seeing that the patient has the proper prosthetic device adequately fitted and is trained in its use.

One phase of the management of the amputee to which the physician should give particular attention is the immediate postoperative period while the stump is being shrunk in preparation for a prosthetic device. During this period of six to eight weeks the patient should be given graduated conditioning exercises in preparation for both crutch walking and the later use of the artificial limb, and measures should be taken to prevent anatomic deformities.

For example, it is not an uncommon practice in many hospitals, after an amputation above the knee, to elevate the stump on a pillow. However, if such elevation is maintained for as long as two weeks a flexion deformity will occur which will take from six to eight weeks of arduous, painful work before sufficient hyperextension can be regained for satisfactory walking.

In advising his patient on the selection of a prosthetic device, the physician must be aware that not all limbs are suitable for all amputees. In fact, he must realize that not all amputees can wear artificial limbs profitably. It has been noted on the rehabilitation service at the New York University College of Medicine that a person in the older age group with an amputation above the knee cannot, as a rule, profitably be trained to use a prosthesis if he is unable to perform a swing-through gait on crutches.

The physician must point out objectively to the patient those skills which the patient can expect to achieve with proper training and those skills which the patient has little chance of ever regaining. Extreme caution must be taken in the latter, however, as it is unwise to tell a patient what "he can't do," for this cannot be determined, in most cases, until the patient has had adequate training. Training is absolutely essential if the amputee is to be successfully rehabilitated.

Because of the hopeless outlook in multiple sclerosis, therapy in general has been directed toward symptomatic relief, and the approach has been a negative one. In rehabilitation, the disability, rather than the specific disease process which has produced it, is our primary consideration. In multiple sclerosis, as in any other chronic, progressive, crippling disease, the problems are the same. In considering a patient as to feasibility of successful training, progression of the disease must be carefully evaluated, for if the disease process outstrips training, such training is obviously wasted.

In rehabilitation, the primary consideration in working out a program for the severely disabled is to teach him to live, and, if possible, to work, with what he has left. Those capacities can be determined only through performance testing. It is impossible, through the analysis of the clinical manifestations of a disease such as multiple sclerosis, to determine what the sum total of the remaining physical capacities of the patient can be trained to do in the way of work or self care activities. In addition to general diagnostic studies, the medical evaluation of the patient with multiple sclerosis must include muscle tests, joint range of motion and tests for the inherent needs of daily living. These are of primary importance, for it is on their results that the patient's rehabilitation program is planned.

Too frequently, in rehabilitation, many of the basic skills necessary for effective daily living are overlooked. The patient is given numerous medical, psychologic and vocational services in preparation for employment, but retraining in the basic physical skills of ambulation, elevation and self care activities is neglected, with the result that the patient, being unable to walk, travel or care for his personal needs, is also unable effectively to utilize the other medical, psychologic, social and vocational services which he has received for richer and fuller living.

Retraining in the basic physical skills of daily living is primary; it is simply a matter of "first things first," for daily activity skills are the basis for all subsequent rehabilitation processes.

It has been found difficult in many instances to differentiate between muscular inability due to disease and that due to atrophy of disuse, and sometimes only a test period of conditioning exercise will provide this information, which is vital in the training program.

From the information gained by the tests for the factors of daily living, a suitable program is set up for the patient, designed to meet his particular needs. It has been noted, especially in hand activities and gait training, that persons long incapacitated from multiple sclerosis will have alienation and overcompensation of certain muscle groups. With muscle reeducation and definitive therapeutic exercise, it is often possible to accomplish much in correcting these conditions.

We approach the psychiatric-psychologic problem as a team—the psychiatrist, the social worker and the psychologist—working with the family as well as with the patient.

It has been found that the previous personality of a patient with multiple sclerosis does not conform to any particular pattern. There is immaturity in certain cases and a great deal of independence and relative maturity in other cases.

The main point is that after the patient's personality is thoroughly known by psychiatric examination,

psychologic study and social service investigation, then each problem, as it comes up, can be handled with the full knowledge of the limitations of the patient, psychologically and physically.

Multiple sclerosis offers one of the most challenging problems in the entire field of rehabilitation, both from the physical and the psychologic standpoint. Therapy in this field requires patient training and deep understanding. However, the results in the restoration of confidence and function, though far from satisfactory, have been gratifying.

The physician must also recognize that emotional trauma may be present in any patient who has suffered a severe physical disability. The sudden shock and realization of the possible economic and social consequences of permanent disability frequently produce fear and anxiety which become as handicapping to the worker as the original physical disability. Even at the Department of Rehabilitation and Physical Medicine at Bellevue Hospital, and at the Institute of Rehabilitation and Physical Medicine, where many of the patients have physical disabilities of long standing, it has been found that approximately one third of all patients have concomitant emotional problems of such severity that psychiatric attention is needed. Consequently, the full time services of a psychiatric team consisting of a psychiatrist, a clinical psychologist and a psychiatric social worker have been added to the staff.

When patients present themselves who are in need of psychiatric attention, it is the responsibility of the physician to recognize that need and see that proper referrals are made for such attention. In many instances where emotional problems are of a less severe nature, the general practitioner can resolve such problems. One of his greatest responsibilities with those patients who have severe physical disabilities is motivation—encouraging and convincing the patient that he can be rehabilitated. This motivation, to be most effective, must begin at the earliest possible moment following the accident or illness. The physician who knows something of rehabilitation can start at the time of the accident or crippling illness to allay the fears of his patient by giving him understanding, courage and hope predicated on an accurate knowledge of what can be done. He can interpret to the patient the findings of the specialist in words that are understandable and meaningful. He can explain to the patient the nature and extent of his disability, not in medical terms of the disability alone, but in terms of its effect on the vocational, social, economic, family and personal life of the patient. The physician must practice the art of medicine as well as the science.

Regardless of the type of disability, the responsibility of the physician to his patient cannot end when the acute injury has been cared for. It ends only when the physician has taken the responsibility for seeing that proper referral has been made to those agencies and institutions which are equipped to rehabilitate and retrain the patient with a residual physical disability. The physician who fails to see that those patients under his care receive the full benefits of modern methods of medical rehabilitation and retraining is in the same category as the physician who still persists in using dietary restriction alone in the management of diabetes, when insulin is available, for medical care is not complete until the patient has been trained to live and work with what he has left.

REPORT OF THE COUNCIL

The Council on Physical Medicine has authorized publication of the following article. HOWARD A. CARTER, *Secretary.*

THE COUNCIL ON PHYSICAL MEDICINE BECOMES THE COUNCIL ON PHYSICAL MEDICINE AND REHABILITATION

In 1944 it became apparent that Physical Medicine should include not only the employment of physical agents for therapy but also the employment of physical agents for diagnosis, and when it also became apparent that that branch of the specialty known as occupational therapy should also come within the purview of the Council, the Council on Physical Medicine recommended that its name should be changed from "the Council on Physical Therapy" to "the Council on Physical Medicine." The Board of Trustees of the American Medical Association approved this change in name in 1945.

During World War II and in this postwar period, the close relationships between physical medicine and the rapidly growing field of rehabilitation have become increasingly apparent. In our governmental hospitals and to an ever increasing extent in our civilian hospitals the services in physical medicine and rehabilitation have become inextricably conjoined. In the Army after World War II there was established a Physical Medicine Consultants Division which directs the activities not only in physical medicine but also in rehabilitation and physical reconditioning in all Army general hospitals. In the Veterans Administration, a central Physical Medicine Rehabilitation Service has been established which coordinates and directs the work in physical medicine and rehabilitation in all Veterans Administration hospitals. In our civilian teaching institutions, combined residencies in physical medicine and rehabilitation are being offered in rapidly increasing numbers.

Likewise, when, during its annual meeting, the Council on Physical Medicine conferred with representatives of the Council on Medical Education and Hospitals, it was agreed that the fields of physical medicine and rehabilitation were so closely related that it would be inadvisable to offer separate residencies or fellowships in these two branches. Therefore, it was the joint opinion of those present at this conference that a movement toward the development of more combined residencies in physical medicine and rehabilitation should be encouraged. It was agreed that those who direct existing approved residencies in physical medicine should be encouraged to include more complete instruction in rehabilitation and that the establishment of separate residencies in rehabilitation should not be approved.

It has become increasingly apparent to the members of the Council on Physical Medicine that the close relationships between physical medicine and rehabilitation must be recognized and that, while neither special field can or should absorb the other, the many interconnections should be indicated. There are phases of physical medicine (as in the definitive treatment of acute diseases by physical agents) which cannot be called rehabilitation and there are phases of rehabilitation (as in the psychosocial readjustment of the disabled person) which cannot be called physical medicine. Yet, for the most part, physical medicine and medical rehabilitation are closely interdigitated and it is apparent that it would be illogical for either physical medicine or medical rehabilitation to go its separate way.

Furthermore, the Council has become more and more involved with the various aspects of rehabilitation. The members of the Council desire to indicate that there are other special fields of medicine in which a similar joint terminology has been found essential. These include "dermatology and syphilology," "obstetrics and gynecology" and "psychiatry and neurology."

For these reasons, after mature deliberation, the Council on Physical Medicine has recommended to the Board of Trustees of the American Medical Association that, owing to the inevitable march of progress and the expansion of its interests into the field of rehabilitation, its name be changed once more and that hereafter it be designated as "the Council on Physical Medicine and Rehabilitation." It has been concluded that this is a fully logical and in fact highly desirable change, which would indicate more specifically the present status of the expanding field of medical activity with which the Council is concerned.

MEDICAL LICENSURE STATISTICS FOR 1948

FORTY-SEVENTH ANNUAL PRESENTATION OF LICENSURE STATISTICS BY THE COUNCIL ON MEDICAL EDUCATION AND HOSPITALS OF THE AMERICAN MEDICAL ASSOCIATION

Donald G. Anderson, M.D., Secretary, and Anne Tipner

Table of Contents	
Page	Page
STATE BOARDS OF MEDICAL EXAMINERS	
Licenses Issued	293
Candidates Examined by Medical Exam- ining Boards	298
Consolidated Examinations	299
Failures	300
Registration by Reciprocity and Endorse- ment	301
Licentates Representing Additions to the Medical Profession	305
Licensure Under the Accelerated Program	305
Premedical Training Requirement of Li- censing Boards	305
Required Internship	308
Licensure Requirements for Interns and Residents	308
Professional Educational Requirements of Licensing Boards	308
Schedule of Written Examination Dates and Reciprocity Meetings	309
Licensure on Government Credentials	309
Temporary Permits	309
Annual Registration	309
Candidates Examined, 1944-1948	310
Registration of Physicians, 1904-1948	311
Graduates of Approved Schools and Oth- ers Registered	313
Graduates of Unapproved Schools Regis- tered, 1943-1948	313
Graduates of Schools of Osteopathy Regis- tered by Medical Examining Boards, 1943-1948	314
Licensure of Foreign Trained Physicians	315
Officers of State Boards of Medical Ex- aminers	317
BOARDS OF EXAMINERS IN THE BASIC SCIENCES	321
NATIONAL BOARD OF MEDICAL EXAM- INERS	323

Statistical compilations regarding medical licensure are presented annually in the State Board Number of THE JOURNAL. The report for 1948 constitutes the forty-seventh annual presentation. Data are included pertaining to (a) medical examining and licensing boards of the United States, the District of Columbia and the territories and possessions of the United States, (b) the boards of examiners in the basic sciences and (c) the National Board of Medical Examiners.

The computations presented are based on official records received throughout the year from the medical examining and licensing agencies of all states, Alaska, Hawaii and Puerto Rico, the nineteen boards of examiners in the basic sciences and the National Board of Medical Examiners. This presentation is made possible because of the wholehearted cooperation of these boards. The Council and THE JOURNAL gratefully acknowledge their appreciation to those who have supplied these data as well as other records furnished throughout the year.

The tables referring to medical licensing boards present figures pertaining to the number of candidates examined, the numbers licensed and the number who represent additions to the physician population. There are also included other pertinent data pertaining to the regulations for medical licensure. The state boards are discussed first, followed by the basic science boards and the National Board of Medical Examiners.

STATE BOARDS OF MEDICAL EXAMINERS

Licenses Issued

In 1948, 13,551 licenses to practice medicine were issued by the medical examining boards of the forty-eight states, the District of Columbia, Alaska, Hawaii and Puerto Rico. The number licensed in each state, by examination or by the endorsement of credentials, is shown in table 1. Of the 13,551 licenses issued, 5,967 were granted after examination and 7,584 by reciprocity and endorsement of state licenses or the certificate of the National Board of Medical Examiners.

Physicians certified in a given year after examination in all instances were not tested in that year. In twenty-five states, the District of Columbia, Alaska, Canal Zone, Hawaii, Puerto Rico and the Virgin Islands, the internship is a requisite for licensure. The

TABLE 1.—Licenses Issued, 1948

	Exami- nation	On the Basis of Reciprocity and Endorsement	Total
Alabama.....	70	125	195
Arizona.....	17	97	114
.....	60	64	124
.....	481	1,270	1,751
.....	72	103	175
.....	34	214	248
.....	20	6	26
.....	33	207	240
.....	302	0	302
Georgia.....	131	91	222
Idaho.....	51	12	63
Illinois.....	515	214	749
Indiana.....	99	137	236
Iowa.....	64	151	215
Kansas.....	67	35	122
Kentucky.....	59	72	131
Louisiana.....	182	72	254
Maine.....	31	47	78
Maryland.....	170	149	319
.....	57	392	449
.....	228	253	481
.....	212	121	333
.....	47	53	102
Missouri.....	289	137	376
Montana.....	10	50	60
Nebraska.....	54	41	125
Nevada.....	3	25	28
New Hampshire.....	10	71	81
New Jersey.....	59	247	336
New Mexico.....	3	49	52
New York.....	46	1,509	1,985
North Carolina.....	112	156	268
North Dakota.....	30	23	53
Ohio.....	279	256	565
Oklahoma.....	73	87	162
Oregon.....	48	120	168
Pennsylvania.....	450	208	658
Rhode Island.....	21	21	42
South Carolina.....	57	56	93
South Dakota.....	37	37	64
Tennessee.....	137	94	231
Texas.....	262	371	633
Utah.....	45	51	96
Vermont.....	25	30	55
Virginia.....	136	123	259
Washington.....	110	160	270
West Virginia.....	55	75	130
Wisconsin.....	181	131	312
Wyoming.....	0	27	27
Alaska, Hawaii and Puerto Rico..	51	36	87
Totals.....	5,967	7,584	13,551

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22								
Marginal Number	SCHOOL	Alabama	Arizona	Arkansas	California	Colorado	Connecticut	Delaware	Dist. of Columbia	Florida	Georgia	Idaho	Illinois	Indiana	Iowa	Kansas	Kentucky	Louisiana	Maine	Maryland	Massachusetts	Michigan	Minnesota								
		P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F								
	ALABAMA																														
1	Medical College of Alabama, Birmingham.....	4	0			1	0				1	0																			
	ARKANSAS																														
2	University of Arkansas School of Med., Little Rock..			54	0					3	0			1	0					1	0		1	0							
	CALIFORNIA																														
3	University of California Medical School, Berkeley-San Francisco.....				1	0	60	1							1	0			1	0			1	0							
4	Coll. of Medical Evangelists, Loma Linda-Los Angeles	1	0	2	0		02	4			7	0	2	0	2	0								1	0						
5	Univ. of So. California School of Med., Los Angeles..		1	0			41	1										1	0			4	0		1	0					
6	Stanford University School of Medicine, Stanford University-San Francisco.....					65	0	1	0															1	0						
	COLORADO																														
7	University of Colorado School of Medicine, Denver...				3	0	49	0	1	0					1	0			1	0			1	0	1	0					
	CONNECTICUT																														
8	Yale University School of Medicine, New Haven.....								1	0		2	0						1	0											
	DISTRICT OF COLUMBIA																														
9	George Washington Univ. School of Med., Washington		1	0		4	0		1	0	1	0	4	0		1	0				1	0									
10	Georgetown University School of Med., Washington..				2	1		1	0		10	1	1	0		1	0			1	0		8	0		3	0				
11	Howard University College of Medicine, Washington				1	0				7	2	1	0			8	0			3	0		14	1							
	GEORGIA																														
12	University of Georgia School of Medicine, Augusta...									11	0	66	0		1	0															
13	Emory University School of Med., Emory University..								1	0		24	0	49	0			1	0												
	ILLINOIS																														
14	Northwestern University Medical School, Chicago....		2	0	1	0	14	0	2	1			6	1		3	0	96	2	2	0		1	0		3	0	19	0		
15	Stritch School of Med. of Loyola University, Chicago		1	0		5	2						4	1			34	0	2	2		1	0			1	0	1	0		
16	University of Chicago, The School of Med., Chicago..				4	0					1	0		2	0	29	2						4	0			4	0			
17	University of Illinois College of Medicine, Chicago....		1	0		14	0	1	0		4	1	1	0	1	0	135	0	1	0	1	0		1	0		3	0	7	1	
	INDIANA																														
18	Indiana University School of Medicine, Bloomington-Indianapolis.....				2	0				6	0			4	0	89	0			1	0			11	0						
	IOWA																														
19	State University of Iowa College of Med., Iowa City..		1	0	6	0				3	0		5	0	3	1		38	0			1	0		1	0	3	0			
	KANSAS																														
20	Univ. of Kansas School of Med., Lawrence-Kansas City				1	0				1	0		2	0	2	0											5	0			
	KENTUCKY																														
21	University of Louisville School of Medicine, Louisville				4	1				3	0		1	0	2	0			55	0	4	7	0								
	LOUISIANA																														
22	Louisiana State Univ. School of Med., New Orleans...				4	0				4	0								75	0											
23	Tulane University of Louisiana School of Medicine, New Orleans.....		1	0		1	0			1	0	8	0		1	0			88	0							1	0			
	MARYLAND																														
24	Johns Hopkins University School of Med., Baltimore.	1	0			2	0		1	0		5	0		2	0	1	0			32	0		1	0	1	0				
25	University of Maryland School of Medicine and College of Physicians and Surgeons, Baltimore.....				2	0		1	0		1	0	6	0		1	0			56	0			2	0						
	MASSACHUSETTS																														
26	Boston University School of Medicine, Boston.....				2	0				1	0			1	0			1	0	2	0		1	0							
27	Harvard Medical School, Boston.....				2	0				2	0			3	0			1	0	2	0	3	0	1	0	9	0	4	0	5	0
28	Tufts College Medical School, Boston.....				1	2				2	0									4	0		1	0	1	0					
	MICHIGAN																														
29	University of Michigan Medical School, Ann Arbor....				1	0		1	0		4	0		1	0	5	0			1	0			1	0	94	0	2	0		
30	Wayne University College of Medicine, Detroit.....		1	0		1	0			2	0		1	0	3	0								42	0						
	MINNESOTA																														
31	University of Minnesota Medical School, Minneapolis.				1	0	1	0				3	0	7	0			1	0					1	0	76	0				
	MISSOURI																														
32	St. Louis University School of Medicine, St. Louis....				11	1	2	0			7	0		4	0	8	1										4	0			
33	Washington University School of Medicine, St. Louis.				3	0				3	0				6	0															
	NEBRASKA																														
34	Creighton University School of Medicine, Omaha....				15	2				1	0				20	0											3	0			
35	University of Nebraska College of Medicine, Omaha..				4	0				3	0		4	0	1	0		1	0								1	0			
	NEW YORK																														
36	Albany Medical College, Albany.....									2	0	1	0		1	0								1	0						
37	Long Island College of Medicine, Brooklyn.....		1	0			1	0	2	0		1	0	5	0	3	0		1	0			2	0		3	0				
38	University of Buffalo School of Medicine, Buffalo....				1	0	1	0		1	0			1	0											1	0				
39	Columbia University College of Physicians and Surgeons, New York.....	1	0	1	0		1	0		2	0	9	0		2	0			1	0	1	0			1	0	1	0	1	0	
40	Cornell University Medical College, New York.....		1	0				1	0		1	0	5	1						2	1	1	0				1	0			
41	New York Medical College, Flower and Fifth Avenue Hospitals, New York.....				1	1				5	1	1	0						1	0											
42	New York University College of Medicine, New York..				2	0		1	0		4	0			1	0			1	0	1	0					1	0			
43	University of Rochester School of Medicine and Dentistry, Rochester.....				3	0					1	0		2	0						1	0			2	0					
44	Syracuse University College of Medicine, Syracuse....					2	0			1	0								1	0				2	0						
	NORTH CAROLINA																														
45	Duke University School of Medicine, Durham.....		1	0		1	0			13	0										2	0			1	0					
46	Bowman Gray School of Medicine of Wake Forest College, Winston-Salem.....				1	0				5	0								1	0											
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22								

[illegible]

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Marginal Number	Alabama	Arizona	Arkansas	California	Colorado	Connecticut	Delaware	Dist. of Columbia	Florida	Georgia	Idaho	Illinois	Indiana	Iowa	Kansas	Kentucky	Louisiana	Maine	Maryland	Massachusetts	Michigan	Minnesota
	P	F	P	F	P	F	P	F	P	F	P	P	P	P	P	P	P	P	P	P	P	P
SCHOOL																						
OHIO																						
47 University of Cincinnati College of Med., Cincinnati.....				3	0				4	0		1	0									3
48 Western Reserve University School of Med., Cleveland.....									8	0												
49 Ohio State University College of Medicine, Columbus.....				2	0				10	1												4
OKLAHOMA																						
50 Univ. of Oklahoma School of Med., Oklahoma City.....								1	0		3	0										
OREGON																						
51 University of Oregon Medical School, Portland.....				10	0			1	0		5	0	1	0	3	0			2	0		4
PENNSYLVANIA																						
52 Hahnemann Med. Coll. and Hospital of Philadelphia.....	2	0		6	0	2	0	4	0	1	0	3	0	1	0	1	0	1	0	9	0	2
53 Jefferson Medical College of Philadelphia.....				5	0	2	0	7	0		3	0		1	0		1	0	2	0	1	0
54 Temple University School of Medicine, Philadelphia.....				7	1	1	0	1	0	4	0		6	2		2	0	1	0			1
55 Univ. of Pennsylvania School of Med., Philadelphia.....	1	0						1	0		10	0	1	0		2	0		1	0		4
56 Woman's Med. College of Pennsylvania, Philadelphia.....				3	0	1	0				1	0							1	0		1
57 University of Pittsburgh School of Med., Pittsburgh.....				3	0				6	0		2	0								1	0
SOUTH CAROLINA																						
58 Medical Coll. of the State of So. Carolina, Charleston.....								4	0												1	0
TENNESSEE																						
59 University of Tennessee College of Med., Memphis.....	2	0	1	0	1	1			8	0	1	0	3	0	1	0		2	0	4	0	1
60 Meharry Medical College, Nashville.....			1	0				1	0	3	0	2	0		7	0	1	0		1	0	1
61 Vanderbilt University School of Medicine, Nashville.....				1	0			1	0	6	0					1	0					
TEXAS																						
62 Southwestern Medical College, Dallas.....				2	0							1	0									
63 University of Texas School of Medicine, Galveston.....				2	0				1	0			1	0							1	0
64 Baylor University College of Medicine, Houston.....			1	0					2	0		1	0									1
UTAH																						
65 University of Utah School of Medicine, Salt Lake City.....				3	0	1	0			1	0		1	0	1	1					1	0
VERMONT																						
66 University of Vermont College of Med., Burlington.....				1	0																	
VIRGINIA																						
67 University of Virginia Dept. of Med., Charlottesville.....				1	0				3	0												2
68 Medical College of Virginia, Richmond.....	2	0		1	1				3	0		2	1			1	0	1	0			
WISCONSIN																						
69 University of Wisconsin Medical School, Madison.....		2	0		8	0			1	0		2	0	7	0		1	0				3
70 Marquette University School of Medicine, Milwaukee.....		1	0		9	2		1	0		3	0		3	0		1	0			6	0
CANADA																						
71 Univ. of Alberta Faculty of Med., Edmonton, Alta.....				5	0								1	0								2
72 Univ. of Manitoba Faculty of Med., Winnipeg, Man.....				11	1		1	0					1	0								3
73 Dalhousie University Faculty of Med., Halifax, N. S.....									1	0							2	0		0	1	1
74 Univ. of Toronto Faculty of Med., Toronto 5, Ont.....				5	1		2	0					5	0			1	0	3	0	1	0
75 Queen's University Faculty of Med., Kingston, Ont.....	1	0		2	0								1	0								1
76 University of Western Ontario Faculty of Medicine, London, Ont.....				1	0					1	0		2	1								
77 McGill University Faculty of Med., Montreal, Que.....				2	0		1	0		1	0	1	0		4	1			1	0	3	0
78 Univ. of Montreal Faculty of Med., Montreal, Que.....																		1	0			
79 Laval University Faculty of Medicine, Quebec, Que.....						0	1						1	0				1	2		1	2
OTHERS																						
80 Foreign Medical Faculties.....	0	1		13	13	7	0	9	5		1	0	3	3	1	1		27	33		3	0
81 Extinct Medical Schools.....												6	1					2	0		1	0
82 Unapproved Med. Schools and Schools of Osteopathy.....	0	1			5	1	0	1				25	14		56	1					28	89
83 TOTALS.....	18	17	59	491	74	39	20	36	327	132	51	556	101	67	67	60	182	34	192	176	181	213
84 Totals—Examined—Passed.....	16	17	59	458	72	32	20	33	301	131	51	512	99	67	67	60	182	31	184	65	181	212
85 Totals—Examined—Failed.....	2	0	0	36	2	7	0	3	26	1	0	44	2	0	0	0	0	3	8	111	0	1
86 Percentage Failed.....	11.1	0.0	0.0	7.3	2.7	18.0	0.0	8.3	7.9	0.8	0.0	7.9	2.0	0.0	0.0	0.0	0.0	8.8	4.2	36.9	0.0	0.5
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22

P—Passed; F—Failed.

licensing boards of some of these states permit the candidate to write the examination before completion of the internship and, if successful, issue and date the license on completion of the internship. Licenses are also withheld in some states for other technicalities. In general, also, the licenses of physicians examined in December are dated and issued early in the following year. Table 1, therefore, includes many who were examined in 1947 and a few in previous years, and the figures shown will not correspond with other tables which deal entirely with physicians examined for licensure within the year 1948.

Neither does this tabulation, particularly the endorsement group, represent entirely individuals but includes persons who may have been licensed in more than one state in a given year; nor does the total represent additions to the medical profession, since a

physician previously licensed in one state may be licensed by examination in a nonreciprocating state. In tables 12, 13 and 14 (see pages 310 and 311) can be noted the number who secured licenses for the first time and represent additions to the medical profession in the United States and its territories and possessions.

The greatest number of licenses during the last calendar year were issued in California, 1,751. New York licensed the next greatest number, 1,385, while more than 500 physicians were registered in Illinois, Ohio, Pennsylvania and Texas. No state licensed fewer than 25.

The number of licenses issued in 1948, as was true in two previous years, was greater than in any prewar year. Although in 1948 there were 892 fewer licenses registered than in 1947, there were increases recorded in 22 states as follows:

23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	
Mississippi	Missouri	Montana	Nebraska	Nevada	New Hampshire	New Jersey	New Mexico	New York	North Carolina	North Dakota	Ohio	Oklahoma	Oregon	Pennsylvania	Rhode Island	South Carolina	South Dakota	Tennessee	Texas	Utah	Vermont	Virginia	Washington	West Virginia	Wisconsin	Wyoming	Alaska, Hawaii and Puerto Rico	Totals
P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	
...	...	...	...	...	1 0	...	...	3 1	...	1 0	71 0	...	...	1 0	...	...	...	1 0	...	...	...	...	1 0	...	...	...	...	91 90
...	...	...	...	...	...	1 0	...	1 1	...	...	68 0	...	...	4 0	...	...	...	...	...	...	...	...	1 0	...	...	...	...	81 83
...	...	...	...	...	...	...	...	1 1	...	...	105 0	...	...	...	...	...	...	...	...	...	...	...	1 0	...	...	...	...	125 123
...	1 0	...	...	...	...	...	...	2 0	...	...	58 0	...	...	1 0	...	...	...	2 2	...	...	...	...	1 0	...	...	...	...	71 69
...	...	...	...	...	...	...	...	2 0	...	1 0	39 0	...	1 0	...	...	1 0	1 0	1 0	...	...	...	...	18 0	1 0	...	...	...	93 93
...	...	...	...	...	1 0	20 3	...	7 8	...	...	10 0	...	1 0	58 0	1 0	1 0	...	...	1 0	2 0	...	...	2 0	...	...	...	...	154 141
3 0	1 0	...	...	...	...	10 0	...	1 4	8 0	...	12 0	...	...	100 0	2 0	...	1 0	...	...	...	...	1 0	2 0	...	...	...	...	163 162
...	...	...	...	...	...	11 1	...	5 3	3 0	2 0	...	...	...	62 1	...	...	...	...	...	...	...	...	1 0	...	...	...	...	124 116
3 0	1 0	...	...	...	...	8 0	...	3 0	8 0	...	12 0	1 0	1 0	62 1	1 0	...	2 0	1 0	1 0	...	...	1 0	1 0	...	1 0	...	...	121 123
...	...	...	...	...	...	...	...	0 2	...	...	10 0	...	...	10 0	...	...	...	...	...	...	...	...	...	...	...	...	...	19 17
...	...	...	...	...	...	...	...	...	...	...	76 2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	95 93
...	...	...	...	...	...	...	...	...	1 0	...	...	...	...	1 0	...	53 0	...	...	...	...	...	...	...	...	...	...	...	62 62
0 4 0	...	...	...	...	...	...	...	0 1	3 0	...	...	...	...	...	...	...	50 0	3 1	...	...	...	...	1 0	...	...	...	...	94 91
0 10 0	...	...	...	...	...	1 0	...	4 4	3 0	...	1 0	...	...	2 1	...	...	20 0	...	...	...	...	1 0	...	1 0	...	...	...	76 69
...	...	...	...	...	...	...	...	1 0	1 0	...	...	...	...	...	...	...	46 0	...	...	...	...	...	...	...	...	...	...	60 60
0	...	...	...	...	...	1 0	...	...	...	...	...	...	...	...	...	...	...	41 3	...	...	...	...	...	...	...	...	...	49 46
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	80 1	...	...	...	...	3 0	...	...	...	...	91 93
...	...	...	...	...	...	...	...	...	1 0	...	...	...	...	...	...	...	...	58 3	...	...	...	...	1 0	...	...	...	...	68 65
0 1 0	...	...	...	...	...	...	...	1 0	...	...	1 0	...	...	...	...	...	...	...	7 0	...	...	...	1 0	...	...	...	...	23 22
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	17 17
...	...	...	...	...	...	...	...	...	3 0	...	...	...	...	1 0	...	...	...	...	...	...	...	...	52 1	...	3 0	...	...	66 65
1 0	...	...	...	...	...	...	...	...	3 0	...	...	...	...	2 0	...	...	...	...	...	...	...	...	74 0	...	19 0	...	...	117 115
...	...	...	...	...	...	1 0	...	...	...	...	2 0	...	1 0	...	...	...	...	...	...	...	...	...	...	...	...	...	...	70 77
...	...	...	...	...	...	2 0	...	4 5	...	1 0	5 0	...	...	3 0	1 0	...	...	...	2 2	...	...	...	4 0	...	...	49 2	...	101 5
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	174 160
...	...	...	...	...	...	...	...	...	...	...	...	...	...	1 0	...	...	...	...	...	...	...	...	1 0	...	...	...	...	12 12
...	...	...	...	...	...	...	...	...	1 0	2 0	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	21 20
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	6 5
...	...	...	...	...	...	...	...	...	3 2	1 0	...	...	...	...	...	...	...	...	...	...	...	...	1 0	1 0	...	...	...	32 20
...	...	...	...	...	...	...	...	...	2 1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	11 10
...	1 0	...	...	...	...	...	...	0 1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	7 6
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	22 20
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	4 4
...	...	...	...	...	...	2 1	1 2	3 5	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	24 10
2 0	5 0	...	...	...	...	3 0	1 5	178 239	...	2 0	0 2	...	...	8 0	2 0	...	2 0	1 0	2 3	...	...	...	2 1	4 0	...	...	...	2 0
3 0	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
47	238	11	100	4	11	112	3	797	112	30	329	69	48	454	21	67	27	122	295	18	16	140	110	55	189	0	59	6,560
47	238	10	84	3	10	90	3	426	112	30	322	59	48	418	21	67	27	122	292	18	16	136	110	55	182	0	51	5,810
0	0	1	16	1	1	22	0	371	0	0	7	0	0	6	0	0	0	0	33	0	0	4	0	0	7	0	5	720
1.0	0.0	9.1	16.0	25.0	9.1	19.6	0.0	46.5	0.0	0.0	2.1	0.0	0.0	1.3	0.0	0.0	0.0	0.0	11.2	0.0	0.0	2.0	0.0	0.0	3.8	0.0	8.5	10.9
23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	

Examinel—Passed
Examinel—Failed
Percentage—Failed
No. Boards Examined by
Marginal Number

	1917	1918
Alabama	157	195
Arizona	103	114
Arkansas	92	124
Delaware	24	26
Georgia	198	222
Iowa	206	215
Maine	73	78
Michigan	378	481
Montana	60	66
Nevada	19	28
North Carolina	223	268
North Dakota	28	53
Oklahoma	124	162
Pennsylvania	650	658
South Dakota	53	64
Tennessee	191	231
Texas	618	633
Utah	65	96
Vermont	53	55
West Virginia	99	130
Wisconsin	297	312
Wyoming	20	27

A recapitulation of totals pertaining to licenses issued for thirteen previous years and for 1948 by both examination and reciprocity or endorsement of credentials is included in table 3. The variations shown for the years from 1936 to 1941, inclusive, were the result of the noticeable increase in the licensure of graduates of foreign medical faculties. The accelerated program in medical schools which produced 20,662 graduates in the three year period from June 1942 to June 1945 likewise increased the numbers licensed. In 1946 and the two succeeding years the numbers licensed were almost double those of prewar years. This increase reflects the migration of medical officers. However, there was a decrease in 1947 and again in 1948 as compared with the all time high total for 1946.

In the fourteen year period 1935 to 1948, 143,684 medical licenses have been issued, 88,097 after examination and 55,587 by endorsement of credentials.

Candidates Examined by Medical Examining Boards

In table 2 are recorded data referring to those examined for medical licensure in 1948 by individual states, the District of Columbia, Alaska, Hawaii and Puerto Rico. For each there are given the numbers who passed and failed, the medical school of graduation,

TABLE 3.—*Licenses Issued, 1935-1948*

	Examination	Reciprocity and Endorsement	Total
1935.....	5,725	2,194	7,919
1936.....	6,275	2,773	9,048
1937.....	6,029	3,205	9,834
1938.....	6,557	2,956	9,513
1939.....	6,400	2,872	9,272
1940.....	6,289	2,866	9,155
1941.....	6,056	2,760	8,816
1942.....	6,151	2,469	8,620
1943.....	6,061	2,340	8,401
1944.....	7,079	2,596	9,675
1945.....	5,580	3,621	9,201
1946.....	6,567	9,669	16,236
1947.....	6,761	7,682	14,443
1948.....	5,967	7,584	13,551
Totals.....	88,997	55,587	143,684

the percentage of failures by school as well as licensing board and the number of states in which graduates of a given school were examined. Medical schools in the United States which are no longer in existence, foreign faculties of medicine and unapproved schools are not listed by name, but the numbers examined in each state in these three categories are included following those for existing medical schools in the United States and Canada.

Throughout the last calendar year 6,560 were examined, of whom 5,840 passed and 720 failed. The candidates represented seventy approved medical schools of

TABLE 4.—*Graduates of Medical Schools in Canada Examined for Licensure in the United States, 1948*

	Examined	Passed	Failed
Alabama.....	1	1	0
California.....	28	26	2
Connecticut.....	5	4	1
District of Columbia.....	1	1	0
Florida.....	2	2	0
Georgia.....	1	1	0
Illinois.....	16	14	2
Indiana.....	1	1	0
Louisiana.....	1	1	0
Maine.....	10	8	2
Maryland.....	5	5	0
Massachusetts.....	7	4	3
Minnesota.....	9	9	0
Missouri.....	1	1	0
New Hampshire.....	3	2	1
New Jersey.....	3	1	2
New York.....	18	9	9
North Carolina.....	2	2	0
North Dakota.....	3	3	0
Ohio.....	3	3	0
Pennsylvania.....	8	8	0
Rhode Island.....	1	1	0
South Dakota.....	2	2	0
Texas.....	1	1	0
Washington.....	3	3	0
West Virginia.....	1	1	0
Hawaii.....	1	1	0
Puerto Rico.....	2	1	1
Totals.....	139	116	23

the United States, nine approved medical schools of Canada, four medical schools in the United States now extinct, one hundred and five faculties of medicine and three licensing corporations of other countries, five unapproved institutions and six schools of osteopathy. Osteopaths who were granted the legal right to practice medicine, surgery, or both, by the medical examining boards are included in these statistics. Osteopaths in other states who were granted the privilege of special

practice by other than medical examining boards are excluded from these compilations.

Examination and reciprocity meetings have been scheduled at frequent intervals in recent years to facilitate licensure and to enable physicians to commence practice without undue delay. Later in this study there is included a tabulation giving the schedules for all states. Executive officers and members of examining boards are to be commended for thus assisting the veteran medical officer and others to begin practice at their new location as soon as possible. This cooperation, in view of the increase in volume of applications, is noteworthy.

Represented among the 6,560 examinees were 5,304 graduates of approved medical schools in the United States, of whom 3.3 per cent failed; 139 graduates of approved Canadian schools with 16.5 per cent failures; 15 who were graduated from medical schools no longer operating with 6.7 per cent failures; 636 graduates of faculties of medicine located in countries other than the United States and Canada, 51.5 per cent of whom failed; 302 graduates of unapproved institutions with

TABLE 5.—*Source of Candidates Examined for Licensure in the United States, 1948*

Medical Schools	Number of Schools	Number Examined	Number Passed	Number Failed	Percentage Failed
Approved in United States..	70	5,304	5,127	177	3.3
Approved in Canada.....	9	139	116	23	16.5
Extinct.....	4	15	14	1	6.7
Foreign.....	108	636	308	328	51.5
Unapproved Schools.....	5	302	173	129	42.7
Schools of Osteopathy.....	6	164	102	62	37.8
Totals.....	199	6,560	5,840	720	10.9

42.7 per cent failures and 164 graduates of schools of osteopathy with 37.8 per cent failures.

As in table 1, the 6,560 examinees do not represent an equal number of individuals, since a candidate tested in more than one state in a calendar year is counted in each state. However, if a candidate failed more than once in a given state within the year, he is counted in that state as only one failure.

The greatest number of graduates of any one school examined was 214, representing Northwestern University Medical School, 98 of whom were tested in Illinois and 116 in twenty-seven other states. More than 150 graduates of five other schools applied for licenses last year; namely, University of Illinois (211) in twenty-six states, St. Louis University (156) in thirteen states, Hahnemann Medical College (154) in twenty-six states, Jefferson Medical College (166) in twenty-four states and Marquette University (174) in eighteen states. One hundred or more graduates of eleven other schools also were tested during the year.

Nineteen approved schools in the United States had no failures before medical licensing boards, twenty-nine less than 5 per cent and twelve between 5 and 10 per cent. There were ten schools with 10 per cent or more failures in state examinations. The over-all figures and percentages for failures are modified by data on those who were examined by the National Board of Medical Examiners in its final examination as well as those passing state tests (table 6, page 299).

Graduates of Northwestern University were examined in the greatest number of states, twenty-eight. University of Pennsylvania alumni were tested in twenty-seven states and the University of Illinois and

Hahnemann Medical College in twenty-six states. All other schools had their graduates examined in fewer than twenty-five states. Three schools had graduates examined in fewer than five states.

A total of 139 graduates of nine approved medical schools in Canada appeared for licensure in the United States in 1948 in twenty-five states, the District of Columbia, Hawaii and Puerto Rico. The figures are given for each licensing board by schools in table 1 and by totals in table 4. Of the 139 examinees, 23 (16.5 per cent) failed. California examined 28, New York 18, Illinois 16 and Maine 10, and all other states fewer than 10. Two Canadian schools had no failures before United States licensing boards. The lowest failing percentage was 4.8. The remaining schools had percentages higher than 8.

Graduates of osteopathic schools and of unapproved institutions were examined by sixteen states. Represented were 164 osteopathic graduates of whom 102 passed and 62, or 37.8 per cent, failed and 302 graduates of unapproved schools, of whom 173 passed and 129 (42.7 per cent) failed.

Graduates of foreign faculties of medicine were examined in twenty-eight states and Puerto Rico. There were 636 such graduates with 328, or 51.5 per cent, failures.

Fifteen graduates of schools no longer operating were tested in seven states, of whom 14 passed and 1 (6.7 per cent) failed.

In all six categories mentioned, 6,560 appeared before medical examining boards in 1948, of whom 5,840 passed and 720, or 10.9 per cent, failed.

Totals for the six categories are given in table 5. As already mentioned, from the United States approved schools there were 3.3 per cent who failed, as did 16.5 per cent of the Canadian graduates and 6.7 per cent of the graduates of extinct schools. The greatest percentage of failures represented three groups, foreign schools, unapproved schools and schools of osteopathy. In these groups 51.5, 42.7 and 37.8 per cent, respectively, failed. Those registered in these three groups are discussed separately later in an analysis of these statistics.

Elsewhere (see tables 12, 13 and 14, pages 310 and 311) are given figures referring to actual licentiates and additions to the medical profession.

Consolidated Examinations

A combination of the results of individual schools for two groups, i. e., those appearing for the state medical board examinations and for part III of the examinations of the National Board of Medical Examiners, is given in table 6. This table presents a more accurate picture of the performance of physicians from the individual schools in licensure examinations than is given in the preceding tables. In some instances, it will be noted, schools having a high percentage of failures before state licensing boards had few, if any, failures before the National Board. In 1948 there were 5,304 graduates of approved medical schools in the United States examined by state boards, of whom 3.3 per cent failed. In 1948, 1,685 graduates of these institutions appeared for part III of the examinations of the National Board, of whom 14, or 0.8 per cent, failed. In the consolidated figures the failures from approved medical schools in the United States were 2.7 per cent.

Of the Canadian graduates, 16.5 per cent failed state board tests and 15 per cent failed the combined tests. Only 9 graduates of foreign medical schools were tested

TABLE 6.—Consolidated Examinations, State Medical Examining Boards and the National Board of Medical Examiners, 1948

School	Results by Medical Examining Board Tests		Part III Examination of National Board of Medical Examiners		Total Examined	Totals		
	P	F	P	F		P	F	%F
Medical College of Alabama...	8	0	1	0	9	9	0	0.0
University of Arkansas.....	85	3	1	0	89	86	3	3.4
Coll. of Med. Evan. (Calif.)..	94	4	41	0	139	135	4	2.9
Stanford University.....	68	0	8	0	76	76	0	0.0
University of California.....	66	1	5	0	72	71	1	1.4
Univ. of Southern California...	46	2	2	0	50	48	2	4.0
University of Colorado.....	58	1	15	0	74	73	1	1.4
Yale University (Connecticut)	7	1	60	1	69	67	2	2.9
George Washington University (D. C.)	24	1	73	0	98	97	1	1.0
Georgetown University	44	5	79	1	129	123	6	4.7
Howard University	61	5	1	0	67	62	5	7.5
Emory University (Georgia)...	76	0	0	0	76	76	0	0.0
University of Georgia.....	78	0	0	0	78	78	0	0.0
Loyola University (Illinois)...	95	6	9	0	110	104	6	5.5
Northwestern University.....	210	4	23	0	237	233	4	0.6
University of Chicago.....	69	2	1	0	72	70	2	2.8
University of Illinois.....	207	4	17	0	225	224	4	0.7
Indiana University.....	113	0	2	0	115	115	0	0.0
State University of Iowa.....	69	1	33	0	102	102	1	1.0
University of Kansas.....	15	0	0	0	15	15	0	0.0
University of Louisville (Ky.)..	125	2	5	0	132	130	2	1.5
Louisiana State University...	88	0	0	0	88	88	0	0.0
Tulane University.....	113	0	11	0	124	124	0	0.0
Johns Hopkins Univ. (Md.)...	77	0	13	0	90	90	0	0.0
University of Maryland.....	92	0	9	0	101	101	0	0.0
Boston University (Mass.)...	10	0	57	0	67	67	0	0.0
Harvard Medical School.....	60	2	118	0	180	178	2	1.1
Tufts College Medical School...	13	3	110	0	126	123	3	2.4
University of Michigan.....	117	0	21	1	139	138	1	0.7
Wayne University.....	51	0	1	0	52	52	0	0.0
University of Minnesota.....	105	1	7	0	113	112	1	0.9
St. Louis Univ. (Missouri)...	153	3	13	1	170	166	4	2.4
Washington University.....	103	1	7	0	111	110	1	0.9
Creighton Univ. (Nebraska)...	74	6	7	0	87	81	6	6.9
University of Nebraska.....	73	5	5	0	83	78	5	6.0
Albany Med. College (N. Y.)...	9	1	45	0	55	54	1	1.8
Columbia University.....	41	0	88	1	130	129	1	0.8
Cornell University.....	44	4	67	0	115	111	4	3.5
Long Island College of Med...	42	8	87	0	137	129	8	5.8
New York Medical College.....	17	8	112	5	142	129	13	9.2
New York University.....	36	3	111	2	155	150	5	3.2
Syracuse University.....	26	10	18	0	54	44	10	18.5
University of Buffalo.....	10	1	67	0	78	77	1	1.3
University of Rochester.....	25	3	45	0	72	70	3	4.1
Duke University.....	24	3	52	0	79	76	3	3.8
Bowman-Gray School of Medicine (N. C.)	54	0	3	0	57	57	0	0.0
Ohio State University.....	123	2	0	0	125	123	2	1.6
University of Cincinnati.....	90	1	1	0	92	91	1	1.1
Western Reserve University...	83	1	4	0	88	87	1	1.1
University of Oklahoma.....	69	2	4	0	75	73	2	2.7
University of Oregon.....	93	0	1	0	94	94	0	0.0
Hahnemann Med. Coll. (Pa.)...	141	13	22	1	177	163	14	7.9
Jefferson Medical College.....	162	4	17	0	183	179	4	2.2
Temple University.....	116	8	23	0	147	139	8	5.4
University of Pennsylvania...	123	1	48	0	172	171	1	0.6
University of Pittsburgh.....	93	2	5	0	100	98	2	2.0
Woman's Medical College.....	17	2	15	0	34	32	2	5.9
Med. Coll. of South Carolina...	62	0	1	0	63	63	0	0.0
Meharry Med. Coll. (Tenn.)...	91	7	6	0	95	75	7	8.5
University of Tennessee.....	91	3	1	0	95	92	3	3.2
Vanderbilt University.....	60	0	9	0	69	69	0	0.0
Baylor University (Texas)...	65	3	0	0	68	65	3	4.4
Southwestern Medical College...	46	3	1	0	50	47	3	6.0
University of Texas.....	93	1	4	0	98	97	1	1.0
University of Utah.....	22	1	1	0	24	23	1	4.2
University of Vermont.....	17	0	30	0	47	47	0	0.0
Medical College of Virginia...	115	2	6	0	123	121	2	1.6
University of Virginia.....	65	1	3	0	69	68	1	1.4
Marquette Univ. (Wisconsin)...	160	14	15	1	190	175	15	7.9
University of Wisconsin.....	77	2	1	0	80	78	2	2.5
Subtotals: U. S. Schools...	5,127	177	1,671	14	6,989	6,798	191	2.7
Dalhousie University (Nova Scotia).....	5	1	0	0	6	5	1	16.7
Laval University (Quebec)...	10	14	1	0	25	11	14	56.0
McGill University.....	20	2	9	1	32	29	3	9.4
Queen's University (Ontario)...	10	1	4	0	15	14	1	6.7
University of Alberta.....	12	0	0	0	12	12	0	0.0
University of Manitoba.....	20	1	0	0	21	20	1	4.8
Univ. of Montreal (Quebec)...	4	0	0	0	4	4	0	0.0
Univ. of Toronto (Ontario)...	29	3	6	0	38	35	3	7.9
Univ. of Western Ontario.....	6	1	0	0	7	6	1	14.3
Subtotals: Canadian Schools	116	23	20	1	160	136	24	15.0
Foreign Medical Faculties...	308	328	3	0	645	317	328	50.8
Extinct Medical Schools.....	14	1	0	0	15	14	1	6.7
Unapproved Schools.....	173	129	0	0	302	173	129	42.7
Schools of Osteopathy.....	102	62	0	0	164	102	62	37.8
Totals	5,840	720	1,700	15	8,275	7,540	735	8.8

* Represents individuals failed.

by the National Board. There is no comparison to be made of this group. There were none in the extinct medical school classification examined by the National Board. The National Board does not admit to its examinations the graduates of unapproved medical schools in the United States, and from foreign schools it admits only the graduates of the university medical schools of Great Britain and Ireland, provided these graduates have been licensed to practice in the country in which the school attended is located.

TABLE 7.—*Licensure Failures by Graduates of Approved Schools Located in the State Where Examined and Elsewhere, 1948*

States with Four Year Medical Schools	Total No. Examined	No. Failures of Schools in State	No. Schools in State Represented at Examinations	Per Cent Failed	No. Failures of Schools out of State	No. Schools out of State Represented at Examinations	Per Cent Failed	Per Cent Failed in All U. S. Schools
Alabama.....	18	0	1	0.0	0	9	0.0	0.0
Arkansas.....	59	0	1	0.0	0	5	0.0	0.0
California.....	494	6	4	1.2	17	58	3.4	4.7
Colorado.....	74	0	1	0.0	1	9	1.4	1.4
Connecticut.....	39	0	1	0.0	1	18	2.6	2.6
Dist. of Columbia	36	3	3	8.3	0	12	0.0	8.3
Georgia.....	132	0	2	0.0	0	11	0.0	0.0
Illinois.....	556	4	4	0.7	6	44	1.0	1.7
Indiana.....	101	0	1	0.0	2	8	2.0	2.0
Iowa.....	67	0	1	0.0	0	8	0.0	0.0
Kansas.....	67	0	1	0.0	0	8	0.0	0.0
Kentucky.....	60	0	1	0.0	0	9	0.0	0.0
Louisiana.....	182	0	2	0.0	0	14	0.0	0.0
Maryland.....	192	0	2	0.0	2	23	1.0	1.0
Massachusetts.....	176	0	3	0.0	6	10	3.4	3.4
Michigan.....	181	0	2	0.0	0	26	0.0	0.0
Minnesota.....	213	0	1	0.0	1	45	0.5	0.5
Missouri.....	238	0	2	0.0	0	17	0.0	0.0
Nebraska.....	100	7	2	7.0	0	2	0.0	7.0
New York.....	797	29	9	3.6	53	38	6.6	9.0
North Carolina.....	112	0	2	0.0	0	19	0.0	0.0
Ohio.....	329	0	3	0.0	0	26	0.0	0.0
Oklahoma.....	59	0	1	0.0	0	1	0.0	0.0
Oregon.....	48	0	1	0.0	0	8	0.0	0.0
Pennsylvania.....	454	4	6	0.8	2	35	0.4	1.3
South Carolina.....	57	0	1	0.0	0	2	0.0	0.0
Tennessee.....	122	0	3	0.0	0	3	0.0	0.0
Texas.....	295	7	3	2.3	8	22	2.7	5.0
Utah.....	18	0	1	0.0	0	9	0.0	0.0
Vermont.....	16	0	1	0.0	0	1	0.0	0.0
Virginia.....	140	1	2	0.7	1	6	0.7	1.4
Wisconsin.....	189	7	2	3.7	0	16	0.0	3.7
Subtotals.....	6,560	68	70	1.0	100	522	1.5	2.5
States Without Four Year Medical Schools								
Arizona.....	17				0	14	0.0	
Delaware.....	20				0	8	0.0	
Florida.....	327				8	60	2.4	
Idaho.....	51				0	25	0.0	
Maine.....	34				3	15	8.8	
Mississippi.....	47				0	17	0.0	
Montana.....	11				1	10	9.1	
Nevada.....	4				1	2	25.0	
New Hampshire.....	11				1	6	9.1	
New Jersey.....	112				13	24	11.6	
New Mexico.....	3				0	3	0.0	
North Dakota.....	30				0	11	0.0	
Rhode Island.....	21				0	15	0.0	
South Dakota.....	27				0	16	0.0	
Washington.....	110				0	34	0.0	
West Virginia.....	55				0	24	0.0	
Wyoming.....	0				0	0	0.0	
Alaska, Hawaii and Puerto Rico	59				5	37	8.5	
Subtotals.....	939				32	311	3.4	

As mentioned in the preceding section, the total of all examined before medical licensing boards in the United States in 1948 was 6,560, of whom 5,840 passed and 720, or 10.9 per cent, failed. For both groups—state boards and the National Board—8,275 were examined; 7,540 passed and 735 (8.8 per cent) failed. The total percentage of failures was reduced less than 2 per cent because of the high percentage of failures before state boards by unapproved and foreign graduates. Sixty-four approved schools in the United States and four in Canada were represented in the National Board examinations.

Failures

Data recorded in table 7 refer to failures before medical licensing boards by licentiates of 1948. In presenting these statistics the United States is divided into two groups—the thirty-one states and the District of Columbia in which approved four year medical schools are located and those states and the territories and possessions which have no medical school within their boundaries. The figures include the number of licentiates who failed state board examinations prior to licensure and were graduates of a medical school located in the state in which they were examined and also the number of graduates licensed in a given state who obtained their professional training in schools in other states.

Practically all states require the applicant to receive a general average of 75 per cent in the medical license examination and at least 50 per cent in any one subject. In case of failure in not more than two subjects the applicant is permitted a second examination in those subjects within twelve months. A few states consider such persons as conditioned in the subjects in which they fail and do not report them to the office of the Council on Medical Education and Hospitals as failures. These examinees are not included in any of the tabulations which include failures. When their grades are raised after a successful reexamination they are recorded among those who passed.

Sixty-eight physicians failed examinations in the state in which they obtained their professional training. This occurred in nine states. Twenty-nine failed in New York. There were failures reported by twelve states among students who graduated from approved medical schools located in states other than the one in which they were licensed. Again, New York had the greatest number, 53. Twenty-three states reported no failures during the year from graduates of schools located in these states, and twenty states had no failures among graduates of schools located in other states. Seventeen states had no failures in either group.

In seventeen states having no medical schools, six reported failures. In all, 32 failed.

The total examined in the first group, states in which approved medical schools are located, was 6,560, while in the second group, states which have no approved four year medical school within their boundary, 939 were examined.

In table 8 the figures pertaining to failures before medical licensing boards are subdivided by the number of candidates who were licensed after previous failures. The figures are presented in three categories—approved medical schools in the United States and Canada, foreign faculties of medicine and unapproved institutions. Within these groups there are classifications indicating the number who were licensed after failing a state board examination once and after two or more failures. It can also be noted whether the single or multiple failures have been in the state where licensed or elsewhere. The total number of candidates examined in 1948 and licensed or granted licenses by reciprocity or endorsement of credentials is shown and also the total number of failures in all groups.

There were 13,551 licenses to practice medicine issued during the calendar year 1948. Five hundred and thirty physicians represented in the 13,551 licenses issued had previously been unsuccessful before a licensing board. From the approved schools 245 had previ-

ously failed a state board examination. Eighty-five had one failure in the state in which they were licensed, while 111 were licensed after one failure in another state. Forty-nine received licenses after more than one failure.

In the group of foreign medical faculties, 196 graduates were licensed after previous failure. Also, 89 graduates of unapproved institutions were registered

included in table 9. Florida and Hawaii have not established reciprocal agreements. Provisions for reciprocal licensure have been provided in Idaho by the 1949 legislature and will become effective July 1, 1949. Idaho and Hawaii will endorse certificates of the National Board of Medical Examiners. Florida is the only state which requires a written examination of all applicants for licensure. Those desiring licenses by

TABLE 8.—Failures Before Medical Licensing Boards By Licentiate, 1948

TABLE 8.— <i>Failures Before Mutual Licensing Boards, 1913-1916</i>																				
	Licenses Issued by Examination, Reciprocity or Endorsement	Approved Schools					Foreign Schools					Unapproved Medical Schools and Schools of Osteopathy								Total Failures by Licentiate, 1918
		Licensed After One Failure		Licensed After Two or More Failures			Licensed After One Failure		Licensed After Two or More Failures			Licensed After One Failure		Licensed After Two or More Failures						
		Failed in State Where Licensed	Elsewhere	Failed in State Where Licensed	Elsewhere	Failed in State Where Licensed and Elsewhere	Failed in State Where Licensed	Elsewhere	Failed in State Where Licensed	Elsewhere	Failed in State Where Licensed	Elsewhere	Failed in State Where Licensed	Elsewhere	Failed in State Where Licensed	Elsewhere	Failed in State Where Licensed and Elsewhere			
Alabama.....	195	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	
Arizona.....	114	1	7	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	10	
Arkansas.....	124	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	1	
California.....	1,751	7	21	..	..	..	1	5	2	1	1	..	..	..	..	..	..	..	33	
Colorado.....	175	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	5	
Connecticut.....	248	..	10	..	1	..	2	1	3	5	..	..	..	..	..	..	..	..	23	
Delaware.....	26	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	0	
District of Columbia.....	240	1	2	..	1	..	..	1	..	1	..	..	..	..	..	..	..	..	6	
Florida.....	302	6	2	1	1	..	..	..	..	..	..	1	2	..	..	3	1	..	17	
Georgia.....	232	..	3	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	4	
Idaho.....	63	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	0	
Illinois.....	749	1	1	..	3	1	7	1	5	..	..	..	..	..	..	..	..	..	19	
Indiana.....	236	9	1	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	10	
Iowa.....	215	1	2	..	..	..	..	1	..	1	..	..	..	..	..	..	..	..	5	
Kansas.....	122	..	2	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	3	
Kentucky.....	131	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	
Louisiana.....	254	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	
Maine.....	78	..	..	..	1	1	..	..	..	1	3	..	..	..	..	..	..	..	6	
Maryland.....	319	..	..	..	..	..	1	2	..	1	1	..	..	..	..	..	..	..	5	
Massachusetts.....	449	1	1	1	..	..	..	2	..	2	..	7	14	..	..	..	..	..	26	
Michigan.....	481	..	1	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	2	
Minnesota.....	333	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	0	
Mississippi.....	102	..	..	..	..	..	1	..	..	..	..	1	..	1	..	..	..	..	3	
Missouri.....	376	..	3	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3	
Montana.....	65	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	
Nebraska.....	125	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	
Nevada.....	29	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	0	
New Hampshire.....	81	..	..	..	..	..	..	..	..	..	..	1	..	..	1	..	..	..	2	
New Jersey.....	336	6	10	..	..	..	2	..	..	..	..	..	..	..	..	..	1	..	19	
New Mexico.....	52	..	1	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	1	
New York.....	1,385	26	1	19	..	1	59	4	37	1	5	22	2	8	1	8	..	..	224	
North Carolina.....	268	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	
North Dakota.....	53	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	2	
Ohio.....	565	..	6	..	2	..	..	3	..	5	..	..	2	..	..	..	..	..	15	
Oklahoma.....	162	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	
Oregon.....	163	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	
Pennsylvania.....	653	2	4	..	1	..	..	..	..	..	..	..	1	..	..	..	..	..	7	
Rhode Island.....	42	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	
South Carolina.....	93	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	1	
South Dakota.....	64	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	
Tennessee.....	231	..	3	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3	
Texas.....	633	9	4	1	2	..	1	..	1	1	1	7	3	..	..	..	..	..	30	
Utah.....	96	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	0	
Vermont.....	55	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	
Virginia.....	259	1	3	..	1	..	1	1	..	..	..	..	..	..	..	1	..	..	8	
Washington.....	279	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	
West Virginia.....	130	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	
Wisconsin.....	312	..	6	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	7	
Wyoming.....	27	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	
Alaska, Hawaii and Puerto Rico.....	87	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	1	
Totals.....	13,551	85	111	22	23	4	73	24	71	20	8	38	22	12	8	9	530			

after failing previously. Among those with multiple failures in these two groups were several that had more than five and even ten unsuccessful tests before attaining licensure.

In five states all physicians licensed last year had no failures in a state medical examination before being registered.

Registration by Reciprocity and Endorsement

A summary of the reciprocity and endorsement policies pertaining to medical licensure in effect in the United States, Alaska, Hawaii and Puerto Rico are

reciprocity and endorsement in seventeen states, the District of Columbia and Alaska are required to obtain a certificate from the state board of examiners in the basic sciences before being eligible for medical licensure.

Thirty states and Alaska have definite reciprocal agreements with specific states. Twenty-nine boards, including twelve which have specific reciprocity agreements, and Puerto Rico, are given discretionary powers under the medical practice act. The latter licensing boards will register physicians who present credentials which correspond with those required by their respec-

tive states in the year issued. The states in which physicians certified by the National Board of Medical Examiners are accepted for licensure on the basis of the board's certificate are also indicated.

faculties of medicine on a reciprocal basis. Other requirements or exemptions are indicated by footnotes.

This chart will be available in reprint form. It has proved to be of material assistance to physicians con-

TABLE 9.—Reciprocity and Endorsement

		Reciprocalates with, or Endorses Certificates Granted by																														
Marginal Number	The Examining Board of	Alabama	Arizona	Arkansas	California	Colorado	Connecticut	Delaware	Dist. of Columbia	Florida	Georgia	Idaho	Illinois	Indiana	Iowa	Kansas	Kentucky	Louisiana	Maine	Maryland	Massachusetts	Michigan	Minnesota	Mississippi	Missouri	Montana	Nebraska	Nevada	New Hampshire	New Jersey	New Mexico	Marginal Number
1	Alabama.....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1
2	Arizona.....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2
3	Arkansas (regular board).....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3
4	California.....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	4
5	Colorado.....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	5
6	Connecticut (reg. & homeo. bds.).....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	6
7	Delaware (regular board).....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	7
8	Dist. of Columbia.....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	8
9	Florida.....	No reciprocity or endorsement policies																										9				
10	Georgia.....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	10
11	Idaho.....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	11
12	Illinois.....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	12
13	Indiana.....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	13
14	Iowa.....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	14
15	Kansas.....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	15
16	Kentucky.....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	16
17	Louisiana (reg. & homeo. bds.).....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	17
18	Maine.....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	18
19	Maryland (reg. & homeo. bds.).....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	19
20	Massachusetts.....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	20
21	Michigan.....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	21
22	Minnesota.....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	22
23	Mississippi.....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	23
24	Missouri.....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	24
25	Montana.....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	25
26	Nebraska.....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	26
27	Nevada.....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	27
28	New Hampshire.....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	28
29	New Jersey.....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	29
30	New Mexico.....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	30
31	New York.....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	31
32	North Carolina.....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	32
33	North Dakota.....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	33
34	Ohio.....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	34
35	Oklahoma.....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	35
36	Oregon.....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	36
37	Pennsylvania.....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	37
38	Rhode Island.....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	38
39	South Carolina.....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	39
40	South Dakota.....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	40
41	Tennessee.....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	41
42	Texas.....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	42
43	Utah.....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	43
44	Vermont.....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	44
45	Virginia.....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	45
46	Washington.....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	46
47	West Virginia.....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	47
48	Wisconsin.....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	48
49	Wyoming.....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	49
50	Alaska.....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	50
51	Hawaii.....	No reciprocal relations.																										51				
52	Puerto Rico.....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	52

This summary should be supplemented by direct communication with the

Some states have additional requirements for graduates of schools outside the United States and Canada.

+, indicates reciprocal or endorsement relationships have been established; .. indicates no reciprocal or endorsement relationships have been established. (See column—"At the discretion of the board.")

1. 1st P, first papers required; @, in citizenship column indicates full citizenship required, in other columns it implies a requirement.

2. In most cases there is a small additional recording or registration fee.

3. Year of practice after internship required.

4. Internship accepted in lieu of one year's practice.

5. Professional practice required.

6. All applicants must be graduates of a medical school approved by the American Medical Association.

7. Just preceding

8. No basic science must be within the state.

9. Basic science by reciprocity or examination in addition to basic science subjects of National Board.

10. Canadian citizens are required to file first papers.

12. Oral examination required when original license is ten or more years old.

13. Applicant must have resided in the state used as basis of application for one year after date on said certificate, or show two years of licensed practice in some other state.

14. Oral examination required.

16. Actual practice for a period of three years immediately preceding date of application.

17. Practical, clinical examination required.

18. Foreign graduates only.

19. Regular and Homeopathic boards.

20. Reciprocity is extended to all states which accept Oregon licentiates on reciprocity basis.

22. Fee same as applicant's state charges if more than \$50.

23. Oral examination required if applicant's state requires it.

Additional requisites, such as professional practice, oral examination and internship, are recorded, as is also the fee for a license without written examination. Citizenship prerequisites are mentioned. In some states physicians of Canadian birth are exempt from the citizenship requirement. This is indicated by a footnote. Few states will accept graduates of foreign

templating locating in another state. The data recorded are intended to be merely a summary of licensure policies. A physician using this chart for reciprocity purposes should supplement the information contained therein by direct communication with the executive officer of the licensing board of the state in which he is interested.

In table 10 are presented data pertaining to the credentials accepted as the basis for licenses granted without written examination in 1948. There were 7,584 so registered on the basis of licenses issued by other reciprocity or endorsement has been steadily increasing. In the last three years, however, the figures have more than doubled those of any previous year.

The greatest number of licenses issued by this

Policies of Medical Licensing Boards

Reciprocates with, or Endorses Certificates Granted by																									Requirements									
Marginal Number	New York	North Carolina	North Dakota	Ohio	Oklahoma	Oregon	Pennsylvania	Rhode Island	South Carolina	South Dakota	Tennessee	Texas	Utah	Vermont	Virginia	Washington	West Virginia	Wisconsin	Wyoming	Alaska	Puerto Rico	At the Discretion of the Board	National Board of Medical Examiners	Basic Science Certificate	Internship	Professional Practice	Citizenship ¹	Fees, Dollars ²	Miscellaneous	Marginal Number				
1	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	1 ⁴	50		1					
2	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	34,7	100		2					
3	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	14	50 ²²		3					
4	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	13 ¹³	100		4					
5	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	14	50		5					
6	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	3 ¹⁶	50		6					
7	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	2	100		7					
8	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	13	50		8					
9	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	0	50		9					
10	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	1	50		10					
11	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	14	50		11					
12	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	14,7	25	17,42	12					
13	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	14	50		13					
14	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	14,7	50		14					
15	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	14	25		15					
16	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	14	50		16					
17	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	14	50 ²²		17					
18	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	14	52		18					
19	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	14	50		19					
20	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	14	50 ²⁸		20					
21	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	14	55		21					
22	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	0	75	17,42	22					
23	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	0	50	42,41	23					
24	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	14	50		24					
25	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	14	75		25					
26	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	14	50		26					
27	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	14	100	14,42	27					
28	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	0	20		28					
29	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	0	100		29					
30	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	14	50	12	30					
31	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	0	25		31					
32	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	0	50	42,6	32					
33	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	0	50 ²²	11,12	33					
34	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	14	50		34					
35	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	14	100	42,44,6	35					
36	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	14	100	12,4	36					
37	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	2 ²¹	50	42	37					
38	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	0	20		38					
39	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	14	50	42	39					
40	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	1	50	42	40					
41	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	0	100	42	41					
42	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	0	50	42	42					
43	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	0	50	42	43					
44	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	31	50	42	44					
45	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	13	50		45					
46	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	2 ²⁸	50	42	46					
47	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	0	25	42	47					
48	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	1 ²⁰	100	42	48					
49	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	0	50	42	49					
50	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	0	100	6	50					
51	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	0	25	42,6	51					
52	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	13	25	42	52					

secretary of the licensing board of the state in which the physician is interested.

24. If the applicant passes the examination in the state from which he transfers after the completion of his internship, no practice is required.

25. License in state with which Louisiana reciprocates required.

26. Internship accepted—considered equivalent to two years' practice.

27. Fee \$25.

28. Fee for license on basis of National Board certificate, \$25.

29. A two year internship is accepted.

30. Diplomates of National Board not required to have been in practice for three years.

31. Same as required of Utah candidates applying for licensure.

32. Clinical examination required.

33. Reciprocity applicants only.

34. Supplemental examination required in certain cases when accepting the examination of a state with whom reciprocal relations have not been established.

35. May be licensed after a special (written) supplemental examination.

36. Fee \$30.

37. For matriculants after Oct. 15, 1937.

38. Fee, \$20.

39. Fee, \$15.

40. Permanent license withheld until completion of citizenship.

41. Graduates of foreign medical schools effective Sept. 15, 1935. Canadian schools exempted effective Sept. 19, 1939.

42. Graduates of foreign medical schools are not accepted.

43. Graduates of foreign medical schools must have fulfilled all requirements of California prior to admittance to examination for any certificate used as basis of application to California.

44. Not applicable to citizens of Canada.

45. Not required if country in which applicant is licensed will admit to practice citizens of the United States licensed to practice in some state or on proof of requirements similar to those required by California of graduates of foreign medical schools.

46. Not required for licensure by reciprocity.

47. Reciprocal licensure provisions provided by 1949 Legislature, effective July 1, 1949.

states, the District of Columbia, the territories or possessions, foreign countries, the certificate of the National Board of Medical Examiners, also the government services and special exemption. The number of licenses issued by this method again exceeded any pre-war year, although it was 98 fewer than the number so issued in 1947. The number of licenses granted by method was in California, where 1,270 were registered New York issued 959. Two other states endorsed more than 300 candidates, namely Massachusetts, 392, and Texas, 371. Seven states endorsed more than 200. The largest number of candidates presenting the same type of credentials were the 2,474 physicians certified by the National Board of Medical Examiners, who were

TABLE 10.—Candidates Licensed by Reciprocity and Endorsement of Credentials, 1948

[illegible]

registered in 42 states, the District of Columbia and Hawaii. Of these, 703 were certified in New York, 295 in Massachusetts and 222 in California.

There were 496 licenses issued in Illinois and 365 in New York presented to other states for endorsement purposes. The greatest number licensed in any one state presenting a like state license were 210 Illinois licentiates who secured licenses in California. Only 167 California licenses were presented for reciprocal registration last year, while that state licensed on credentials 1,270 physicians from other states. In contrast with California, 496 licentiates of Illinois were licensed in other states, while it endorsed 234 physicians. No physician holding a New Mexico license applied for registration in another state during the year, and only 2 each from Idaho and Wyoming did so.

One hundred and thirty-two medical officers of one of the government services received licenses by endorsement of their military credentials in eight states. Eleven physicians were licensed in three states on the basis of a license issued in one of the territories or possessions of the United States, 44 on the basis of Canadian or foreign licenses and 18 by special exemption.

In table 11 are recorded the numbers from individual schools represented by the 7,584 reciprocity licentiates. Every approved medical school in the United States and Canada had graduates licensed without written examination in 1948. Three hundred and five graduates of Harvard Medical School were so registered. There were more than 200 graduates of four other schools who sought such licensure. This table reflects the movement of physicians to states other than the one in which they obtained their professional training.

One hundred and nineteen graduates of foreign medical schools obtained endorsement of state licenses in eighteen states, the District of Columbia and Puerto Rico, and 136 graduates of schools no longer in operation were registered by thirty-five boards. Sixty graduates of unapproved medical schools or schools of osteopathy secured similar licenses in thirteen states.

Licentiates Representing Additions to the Medical Profession

Licentiates of 1948 who received their first license to practice medicine and surgery during the year and therefore represent additions to the medical profession in the United States, Alaska, Hawaii and Puerto Rico are shown in table 12 (page 310). The figures in this compilation represent candidates examined in 1948 and licensed, some who were examined in previous years but whose licenses were withheld pending completion of a required internship, citizenship and other technicalities and issued in 1948, and those without a state license who were during the year certified on the basis of the examinations of the National Board of Medical Examiners, government services, Canadian and foreign credentials. The majority represent recent graduates.

There were 6,597 additions to the medical profession in 1948 in the United States, Alaska, Hawaii and Puerto Rico. By reference to table 1 it can be noted that 13,551 licenses were issued during the year, indicating that 6,954 had previously been licensed. The number of physicians removed by death in the United States, territories and possessions was 3,230.¹ Thus the physician population in the United States was increased by 3,367.

It may be assumed that the 1948 figure represents many medical officers returning to the private practice of medicine on completion of their graduate training, which was curtailed by their entry into military service.

Analyzing table 12, it can be noted that New York had the greatest number of first licentiates, 999. California was second, with 505. Two states, Illinois and Pennsylvania, each added 460. Comparison with 1947 figures shows increases in twenty-two states. Of the smaller states in terms of population increases over 1947 figures² were noted in Nevada, New Hampshire, New Mexico, North Dakota, Utah, Vermont and West Virginia, which suggests a measure of improvement in the distribution of physicians and likewise of medical care.

The 6,597 licentiates constituting additions to the medical profession in the last calendar year represented 4,903 who secured their licenses by examination and 1,694 by endorsement of credentials. The latter were mainly physicians certified by the National Board of Medical Examiners.

Increases in the physician population arranged in nine geographic divisions in the United States are shown in table 13. The Middle Atlantic and East North Central group of states added the greatest number, 1,600 and 1,295, respectively. More than 500 were added in five other groups—New England 524, West North Central 650, South Atlantic 830, West South Central 555 and Pacific states 600. The East South Central states added 312, the Mountain states 158 and the territories and possessions 139.

In the fourteen years from 1935 to 1948, inclusive, there were 87,134 physicians added to the medical profession in the United States. Figures for each year during this period are presented in table 14 (page 311). Of the 87,134 additions, 76,628 were licensed after a successful written examination and 10,506 by reciprocity or endorsement of credentials. In the same period 143,684 licenses were issued, 88,097 by examination and 55,587 by endorsement of credentials. These figures indicate that 56,550 licenses were obtained by physicians who had previously been licensed to practice medicine and 87,134 were actual additions to the medical profession.

Estimated figures indicate that on April 15, 1949, the total number of physicians in continental United States was 202,516, of whom 151,888 were estimated as in private practice. The figure 202,516 includes licensed physicians engaged in full time research, teaching and administration. It also includes physicians who have retired, interns and residents in hospitals, and those in the government services.

Licensure Under the Accelerated Program

During 1947-1948 the medical school calendars of three schools in the United States and one in Canada were somewhat irregular as a result of the wartime accelerated program. One school plans to continue the accelerated program. The majority of physicians who obtained their professional education under this plan have experienced no difficulty in obtaining licensure.

Premedical Training Requirement of Licensing Boards

The minimum requirement of the Council on Medical Education and Hospitals for admission to approved medical schools since 1918 has been two years of college training. In 1938 the Council recommended that at least three years of college training be required

1. J. A. M. A. 139:4 (Jan. 22) 1949.

2. J. A. M. A. 137:7 (June 12) 1948.

TABLE 11.—Candidates Licensed by

Marginal Number	SCHOOL	Alabama	Arizona	Arkansas	California	Colorado	Connecticut	Delaware	Dist. Columbia	Florida	Georgia	Idaho	Illinois	Indiana	Iowa	Kansas	Kentucky	Louisiana	Maine	Maryland
1	Medical College of Alabama, Birmingham.....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1
2	University of Arkansas School of Medicine, Little Rock....	..	2	1	8	..	1	..	..	..	2	..	..	2	2	1	2	3	..	..
3	Univ. of California Med. School, Berkeley-San Francisco..	..	..	..	2	..	1	..	3	..	..	..	1	..	4	..	..	..	..	3
4	College of Medical Evangelists, Loma Linda-Los Angeles..	..	6	1	12	2	..	..	1	..	..	3	1	..	2	1	..	..	2	2
5	Univ. of Southern California School of Med., Los Angeles..	..	2	..	2	..	..	..	..	..	..	..	1	..	..	..	1	1	..	..
6	Stanford University School of Medicine, Stanford Univ.- San Francisco.....	..	..	..	8	1	1	..	..	..	..	..	..	..	..	1	..	..	..	..
7	University of Colorado School of Medicine, Denver.....	..	4	..	22	7	1	..	1	..	..	..	3	1	1	..	..	..	..	..
8	Yale University School of Medicine, New Haven.....	1	1	1	15	..	26	..	1	..	..	..	3	1	..	1	2	1	..	4
9	George Washington University School of Med., Washington	..	2	2	18	1	2	2	32	..	2	2	3	2	1	..	..	3	..	10
10	Georgetown University School of Medicine, Washington....	1	1	..	11	..	4	..	20	..	..	..	..	..	1	..	1	..	1	17
11	Howard University College of Medicine, Washington.....	1	..	1	6	1	..	..	10	..	..	..	..	1	..	2	1	..	..	3
12	University of Georgia School of Medicine, Augusta.....	6	..	..	1	1	2	..	..	..	..	..	..	1	..	..	2	..	..	1
13	Emory University School of Medicine, Emory University..	7	..	..	4	..	..	..	..	..	1	..	..	..	1	..	2	2	..	1
14	Northwestern University Medical School, Chicago.....	2	8	2	63	3	2	..	1	..	2	1	26	10	6	1	1	1	1	1
15	Stritch School of Medicine of Loyola University, Chicago..	..	3	1	29	..	..	..	..	..	..	..	5	3	5	..	2	..	..	1
16	University of Chicago, The School of Medicine, Chicago....	1	1	..	18	1	1	..	..	..	2	..	7	3	3	2	1	..	..	2
17	University of Illinois College of Medicine, Chicago.....	..	5	1	123	4	..	..	1	..	2	..	6	17	4	2	1	1	1	3
18	Indiana Univ. School of Med., Bloomington-Indianapolis..	..	..	3	31	4	3	..	5	..	..	..	9	1	3	..	2	..	..	2
19	State University of Iowa College of Medicine, Iowa City...	..	3	1	23	3	..	..	1	..	..	..	3	2	20	2	1	3	..	..
20	University of Kansas School of Med., Lawrence-Kansas City	2	..	..	20	6	..	..	..	..	2	..	2	1	7	..	..	..	..	1
21	University of Louisville School of Medicine, Louisville.....	2	1	..	15	1	1	..	3	..	1	..	6	13	5	2	1	3	..	..
22	Louisiana State University School of Medicine, New Orleans	7	..	1	8	1	1	..	..	..	..	..	..	1	..	..	1	1	..	..
23	Tulane Univ. of Louisiana School of Med., New Orleans....	28	1	7	10	..	1	..	1	..	11	..	2	..	..	2	2	6	..	..
24	Johns Hopkins University School of Medicine, Baltimore..	2	..	4	13	3	6	..	8	..	4	..	6	..	2	..	1	..	2	3
25	University of Maryland School of Medicine and College of Physicians and Surgeons, Baltimore.....	1	1	1	15	1	..	1	6	..	5	..	3	2	1	..	..	1	1	6
26	Massachusetts School of Medicine, Boston.....	..	..	1	8	..	5	..	..	..	..	..	1	..	..	..	..	..	4	..
27	Harvard Medical School, Boston.....	5	2	..	23	3	14	..	8	..	3	1	8	3	3	4	2	2	3	3
28	Tufts College Medical School, Boston.....	..	1	..	12	3	12	..	3	..	..	..	5	1	..	..	..	10	1	..
29	University of Michigan Medical School, Ann Arbor.....	..	3	..	47	1	2	..	2	..	2	..	13	7	3	1	2	2	..	1
30	Wayne University College of Medicine, Detroit.....	..	3	..	31	1	2	..	1	..	..	..	3	3	2	1	..	..	..	1
31	University of Minnesota Medical School, Minneapolis.....	..	3	2	58	2	2	..	..	..	2	..	1	..	4	1	..	1	..	2
32	St. Louis University School of Medicine, St. Louis.....	1	1	..	23	4	1	..	1	..	..	..	14	9	3	..	1	1	1	2
33	Washington University School of Medicine, St. Louis.....	8	2	1	26	2	1	..	2	..	2	..	14	1	6	5	..	1	..	3
34	Creighton University School of Medicine, Omaha.....	..	..	1	16	3	..	..	..	..	1	..	5	1	4	1	..	..	..	..
35	University of Nebraska College of Medicine, Omaha.....	..	..	1	32	8	..	..	3	..	..	..	5	5	9	4	1	..	..	1
36	Albany Medical College, Albany.....	..	..	..	4	..	3	..	1	..	1	..	2	..	1	..	..	..	..	1
37	Long Island College of Medicine, Brooklyn.....	1	2	1	15	1	8	..	2	..	..	..	3	3	1	..	1	..	1	3
38	University of Buffalo School of Medicine, Buffalo.....	1	1	..	15	2	1	..	2	..	..	..	4	3	..	..	..	..	..	1
39	Columbia University College of Physicians and Surgeons, New York.....	1	1	..	14	2	17	..	1	..	1	..	4	2	2	2	..	1	1	6
40	Cornell University Medical College, New York.....	1	1	1	12	1	11	..	2	..	1	..	2	1	3	..	..	..	1	2
41	New York Medical College, Flower and Fifth Avenue Hos- pitals, New York.....	..	3	1	19	..	9	..	1	..	..	..	2	1	..	..	1	2	..	2
42	New York.....	2	3	1	45	2	10	..	5	..	..	..	3	1	3	..	..	..	1	2
43	Univ. of R.....	..	..	..	14	1	5	..	..	..	1	..	..	2	1	..	..	..	..	..
44	Syracuse University College of Medicine, Syracuse.....	1	1	..	7	1	..	..	..	..	..	..	..	..	..	..	..	..	..	2
45	Duke University School of Medicine, Durham.....	..	..	2	4	1	4	..	4	..	4	2	1	..	..	..	1	1	..	6
46	Bowman Gray School of Medicine of Wake Forest College, Winston-Salem.....	..	..	..	2	..	1	..	..	..	..	..	..	..	..	..	1	..	..	1
47	University of Cincinnati College of Medicine, Cincinnati...	1	..	1	18	..	1	..	3	..	1	..	2	3	3	..	9	3	..	2
48	Western Reserve University School of Medicine, Cleveland.	1	1	..	16	2	1	..	1	..	1	..	2	1	1	..	1	2	1	..
49	Ohio State University College of Medicine, Columbus.....	..	..	..	25	2	..	..	3	..	..	..	3	3	..	3	1	..	1	..
50	University of Oklahoma School of Med., Oklahoma City..	2	1	3	12	3	1	..	..	..	2	..	4	..	1	1	..	..	..	1
51	University of Oregon Medical School, Portland.....	..	2	..	22	..	..	..	..	..	..	2	..	..	1	1	..	..	..	..
52	Hahnemann Medical College and Hospital of Philadelphia.	2	1	..	10	..	5	..	2	..	..	..	2	1	..	..	..	..	2	4
53	Jefferson Medical College of Philadelphia.....	..	1	..	19	..	2	..	1	..	2	..	2	3	..	..	2	..	2	4
54	Temple University School of Medicine, Philadelphia.....	1	1	..	15	..	2	..	2	..	..	..	1	1	1	..	..	..	2	2
55	University of Pennsylvania School of Med., Philadelphia...	3	..	..	17	1	6	1	3	..	3	..	2	..	2	2	1	3	5	5
56	Woman's Medical College of Pennsylvania, Philadelphia...	..	..	..	7	2	..	..	1	..	..	..	..	..	..	..	..	..	1	1
57	University of Pittsburgh School of Medicine, Pittsburgh..	..	..	..	19	1	2	..	1	..	..	..	2	1	1	..	..	2	..	1

Reciprocity and Endorsement, 1948

Massachusetts	Michigan	Minnesota	Mississippi	Missouri	Montana	Nebraska	Nevada	New Hampshire	New Jersey	New Mexico	New York	North Carolina	North Dakota	Ohio	Oklahoma	Oregon	Pennsylvania	Rhode Island	South Carolina	South Dakota	Tennessee	Texas	Utah	Vermont	Virginia	Washington	West Virginia	Wisconsin	Wyoming	Alaska, Hawaii, Puerto Rico	Totals	Marginal Numbers
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	2	1
..	..	..	1	6	1	2	..	..	2	1	1	2	..	1	7	1	..	..	..	2	3	1	..	..	2	..	..	..	1	59	2	
1	3	1	..	1	..	..	..	..	..	..	4	..	..	1	..	3	1	..	..	..	..	1	..	..	..	..	..	..	..	30	3	
2	4	1	..	..	..	..	..	..	..	1	1	4	..	3	..	8	1	..	..	..	..	5	1	..	3	7	..	..	..	90	4	
..	..	1	..	..	..	..	..	..	..	..	3	..	..	..	..	..	1	..	..	..	1	1	..	..	2	1	..	..	..	19	5	
1	..	2	..	..	2	1	..	..	..	..	1	1	..	..	..	1	2	..	..	..	1	..	1	..	..	3	..	..	..	27	6	
..	2	..	..	4	..	..	..	1	..	3	2	1	..	3	1	..	2	..	..	1	2	2	1	..	..	2	..	..	2	69	7	
13	1	4	..	4	..	..	..	3	3	..	10	2	..	1	1	..	..	1	..	..	1	..	1	..	1	6	..	2	..	2	122	8
2	1	2	..	2	..	..	1	1	..	..	5	1	..	4	..	1	8	..	..	..	2	3	3	1	24	4	..	1	..	3	160	9
6	3	1	..	..	..	..	..	5	6	2	20	..	1	6	..	..	6	..	1	1	..	1	..	..	7	1	4	1	..	148	10	
..	6	..	2	1	..	..	..	..	..	..	13	2	..	1	1	..	2	..	..	..	..	..	..	2	..	1	..	..	1	57	11	
..	1	..	..	1	..	..	..	..	..	..	1	3	..	2	2	..	..	..	..	4	..	1	2	..	..	1	..	1	..	34	12	
..	..	..	1	1	..	..	..	..	..	..	1	4	..	1	1	..	..	..	3	..	1	3	..	..	3	..	..	1	..	38	13	
5	10	6	..	5	..	2	3	1	2	3	9	3	4	5	2	5	..	..	..	4	..	19	2	..	..	13	1	7	2	1	245	14
2	3	1	..	..	1	1	..	..	1	..	3	1	..	6	..	1	1	1	..	..	8	8	..	..	1	..	..	5	..	86	15	
3	12	3	1	1	3	1	..	..	..	..	2	1	1	1	1	2	1	1	..	1	3	2	1	..	..	4	1	4	..	79	16	
..	..	..	..	1	4	1	..	..	..	1	4	1	2	7	6	2	..	..	..	1	3	10	3	..	1	1	15	..	..	252	17	
4	11	1	..	1	..	..	2	..	3	1	5	..	..	8	..	2	2	..	..	3	1	11	..	..	1	1	2	3	..	125	18	
..	11	2	..	6	1	4	..	1	..	1	4	..	2	3	3	3	2	..	..	4	..	2	..	..	2	4	1	4	..	131	19	
..	9	..	..	30	4	3	1	..	..	..	1	..	..	4	7	3	1	..	..	..	2	12	3	1	..	..	..	2	..	120	20	
..	8	3	2	6	1	1	..	..	..	1	4	5	..	15	..	..	..	..	..	1	5	7	3	..	1	1	2	3	..	123	21	
..	1	1	7	2	1	..	..	..	1	..	2	..	..	1	2	2	..	..	1	..	2	17	..	..	1	1	..	1	..	64	22	
2	4	4	10	2	..	..	..	..	5	..	17	6	..	..	3	1	1	..	3	..	3	30	1	..	1	1	1	1	1	1	168	23
5	4	1	..	2	..	..	..	1	3	..	12	5	..	6	..	1	5	..	1	..	1	6	..	..	3	3	1	..	..	114	24	
3	1	..	1	2	..	..	..	..	5	..	10	3	..	2	2	..	8	..	3	..	1	8	..	..	4	2	7	1	..	1	111	25
39	1	1	1	2	..	..	..	2	5	..	11	..	..	2	1	..	4	2	..	..	..	..	1	1	..	1	..	..	1	94	26	
66	5	15	1	6	..	1	..	4	7	..	30	7	..	5	1	4	10	3	1	..	3	6	3	2	..	8	2	4	2	2	305	27
66	1	2	1	..	..	..	..	12	1	..	11	1	1	2	..	..	1	8	..	..	1	6	..	..	3	1	..	..	1	187	28	
2	..	2	..	..	2	..	..	3	3	2	6	2	..	17	3	2	6	..	..	..	3	3	2	..	10	..	3	..	1	158	29	
1	..	2	..	1	..	2	..	..	..	..	6	2	..	3	1	..	..	..	..	..	..	4	..	..	..	2	..	1	..	74	30	
1	13	3	..	..	11	3	1	..	1	1	7	1	3	3	2	11	4	..	..	7	..	4	2	..	..	3	2	10	1	1	173	31
3	5	8	..	1	3	1	2	1	8	..	8	..	..	27	2	4	3	..	..	..	2	4	1	..	..	14	..	3	1	..	163	32
3	8	..	3	2	3	2	..	..	7	3	3	3	..	5	4	1	1	..	..	..	1	15	2	1	..	10	1	2	2	..	153	33
1	2	2	..	1	2	8	..	..	2	..	1	..	..	2	..	2	1	..	..	7	..	4	2	..	..	1	..	..	1	71	34	
..	10	7	..	4	1	..	..	1	..	..	4	1	..	4	3	9	1	..	1	3	2	8	..	..	..	4	..	3	3	..	138	35
2	4	..	..	..	..	..	..	2	3	..	40	..	..	1	..	..	1	..	1	..	2	..	..	..	..	..	..	..	..	69	36	
8	2	..	..	1	..	..	..	2	18	1	69	2	..	5	..	..	1	..	..	..	..	2	..	1	4	2	..	1	1	3	167	37
3	3	..	1	..	..	..	..	..	2	..	60	1	..	4	1	..	3	..	..	..	..	2	..	..	..	1	1	..	..	112	38	
14	2	5	..	2	..	..	2	4	21	2	64	2	..	7	..	2	5	1	1	..	2	3	1	2	2	..	1	2	..	3	205	39
6	3	1	1	1	..	..	4	10	1	49	2	..	1	1	1	4	1	1	..	..	3	1	..	1	1	..	1	1	..	..	133	40
7	1	2	..	..	..	..	..	..	17	1	92	..	..	3	..	..	2	1	..	..	..	5	..	1	1	2	1	..	1	179	41	
13	1	2	..	2	..	1	..	3	14	1	84	..	..	..	1	..	2	9	1	..	..	9	1	..	1	2	1	3	2	..	231	42
5	2	1	1	..	1	..	..	..	1	..	32	2	..	7	1	1	2	..	..	..	1	4	..	..	3	1	..	1	..	90	43	
3	..	2	..	1	..	..	1	..	3	..	26	1	..	2	1	..	4	..	1	..	..	1	..	..	1	1	..	..	..	60	44	
3	5	..	..	..	..	..	1	..	2	..	7	21	1	9	..	..	5	..	4	..	4	1	..	1	9	2	2	..	1	..	108	45
..	..	..	..	..	..	..	..	..	..	..	2	1	..	..	..	..	1	..	..	..	..	..	..	..	2	..	..	..	..	..	11	46
3	6	2	..	2	..	..	..	..	3	..	3	2	..	2	1	..	2	..	1	..	1	5	1	..	1	..	1	2	..	..	85	47
..	8	1	..	..	..	..	1	..	2	1	3	1	..	2	1	..	5	..	..	..	..	5	..	..	1	3	..	..	..	65	48	
1	7	1	..	1	..	2	..	..	..	2	3	2	..	..	..	..	1	1	..	..	2	6	..	..	1	1	..	..	..	72	49	
1	1	1	..	2	..	..	..	..	1	..	1	..	4	..	4	..	..	..	..	..	..	16	..	..	1	..	..	2	1	..	66	50
..	2	1	..	..	1	..	..	..	..	..	..	1	..	1	..	14	..	..	..	..	..	..	1	..	..	14	..	..	..	1	64	51
2	4																															

TABLE 11.—Candidates Licensed by Reciprocity

Marginal Number	SCHOOL	Alabama	Arizona	Arkansas	California	Colorado	Connecticut	Delaware	Dist. Columbia	Florida	Georgia	Idaho	Illinois	Indiana	Iowa	Kansas	Kentucky	Louisiana	Maine	Maryland
	SOUTH CAROLINA																			
58	Medical College of the State of South Carolina, Charleston	2	1	..	2	1	..	..	1	..	3	..	..	..	..	..	..	..	..	1
	TENNESSEE																			
59	University of Tennessee College of Medicine, Memphis.....	11	1	15	11	4	..	..	3	..	8	..	3	3	2	2	0	10	..	2
60	Meharry Medical College, Nashville.....	4	..	1	12	..	..	..	4	..	1	..	2	..	..	..	1	..	..	..
61	Vanderbilt University School of Medicine, Nashville.....	7	..	2	5	..	1	..	1	..	6	..	2	2	..	..	6	5	..	1
	TEXAS																			
62	Southwestern Medical College, Dallas.....	..	1	..	2	..	..	..	1	..	..	..	..	..	..	..	..	1	..	..
63	University of Texas School of Medicine, Galveston.....	..	1	..	9	2	..	..	3	..	1	..	2	2	4	..	1	5	..	..
64	Baylor University College of Medicine, Houston.....	1	..	..	4	..	..	..	1	..	1	..	..	..	..	2	..	4	..	..
	UTAH																			
65	University of Utah School of Medicine, Salt Lake City.....	..	..	..	6	..	..	..	..	..	..	..	1	..	2	..	..	..	..	..
	VERMONT																			
66	University of Vermont College of Medicine, Burlington....	..	1	..	6	..	9	..	1	..	..	1	..	3	..	1	..	..	..	2
	VIRGINIA																			
67	University of Virginia Dept. of Medicine, Charlottesville...	5	..	1	11	..	2	..	6	..	3	..	1	2	..	..	2	1	..	4
68	Medical College of Virginia, Richmond.....	1	..	1	11	1	2	1	5	..	5	..	1	..	3	..	1	..	1	3
	WISCONSIN																			
69	University of Wisconsin Medical School, Madison.....	..	2	1	15	1	2	..	3	..	..	..	9	2	1	3	..	..	..	1
70	Marquette University School of Medicine, Milwaukee.....	..	4	..	24	1	1	..	..	..	1	..	7	3	..	2	..	..	..	1
	CANADA																			
71	University of Alberta Faculty of Med., Edmonton, Alta...	..	..	..	1	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..
72	University of Manitoba Faculty of Med., Winnipeg, Man...	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
73	Dalhousie University Faculty of Medicine, Halifax, N. S...	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
74	University of Toronto Faculty of Med., Toronto 5, Ont....	..	..	..	9	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..
75	Queen's University Faculty of Medicine, Kingston, Ont....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
76	Univ. of Western Ontario Faculty of Med., London, Ont...	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..
77	McGill University Faculty of Medicine, Montreal, Que....	..	3	..	7	..	2	1	2	..	..	..	1	..	1	..	..	2	..	..
78	University of Montreal Faculty of Med., Montreal, Que....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
79	Laval University Faculty of Medicine, Quebec, Que.....	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..
	OTHERS																			
80	Foreign Medical Faculties.....	..	1	..	6	..	12	..	4	..	1	..	..	1	4	..	1	..	2	1
81	Extinct Medical Schools.....	1	6	..	42	4	1	..	2	..	..	..	7	4	2	1	2	1	1	1
82	Unapproved Schools and Schools of Osteopathy.....	..	1	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..
83	Totals	125	97	64	1,270	103	214	6	207	0	91	12	234	137	151	55	72	72	47	149
	Marginal Numbers	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19

of all candidates for admission. With the exception of California, the state licensing boards (table 15), by statute in the majority of instances, require that an applicant for licensure must present evidence of having completed two years of college. For the session 1947-1948, seventy-five approved schools in the United States and three in Canada required for admission three or more years of college work.

Required Internship

The medical schools requiring an internship for the M.D. degree are shown in table 16. Six schools in the United States and four in Canada have this requirement.

The internship is a requirement for licensure by the state examining boards of twenty-four states, the District of Columbia, Alaska, the Canal Zone, Hawaii, Puerto Rico and the Virgin Islands. Fifteen boards require the internship to be a rotating service. Puerto Rico has a two year rotating internship requirement. The boards enforcing this regulation are listed in table 17. In addition, some states require the internship for graduates of medical faculties abroad and from reciprocity or endorsement applicants.

The hospitals approved for intern training by the Council on Medical Education and Hospitals of the American Medical Association are generally acceptable in those states requiring an internship for licensure. The current list of approved internships was published in the May 14, 1949, issue of THE JOURNAL.

Licensure Requirements for Interns and Residents

In the majority of states, physicians serving internships are not required to be licensed in the state in which the hospital where they are interning is located. The legal requirements for physicians engaged in residency training varies. Some states do not enforce a licensure regulation. A number of states, however, consider that residents are practicing medicine and require that such persons possess a license in the state. In some instances the boards permit a physician to engage in internship or residency training for a specified period before obtaining licensure. The specifications of each state are given in table 18.

Professional Educational Requirements of Licensing Boards

The medical practice acts or board rulings of several state medical boards state in terms of hours, weeks or months the length of the medical school academic year, as well as the total time in hours, weeks or months which must be spent in medical school. In other states the law or ruling reads that the professional educational requirement accepted for approval by the Council on Medical Education and Hospitals of the American Medical Association and the Association of American Medical Colleges is the regulation for licensure. Table 19 outlines the requirement of each state in this respect. This table does not record the internship which is a requirement for licensure by thirty boards. (See table 17.)

and Endorsement, 1948—Continued

Massachusetts	Michigan	Minnesota	Mississippi	Missouri	Montana	Nebraska	Nevada	New Hampshire	New Jersey	New Mexico	New York	North Carolina	North Dakota	Ohio	Oklahoma	Oregon	Pennsylvania	Rhode Island	South Carolina	South Dakota	Tennessee	Texas	Utah	Vermont	Virginia	Washington	West Virginia	Wisconsin	Wyoming	Puerto Rico Alaska, Hawaii	Totals	Marginal Number
1	2	..	..	..	1	..	..	..	..	..	1	10	..	..	..	..	..	..	..	..	2	..	..	2	..	2	..	..	..	31	58	
..	3	..	10	6	1	..	..	..	..	2	..	4	..	1	10	2	1	..	..	1	10	17	1	..	2	2	2	..	..	159	59	
..	5	..	3	8	..	..	..	..	3	..	2	3	..	10	3	1	2	..	..	1	1	4	..	..	5	..	1	..	..	77	60	
..	2	1	1	..	..	..	..	..	..	6	3	..	3	3	..	..	..	..	1	..	12	..	..	4	1	2	..	..	..	77	61	
..	1	7	..	..	..	1	..	..	..	3	3	..	..	..	1	..	1	..	1	..	1	2	..	..	1	..	..	..	..	7	62	
1	2	..	2	2	..	..	..	..	1	1	1	1	2	2	2	1	..	..	..	..	..	..	..	..	..	..	..	..	1	59	63	
..	..	1	..	1	1	..	1	..	..	..	..	..	..	..	..	..	1	..	..	..	..	2	..	..	1	..	..	1	..	18	65	
10	2	1	..	..	..	..	..	8	2	1	10	3	..	1	..	1	3	..	..	1	..	3	..	13	1	2	2	..	..	83	66	
2	2	..	1	1	..	..	..	5	..	11	9	..	..	1	1	1	1	..	3	..	4	6	..	..	2	2	4	1	..	..	94	67
1	1	..	..	2	1	1	..	3	..	6	8	..	3	..	1	4	..	..	1	3	7	..	..	4	1	9	1	..	..	93	68	
1	4	5	..	3	3	..	..	..	2	4	1	..	2	..	3	4	..	..	..	..	..	1	..	..	..	..	6	..	..	79	69	
1	8	1	..	..	1	..	..	..	..	10	1	..	2	..	2	3	..	..	..	..	1	3	..	..	2	2	10	2	1	94	70	
..	..	..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	71	
..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3	72	
..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	1	..	1	..	..	..	..	..	..	3	73	
..	..	..	2	..	..	..	1	..	..	6	..	..	..	..	..	..	..	..	..	..	2	..	..	2	..	..	..	..	..	23	74	
1	..	..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3	75	
..	..	..	..	..	..	..	..	..	1	2	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	6	76	
6	..	2	..	..	..	..	..	2	3	..	7	1	..	2	1	..	..	..	..	..	..	..	..	..	1	1	2	..	..	46	77	
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	0	78	
2	..	..	2	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	7	79	
2	..	..	..	..	..	..	..	1	9	1	48	..	..	16	..	..	..	..	..	..	9	..	..	2	..	..	..	1	1	119	80	
2	7	1	1	..	2	2	..	1	1	..	..	2	1	3	..	2	..	..	..	..	4	13	2	1	3	1	4	6	..	2	136	81
5	..	..	..	..	1	..	6	3	..	13	..	..	..	12	..	8	..	..	..	..	1	..	..	1	..	..	6	..	..	60	82	
392	253	121	55	137	56	41	25	71	247	49	950	156	23	286	87	120	208	21	36	37	94	371	51	30	123	160	75	131	27	36	7,584	83
20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50		

Schedule of Written Examination Dates and
Reciprocity Meetings

The current schedules of state licensing boards for examination for medical licensure and meetings for the issuance of licenses by reciprocity and/or endorsement are given in table 20. Examination dates and reciprocity meetings have in recent years been scheduled by many states at more frequent intervals to assist physicians to commence the practice of medicine without delay. This is particularly true with regard to the issuance of licenses without examination. The increase in the number of applicants for licensure in the last three years has added greatly to the duties and responsibilities of licensing boards, and they are to be commended for the excellent spirit in which they have attempted to meet the demand. In some states temporary permits are granted enabling physicians to begin the practice of medicine immediately.

Licensure on Government Credentials

In most of the states no provision is made in the medical practice act for the acceptance of government credentials as a basis for licensure without examination. Six licensing boards, however, will issue a license to a physician who has passed an examination for admission to the medical corps of the United States Army, Navy or Public Health Service. These states are California, Illinois, Texas, Utah, Virginia and Wisconsin. Legal residents of Pennsylvania who were qualified to take

the state board examination but were prevented from doing so by reason of enlistment or induction into the military or naval forces of the United States are licensed without examination in that state.

Temporary Permits

The licensing boards of fifteen states and Puerto Rico provide for the issuance of temporary permits. These states, the length of validity of the permit and the number of permits granted during the last calendar year are shown in table 21. Florida, Nevada, North Carolina, Utah and Washington discontinued this service in 1948, while Alaska and Idaho were added to the list. In Idaho the regulation will become effective July 1, 1949. In Nebraska and Virginia, temporary permits are available for reciprocity applicants only, while in Puerto Rico it applies to those in government positions.

Annual Registration

Thirty-one states, the District of Columbia, Alaska and Hawaii require physicians to register their licenses annually or biennially. In table 22 are listed the licensing boards which have such a requirement and the fee charged. Some of these boards require such registration whether or not physicians reside in the state. The fee ranges from \$1 to \$10. Six states have a non-resident fee. Missouri and New York require biennial registration. Annual registration of medical licenses will be effective in West Virginia on July 1, 1949.

Candidates Examined, 1944-1948

The numbers of candidates examined in the various states, territories and possessions in five years, 1944 to 1948, inclusive, are recorded in table 23. For each year there is recorded the number who passed and failed licensing examinations. Totals for the five year period and the percentage of candidates who failed are also given.

In this five year period 34,078 examinations were given. Of these, 30,461 were successful tests and 3,617, or 10.6 per cent, resulted in failures. New York gave the greatest number of examinations, 4,052. More than

TABLE 12.—*Licentiate Representing Additions to the Medical Profession, 1948*

	Examination	Reciprocity and Endorsement	Total
Alabama.....	94	6	100
Arizona.....	8	3	11
Arkansas.....	55	4	62
California.....	411	94	505
Colorado.....	65	14	79
Connecticut.....	28	89	117
Delaware.....	9	0	9
District of Columbia.....	29	65	94
Florida.....	65	0	65
Georgia.....	123	5	128
Idaho.....	9	1	10
Illinois.....	430	30	460
Indiana.....	95	11	106
Iowa.....	57	33	90
Kansas.....	57	3	60
Kentucky.....	57	6	63
Louisiana.....	171	0	171
Maine.....	21	10	31
Maryland.....	163	16	179
Massachusetts.....	48	234	282
Michigan.....	218	10	228
..	117	25	142
..	3	5	8
..	232	12	244
Montana.....	4	0	4
Nebraska.....	83	0	83
Nevada.....	2	0	2
New Hampshire.....	7	24	31
New Jersey.....	81	60	141
New Mexico.....	3	3	6
New York.....	338	661	999
North Carolina.....	104	19	123
North Dakota.....	11	11	22
Ohio.....	270	47	317
Oklahoma.....	73	1	74
Oregon.....	38	0	47
Pennsylvania.....	402	58	460
Rhode Island.....	12	11	23
South Carolina.....	56	1	57
South Dakota.....	9	0	9
Tennessee.....	137	4	141
Texas.....	232	16	248
Utah.....	41	4	45
Vermont.....	23	17	40
Virginia.....	134	8	142
Washington.....	53	29	82
West Virginia.....	27	6	33
Wisconsin.....	167	17	184
Wyoming.....	0	1	1
Alaska, Hawaii and Puerto Rico.....	28	11	39
Totals.....	4,903	1,694	6,597

2,000 examinations were also given in California, Illinois and Pennsylvania, and more than 1,000 candidates were examined by the licensing boards of Florida, Louisiana, Minnesota, Missouri, Ohio and Texas.

Massachusetts had the highest percentage of failures owing to the fact that, by law, the licensing board admitted to its examinations the graduates of unapproved medical schools and graduates of schools of osteopathy, many of whom repeatedly fail. The number failing in this state in 1948 was the lowest in the five year period and will probably still further decrease because of the closure of schools whose graduates constituted a great majority of the failures. Furthermore, the State Approving Authority has ruled that students matriculating after Jan. 1, 1941 in institutions not meeting the standards of this authority will not be eligible for licensure.

New York had a failure percentage in the five year period of 45.6. This state examines a considerable number of foreign trained physicians, many of whom are not successful in the first examination. Regula-

TABLE 13.—*Licentiate Representing Additions to the Medical Profession Grouped in Geographic Divisions, 1948*

	Examination	Reciprocity and Endorsement	Total
New England			
Maine.....	21	10	31
New Hampshire.....	7	24	31
Vermont.....	23	17	40
Massachusetts.....	48	234	282
Rhode Island.....	12	11	23
Connecticut.....	28	89	117
	139	385	524
Middle Atlantic			
New York.....	338	661	999
New Jersey.....	81	60	141
Pennsylvania.....	402	58	460
	821	779	1,600
East North Central			
Ohio.....	270	47	317
Indiana.....	95	11	106
Illinois.....	430	30	460
Michigan.....	218	10	228
Wisconsin.....	167	17	184
	1,180	115	1,295
West North Central			
Minnesota.....	117	25	142
Iowa.....	57	33	90
Missouri.....	232	12	244
North Dakota.....	11	11	22
South Dakota.....	9	0	9
Nebraska.....	83	0	83
Kansas.....	57	3	60
	566	84	650
South Atlantic			
Delaware.....	9	0	9
Maryland.....	163	16	179
District of Columbia.....	29	65	94
Virginia.....	134	8	142
West Virginia.....	27	6	33
North Carolina.....	104	19	123
South Carolina.....	56	1	57
Georgia.....	123	5	128
Florida.....	65	0	65
	710	120	830
East South Central			
Kentucky.....	57	6	63
Tennessee.....	137	4	141
Alabama.....	94	6	100
Mississippi.....	3	5	8
	291	21	312
West South Central			
Arkansas.....	58	4	62
Louisiana.....	171	0	171
Oklahoma.....	73	1	74
Texas.....	232	16	248
	534	21	555
Mountain			
Montana.....	4	0	4
Idaho.....	9	1	10
Wyoming.....	0	1	1
Colorado.....	65	14	79
New Mexico.....	3	3	6
Arizona.....	8	3	11
Utah.....	41	4	45
Nevada.....	2	0	2
	132	26	158
Pacific			
Washington.....	53	29	82
Oregon.....	38	9	47
California.....	411	94	505
	502	132	634
Territories and Possessions			
Alaska, Hawaii and Puerto Rico.....	28	11	39
Totals.....	4,903	1,694	6,597

tions admitting certain graduates of unapproved and osteopathic schools to its licensure examinations also resulted in a high percentage of failures in recent years.

written examination method. Table 14 gives the correct compilation of the number of physicians representing additions to the medical profession.

TABLE 17.—*Medical Licensing Boards Requiring a One Year Internship**

Alabama	Michigan†	Puerto Rico†
Alaska	Montana	Rhode Island†
Arizona	Nevada	South Dakota
Canal Zone†	New Hampshire	Utah†
Delaware†	New Jersey†	Vermont†
District of Columbia	New Mexico	Virgin Islands
Hawaii†	North Dakota†	Washington†
Idaho†	Oklahoma	West Virginia
Illinois†	Oregon	Wisconsin
Iowa†	Pennsylvania†	Wyoming

Two year rotating internship required.

Licensure in State Required for	
Interns	Residents
1. <u>Medical School Graduation</u> 2. <u>Medical School Accreditation</u> 3. <u>Medical Board Examination</u> 4. <u>Medical License</u>	1. <u>Medical School Graduation</u> 2. <u>Medical School Accreditation</u> 3. <u>Medical Board Examination</u> 4. <u>Medical License</u> 5. <u>Residency Training</u>

Alabama.....	No	No
Arizona.....	No	No
Arkansas.....	No	Yes
California.....	No ¹	Yes ²
Colorado.....	No	No
Connecticut.....	No ³	No ³
Delaware.....	No ¹	No ⁴
District of Columbia.....	No	Yes
Florida.....	No	Yes
Georgia.....	Yes	Yes
Idaho.....	No	No
Illinois.....	No	Yes
Indiana.....	No	Yes
Iowa.....	No	Yes
Kansas.....	No	Yes
Kentucky.....	No	No
Louisiana.....	No	Yes
Maine.....	No	Yes
".....	No ³	No ³
".....	Yes	Yes
".....	No	Yes
".....	No	Yes
Mississippi.....	No	No
Missouri.....	No	No
Montana.....	No	No
Nebraska.....	No	No
Nevada.....	Yes	Yes
New Hampshire.....	No	No
New Jersey.....	No ³	No ²
New Mexico.....	No	Yes
New York.....	No	No
North Carolina.....	No	Yes
North Dakota.....	Yes	Yes
Ohio.....	No	Yes
Oklahoma.....	No	No
Oregon.....	No	No
".....	No	Yes
".....	No	No
".....	No	Yes
".....	No	No
".....	No	No
Utah.....	No	No
Vermont.....	No	No
Virginia.....	No ⁶	No ⁶
Washington.....	No	No
West Virginia.....	No	No
Wisconsin.....	No	Yes
Wyoming.....	No	No
Alaska.....	No	No
Canal Zone.....	No	No
Hawaii.....	No	No
Puerto Rico.....	Yes	Yes
Virgin Islands.....	No	No

Two Years or More of College

Alabama	Louisiana	Oklahoma
Alaska	Maine	Oregon
Arizona	Maryland	Pennsylvania
Arkansas	Massachusetts	Puerto Rico
Canal Zone	Michigan	Rhode Island
Colorado	Minnesota	South Carolina
Connecticut	Mississippi	South Dakota
Delaware	Missouri	Tennessee
District of Columbia	Montana	Texas
Florida	Nebraska	Utah
Georgia	Nevada	Vermont
Hawaii	New Hampshire	Virgin Islands
Idaho	New Jersey	Virginia
Illinois	New Mexico	Washington
Indiana	New York	West Virginia
Iowa	North Carolina	Wisconsin
Kansas	North Dakota	Wyoming
Kentucky	Ohio	
	One Year of College	
	California	

TABLE 16.—*Medical Schools Requiring an Internship*

UNITED STATES

College of Medical Evangelists
University of Southern California School of Medicine
Stanford University School of Medicine
Northwestern University Medical School
University of Minnesota Medical School
Duke University School of Medicine *

CANADA

University of Manitoba Faculty of Medicine
Dalhousie University Faculty of Medicine
University of Montreal Faculty of Medicine
Queen's University Faculty of Medicine #

* Degree not withheld until internship completed.
Effective September 1947.

1. Physician registered with state board may serve as intern not to exceed two years without licensure.
2. May commence residency before licensure.
3. Required by some hospitals.
4. Registration with state board required.
5. May have service of two years without licensure.
6. May have service of three years without licensure.

Registration of Physicians, 1904-1948

A tabulation of totals and percentages for forty-five years from 1904 to 1948, inclusive, is included in table 24. This study contains figures pertaining to the num-

ber of physicians registered by written examination and by reciprocity and/or endorsement, of credentials. There is also shown the numbers who failed annually in forty-five years, as well as the percentage of failures each year and, lastly, the total annual registration. Reviewing the number of physicians registered since 1904 reveals no definite trend in earlier years. In 1918,

practice. In 1943 more physicians were registered than in any previous year.

The number registered in 1946 was almost double the number registered in 1945. Separation from service of a large number of medical officers and their return to private practice in states other than those in which they were licensed accounts in large part for this

TABLE 19.—Professional Educational Requirements by Medical Licensing Boards

	Length of Medical School Academic Year						Total Time Spent in Medical School (Registration to Graduation)						Same as A.A.M.C., and C.M.E. and H.*
	Hours	Weeks	Months	Same as Approved Medical Schools	Same as A.A.M.C., and C.M.E. and H.*	Not Specified by Board	Hours	Weeks	Months	Years	M.D. Degree		
Alabama.....	..	..	..	..	..	X	..	..	..	..	X	..	
Arizona.....	..	..	..	..	X	..	..	..	..	..	..	X	
Arkansas.....	..	..	9	..	..	..	..	..	..	4	..	..	
California.....	..	32	..	..	..	..	4,000	..	..	4	..	..	
Colorado.....	..	..	..	..	..	X	..	..	..	..	X	..	
Connecticut.....	..	32	..	..	..	..	..	128	..	4	..	..	
Delaware.....	..	..	..	..	..	X	..	..	..	..	X	..	
District of Columbia.....	..	..	9	..	..	..	..	..	..	4	..	..	
Florida.....	..	..	9	..	..	..	..	..	..	4	..	..	
Georgia.....	..	..	9	..	..	..	..	..	..	4	..	..	
Idaho.....	..	..	9	..	..	..	..	..	..	4	..	..	
Illinois.....	..	..	9	..	..	..	..	..	36	..	..	..	
Indiana.....	..	..	8	..	..	..	..	..	42	..	..	..	
Iowa.....	..	..	9	..	..	..	..	..	..	4	..	..	
Kansas.....	..	..	..	..	..	X	..	..	..	4	..	..	
Kentucky.....	..	..	8½	..	..	..	..	..	..	4	..	..	
Louisiana.....	..	..	..	..	X	..	..	..	..	..	X	X	
Maine.....	..	36	..	..	..	..	..	..	..	4	..	..	
Maryland.....	..	..	..	..	X	..	..	..	..	4	..	X	
Massachusetts.....	..	32	..	..	..	..	..	128	..	4	..	..	
Michigan.....	..	32	..	..	..	..	..	..	36	..	..	..	
Minnesota.....	..	36	..	..	..	..	..	..	..	4	..	..	
Mississippi.....	..	32	..	..	..	..	..	128	..	4	..	..	
Missouri.....	..	32	..	..	..	..	..	..	..	4	..	..	
Montana.....	..	..	..	X	..	..	..	..	..	..	X	X	
Nebraska.....	..	..	9	..	..	..	..	..	..	4	..	..	
Nevada.....	..	..	9	..	..	..	..	..	..	4	..	..	
New Hampshire.....	..	..	..	..	..	X	..	..	..	4	..	..	
New Jersey.....	..	..	8	..	..	..	..	..	..	4	..	..	
New Mexico.....	..	..	..	X	..	..	..	..	..	..	X	X	
New York.....	..	..	8	..	..	..	..	..	..	4	..	..	
North Carolina.....	..	..	9	..	..	..	..	..	..	4	..	..	
North Dakota.....	..	..	9	..	..	..	..	..	..	4	..	..	
Ohio.....	..	..	9	..	..	..	..	..	..	4	..	..	
Oklahoma.....	..	..	9	..	..	..	..	..	..	4	..	..	
Oregon.....	..	..	8	..	..	..	..	..	..	4	..	..	
Pennsylvania.....	..	32	..	..	..	..	..	..	..	4	..	..	
Rhode Island.....	..	..	..	..	..	X	..	..	..	..	X	..	
South Carolina.....	..	..	9	..	..	..	..	..	..	4	..	..	
South Dakota.....	..	..	8	..	..	..	..	..	..	4	..	..	
Tennessee.....	..	..	9	..	..	..	..	..	..	4	..	..	
Texas.....	..	..	8	..	..	..	..	..	..	4	..	..	
Utah.....	..	..	9	..	..	..	..	..	..	4	..	..	
Vermont.....	900	..	..	..	..	..	..	..	..	4	..	..	
Virginia.....	..	32	8	..	..	..	..	..	..	4	..	..	
Washington.....	..	..	9	..	..	..	..	..	..	4	..	..	
West Virginia.....	..	..	..	..	..	X	..	..	..	..	X	..	
Wisconsin.....	..	..	..	..	..	X	..	..	..	4	..	..	
Wyoming.....	..	..	9	..	..	..	..	..	..	4	..	..	
Alaska.....	..	..	..	..	X	..	..	..	..	..	..	X	
Canal Zone.....	..	..	10	..	..	..	..	..	..	4	X	..	
Hawaii.....	..	..	..	..	X	..	..	..	..	..	..	X	
Puerto Rico.....	..	..	..	..	X	..	..	..	..	..	..	X	
Virgin Islands.....	..	..	..	..	X	..	..	..	..	X	..	X	

* Association of American Medical Colleges and Council on Medical Education and Hospitals of the American Medical Association.
x In columns 5 and 13 implies requirements are those of the two accrediting agencies.

however, there was a decrease of more than 1,200 from the previous year. This decrease was due to the sudden withdrawal of physicians and recent graduates from civilian life during World War I. After 1933 there was an upward trend for a time, followed by a decline in the years 1940 to 1943, inclusive. There was a noticeable increase in 1943 which was the result of the accelerated curriculum and the universal effort on the part of the medical leaders of the country to maintain a steady flow of physicians for both civilian and military

increase. This increase was also evident in 1947 and 1948, although the numbers registered were fewer than in 1946.

In 1904, the first year shown, the percentage of failures was 19.3. This was the era of proprietary medical schools. The percentage of failures gradually dropped each year until 1930, when 5.7 per cent failed. With the migration of European physicians to this country beginning in 1936 and the resultant licensure difficulties, the percentage of failures began to rise,

reaching another peak of 20.7 per cent in 1940. Beginning in 1944 there was a decrease in the numbers of foreign trained physicians and graduates of unapproved medical schools which has resulted in a reduction in the annual percentage of failures as contrasted with previous years.

In analyzing this table it should be remembered that the figures refer to examinations given rather than individuals examined.

TABLE 20.—Schedule of Written Examination Dates and Issuance of Licenses by Reciprocity or Endorsement of Credentials .

	Written Examination	Licenses by Reciprocity or Endorsement Issued
Alabama.....	Once Annually	Continuously
Arizona.....	Quarterly	Quarterly
Arkansas.....	Semi-annually	Continuously
California.....	Feb., June, Aug., Oct.	Six meetings annually
Colorado.....	Semi-annually	Quarterly
Connecticut.....	Mar., July and Nov.	Continuously
Delaware.....	Jan. and July	Jan. and July
District of Columbia..	Semi-annually	Quarterly
Florida.....	June and Nov.	None
Georgia.....	June and Oct.	Quarterly
Idaho.....	Jan. and July	Jan. and July
Illinois.....	Quarterly	Quarterly
Indiana.....	Annually—June	Every 6 weeks
Iowa.....	June and Dec.	Every 2 months
Kansas.....	Semi-annually	Semi-annually
Kentucky.....	Semi-annually	Continuously
Louisiana.....	June and Dec.	June and Dec.
Maine.....	Mar., July and Nov.	Mar., July and Nov.
Maryland.....	June and Dec.	Continuously
Massachusetts.....	Mar., July and Nov.	Every month
Michigan.....	June and Oct.	Continuously
Minnesota.....	Quarterly	Quarterly
Mississippi.....	June	June and Dec.
Missouri.....	Semi-annually	Six to 8 times annually
Montana.....	Semi-annually	Semi-annually
Nebraska.....	Semi-annually	Continuously
Nevada.....	Semi-annually	Semi-annually
New Hampshire.....	Mar. and Dec.	Mar. and Dec.
New Jersey.....	June and Oct.	Monthly
New Mexico.....	Semi-annually	Semi-annually
New York.....	Three times annually	Continuously
North Carolina.....	June	Five times annually
North Dakota.....	Jan. and July	Jan. and July
Ohio.....	June and Dec.	Quarterly
Oklahoma.....	Once annually	Continuously
Oregon.....	Jan. and July	Quarterly
Pennsylvania.....	Jan. and July	Monthly
Rhode Island.....	Quarterly	Quarterly
South Carolina.....	June and Nov.	Monthly
South Dakota.....	Jan. and July	Jan. and July
Tennessee.....	Every 3 months	Continuously
Texas.....	June and Nov.	June and Nov.
Utah.....	Once annually—July	Quarterly
Vermont.....	Semi-annually	Continuously
Virginia.....	Semi-annually	Semi-annually
Washington.....	Semi-annually	Semi-annually
West Virginia.....	Quarterly	Quarterly
Wisconsin.....	Twice annually	Twice annually
Wyoming.....	Quarterly	Continuously
Alaska.....	Mar. and Sept.	Continuously
Canal Zone.....	As needed	As needed
Hawaii.....	Jan. and July	Continuously
Puerto Rico.....	Semi-annually	Semi-annually
Virgin Islands.....	Once Annually	Once annually

Graduates of Approved Schools and Others Registered, 1922-1948

In table 25 the numbers of physicians registered are grouped in two categories, namely, graduates of approved medical schools and others. In the computation of these figures, schools rated as class A and B by the Council on Medical Education and Hospitals of the American Medical Association since 1907 are classified as approved. In the column headed "Others" are included persons who graduated prior to 1907, when the first classification of medical schools was made by the Council, graduates of foreign faculties of medicine, class C graduates, osteopaths given recognition by medical licensing boards, and graduates of schools not approved by the Council. In 1928 the

classification A, B and C by the Council was discontinued and a list of approved medical schools has since been maintained.

In 1948 there were 13,424 candidates registered, of whom 12,721 or 94.8 per cent represented graduates of approved schools and 703 (5.2 per cent) were in the

TABLE 21.—Temporary Permits, 1948

State	Permit Valid for:	Permits Granted
Alaska	Six months	19
Arizona	Next board meeting	66
Georgia	Next board meeting	50
Idaho	Effective July 1, 1949	—
	Policy to be established	
Indiana	Six months	163
Kansas	Next board meeting	55
Kentucky	1-5 years (Limited License)	—
Louisiana	Next board meeting	73
Mississippi	Next board meeting	62
Nebraska ¹	Until licensure is perfected	8
New Hampshire	Varies	—
New Jersey	Four months	7
New Mexico	Next board meeting	—
Virginia ¹	Next board meeting	58
West Virginia	Next board meeting	16
Puerto Rico ²	Until 1950	18
Total.....		595

- 1. Reciprocity applicants.
- 2. Government positions only.

second group. In the twenty-seven year period 236,527 were registered, including 211,722 approved graduates, 89.6 per cent, and 24,805 others, 10.4 per cent. For the period shown, more than 80 per cent of those licensed have been in the approved group. Until the influx of foreign graduates in 1936 and concessions made for graduates of unapproved schools and schools of osteopathy, those in the second group were fewer than 1,000. The number registered in 1948 was 315 fewer than in 1947.

Graduates of Unapproved Schools Registered, 1943-1948

Recorded in table 26 are data regarding graduates of institutions which do not measure up to the minimal essentials of an acceptable medical school as outlined by the House of Delegates of the American Medical Association and administered by the Council on Medical Education and Hospitals. This table shows the number

TABLE 22.—States Requiring Annual Registration

	Fee		Fee		Fee
Alaska.....	\$10	Iowa.....	\$1	Oklahoma.....	\$ 3
Arizona.....	3	Kansas.....	1	Oregon.....	10
Arkansas.....	a	Louisiana.....	2	Pennsylvania.....	1
California.....	2	Minnesota.....	2	Tennessee.....	5
Colorado.....	b	Missouri *.....	1	Texas.....	2
Connecticut.....	2	Montana.....	4	Utah.....	3
Dist. of Columbia.	2	Nebraska.....	1	Virginia.....	1
Florida.....	1	Nevada.....	1	Washington.....	5
Georgia.....	None	New Mexico.....	2	West Virginia.....	3
Hawaii.....	2	New York *.....	4	Wisconsin.....	3
Idaho.....	10	North Dakota.....	c	Wyoming.....	2.50
Indiana.....	c				

- a. Residents \$2, nonresidents \$4.
- b. Residents \$2, nonresidents \$10.
- c. Residents \$3, nonresidents \$10.
- d. Residents \$5, nonresidents \$1.
- e. Residents \$5, nonresidents \$2.
- f. Residents \$2, nonresidents \$5.
- g. Effective July 1, 1949.
- * Biennial registration.

registered as medical licentiates in the United States and Hawaii by written examination and by reciprocity and/or endorsement of credentials in the past six years, 1943 to 1948 inclusive. Figures are given separately for these two groups. In the six years shown, nineteen states and Hawaii registered 1,176 by examination and

23 by endorsement. In 1948, there were 176 registered, 173 by examination and 3 without written examination in ten states, Arizona, Florida, Illinois, Massachusetts, Mississippi, Nebraska, New York, Ohio, Virginia and Washington.

Illinois, which accepted for licensure the graduates of one school not approved by the Council until late in 1948, New York and Florida, which have made certain concessions, and Massachusetts licensed the largest number of graduates of unapproved medical

TABLE 23.—Candidates Examined, 1944-1948

	1944		1945		1946		1947		1948		Totals for Five Years		
	P	F	P	F	P	F	P	F	P	F	P	F	%F
Alabama.....	20	0	23	0	20	0	97	0	16	2	176	2	1.1
Arizona.....	12	0	11	0	12	1	19	3	17	0	71	4	5.3
Arkansas.....	115	0	65	0	63	0	54	0	59	0	350	0	0.0
California.....	458	14	467	11	530	11	503	10	458	36	2,416	82	3.2
Colorado.....	79	3	66	0	77	0	95	0	72	2	389	5	1.2
Connecticut.....	34	18	31	12	55	10	49	17	32	7	201	64	24.1
Delaware.....	27	0	5	0	16	1	18	0	20	0	86	1	1.1
District of Columbia.....	26	2	20	1	41	0	39	0	33	3	159	6	3.6
Florida.....	130	9	198	37	373	62	314	17	301	26	1,316	151	10.2
Georgia.....	125	1	124	0	168	2	129	0	131	1	677	4	0.5
Idaho.....	15	0	18	0	54	0	62	0	51	0	200	0	0.0
Illinois.....	218	25	415	31	751	33	605	16	512	44	2,501	149	5.2
Indiana.....	126	0	231	0	139	16	111	12	99	2	706	30	4.0
Iowa.....	83	8	68	1	57	4	55	0	67	0	330	13	3.7
Kansas.....	179	0	101	0	102	0	86	0	67	0	535	0	0.0
Kentucky.....	78	0	76	0	166	0	90	0	69	0	470	0	0.0
Louisiana.....	255	4	208	1	189	1	225	1	182	0	1,059	7	0.6
Maine.....	13	3	9	3	45	4	31	2	31	3	129	15	11.2
Maryland.....	151	4	193	8	204	4	175	6	184	8	907	30	3.2
Massachusetts.....	162	261	124	175	89	163	84	140	65	111	524	850	69.1
Michigan.....	189	0	194	0	215	0	116	0	181	0	895	0	0.0
Minnesota.....	197	0	217	0	313	0	248	0	212	1	1,187	1	0.1
Mississippi.....	71	0	50	0	45	0	59	0	47	0	272	0	0.0
Missouri.....	207	0	238	1	251	1	265	0	238	0	1,219	2	0.1
Montana.....	3	0	2	0	17	0	8	0	10	1	40	1	2.4
Nebraska.....	81	11	74	7	81	5	87	3	84	16	407	42	9.3
Nevada.....	1	0	1	1	15	3	8	0	3	1	28	5	15.2
New Hampshire.....	9	4	6	1	20	4	10	0	10	1	55	10	15.2
New Jersey.....	104	11	95	9	116	5	89	13	90	22	494	60	8.8
New Mexico.....	0	0	0	0	1	0	1	0	3	0	5	0	0.0
New York.....	454	362	287	247	427	386	610	482	426	371	2,204	1,848	45.6
North Carolina.....	105	0	132	1	95	0	113	1	112	0	557	2	0.3
North Dakota.....	3	0	4	0	13	0	25	0	30	0	75	0	0.0
Ohio.....	329	25	325	13	340	10	297	3	322	7	1,613	58	3.4
Oklahoma.....	72	0	69	0	65	0	72	0	59	0	340	0	0.0
Oregon.....	11	5	10	1	50	3	80	0	48	0	208	9	4.2
Pennsylvania.....	833	20	426	13	463	3	437	3	448	6	2,627	45	1.6
Rhode Island.....	13	3	6	0	40	0	32	0	21	0	112	3	2.6
South Carolina.....	51	1	58	0	53	0	55	0	57	0	274	1	0.3
South Dakota.....	3	0	6	0	50	0	18	0	27	0	64	0	0.0
Tennessee.....	237	0	193	2	157	1	148	0	122	0	857	3	0.3
Texas.....	303	3	228	7	266	14	282	13	262	33	1,341	70	4.9
Utah.....	30	0	13	0	79	0	0	0	18	0	140	0	0.0
Vermont.....	7	0	2	0	5	0	27	1	16	0	57	1	1.8
Virginia.....	158	9	39	2	174	2	130	4	136	4	637	21	3.1
Washington.....	76	0	35	0	130	0	116	0	110	0	467	0	0.0
West Virginia.....	24	0	20	0	64	0	40	0	55	0	203	0	0.0
Wisconsin.....	74	0	96	0	123	1	143	0	182	7	618	8	1.2
Wyoming.....	0	0	0	0	0	0	0	0	0	0	0	0	0.0
U. S. Territories and Possessions.....	39	0	35	2	74	4	55	3	54	5	257	14	5.1
Totals Examined.....	6,816		5,930		7,610		7,162		6,560		34,078		
Passed.....	6,010		5,343		6,856		6,412		5,840		30,461		
Failed.....	806		587		754		750		720		3,617		
Percentage Failed.....	11.8		9.9		9.9		10.5		10.9		10.6		

schools. In the latter state, the institutions referred to in the table were not granted approval by the State Approving Authority. Matriculants after Jan. 1, 1941 are not eligible for licensure in Massachusetts.

Graduates of Schools of Osteopathy Registered by Medical Examining Boards, 1943-1948

In sixteen states and the District of Columbia during the last six years (1943-1948) graduates of schools of osteopathy have been granted the privilege of practicing medicine or surgery or both by the medical examining board. The states which have registered such candidates and the numbers so registered are given in table 27. There have been 1,278 such persons registered

since 1943, 975 by examination and 303 without examination. In 1948 there were 213 so registered, 102 by examination and 111 by reciprocity by eleven medical

TABLE 24.—Registration of Physicians, 1904-1948

Year	Examined	Passed	Per-centage Failed	Reciprocity	
				or Endorse-ment	Total Regis-tered
1904.....	7,056	5,693	19.3	1,005	6,698
1905.....	7,178	5,688	20.8	394	6,082
1906.....	8,040	6,373	20.7	1,502	7,875
1907.....	7,279	5,731	21.3	1,427	7,158
1908.....	7,775	6,089	21.7	1,284	7,373
1909.....	7,295	5,865	19.0	1,381	7,246
1910.....	7,011	5,719	18.4	1,640	7,359
1911.....	6,964	5,582	19.8	1,243	6,825
1912.....	6,880	5,407	20.5	1,273	6,740
1913.....	6,453	5,253	18.6	1,292	6,545
1914.....	5,579	4,379	21.5	1,430	5,818
1915.....	5,334	4,507	15.5	1,399	5,906
1916.....	4,878	4,151	14.9	1,353	5,504
1917.....	4,754	4,085	14.0	1,300	5,445
1918.....	3,667	3,184	13.2	1,047	4,231
1919.....	4,750	4,074	14.2	2,546	6,620
1920.....	4,796	4,062	15.3	2,558	6,620
1921.....	4,825	4,228	12.4	2,186	6,414
1922.....	4,031	3,539	12.2	2,073	5,612
1923.....	4,727	4,028	14.8	2,405	6,433
1924.....	5,392	4,756	11.8	1,923	6,679
1925.....	6,002	5,450	9.2	1,821	7,311
1926.....	5,770	5,314	7.9	1,955	7,269
1927.....	5,389	5,002	7.2	2,176	7,178
1928.....	5,458	5,090	6.7	2,228	7,318
1929.....	5,629	5,282	6.2	2,420	7,702
1930.....	5,571	5,255	5.7	2,366	7,621
1931.....	5,611	5,263	6.2	2,211	7,476
1932.....	5,675	5,247	7.6	1,886	7,133
1933.....	5,673	5,244	7.6	1,989	7,233
1934.....	6,145	5,628	8.4	2,161	7,789
1935.....	6,443	5,859	9.1	2,194	8,053
1936.....	6,917	6,223	10.0	2,773	8,996
1937.....	7,334	6,604	10.0	3,205	9,809
1938.....	7,461	6,589	11.7	2,956	9,545
1939.....	7,754	6,493	16.3	2,872	9,365
1940.....	7,926	6,291	20.7	2,866	9,157
1941.....	7,539	6,087	19.7	2,760	8,817
1942.....	7,222	6,119	15.4	2,469	8,588
1943.....	8,402	7,488	10.9	2,340	8,828
1944.....	8,616	6,010	11.8	2,596	8,626
1945.....	5,930	5,343	9.9	3,621	8,964
1946.....	7,610	6,856	9.9	9,669	16,525
1947.....	7,162	6,412	10.5	7,082	14,594
1948.....	6,560	5,840	10.9	7,584	13,424

TABLE 25.—Graduates of Approved Schools and Others Registered, 1922-1948

	Graduates of Approved Schools		Others		Totals
	Number	Per Cent of Total	Number	Per Cent of Total	
1922.....	4,519	80.5	1,093	19.5	5,612
1923.....	5,196	80.8	1,237	19.2	6,433
1924.....	5,687	85.1	992	14.9	6,679
1925.....	6,314	86.4	997	13.6	7,311
1926.....	6,441	88.7	828	11.3	7,269
1927.....	6,410	89.4	768	10.6	7,178
1928.....	6,585	90.1	733	9.9	7,318
1929.....	7,003	91.0	699	9.0	7,702
1930.....	7,011	92.1	610	7.9	7,621
1931.....	6,932	92.8	544	7.2	7,476
1932.....	6,676	92.1	457	6.3	7,133
1933.....	6,774	93.7	459	6.3	7,233
1934.....	7,172	92.1	617	7.9	7,789
1935.....	7,360	91.3	693	8.5	8,053
1936.....	7,933	88.1	1,063	11.8	8,996
1937.....	8,391	85.5	1,418	14.4	9,809
1938.....	8,315	87.1	1,220	12.9	9,545
1939.....	8,067	86.2	1,298	13.8	9,365
1940.....	7,781	85.0	1,376	15.0	9,157
1941.....	7,768	87.9	1,049	11.9	8,817
1942.....	7,290	84.9	1,295	15.1	8,588
1943.....	8,640	87.9	1,188	12.2	9,828
1944.....	7,736	89.8	870	10.1	8,606
1945.....	8,232	91.8	732	8.1	8,964
1946.....	15,692	91.9	835	5.1	16,527
1947.....	13,076	94.0	1,018	7.0	14,094
1948.....	12,721	94.8	703	5.2	13,424
Totals.....	211,722	89.6	24,805	10.4	236,527

licensing boards, Colorado, District of Columbia, Massachusetts, New Hampshire, New Jersey, New York, Ohio, Oregon, Texas, Virginia and Wisconsin.

Following is a summary of the situation in the sixteen states and the District of Columbia providing for the licensing of osteopaths by the medical examining board.

TABLE 26.—*Graduates of Unapproved Medical Schools Registered, 1943-1948*

	Examination						Reciprocity & Endorsement						Totals
	1943	1944	1945	1946	1947	1948	1943	1944	1945	1946	1947	1948	
Arizona.....	0	0	0	0	0	0	0	0	0	2	0	1	3
California.....	0	0	0	0	0	0	0	0	4	0	0	0	4
Florida.....	0	0	0	1	11	25	0	0	0	0	0	0	37
Illinois.....	57	45	115	45	54	56	0	0	0	1	0	1	374
Iowa.....	0	0	0	1	0	0	0	0	0	1	0	0	2
Kentucky.....	2	0	0	0	2	0	0	0	0	0	0	0	4
Massachusetts.....	177	102	38	24	37	26	0	0	0	0	0	0	401
Mississippi.....	0	1	0	4	0	3	0	0	0	0	0	0	8
Missouri.....	1	0	0	0	0	0	0	1	1	0	0	0	3
Nebraska.....	0	0	0	0	0	0	0	0	0	1	0	1	2
Nevada.....	0	0	0	0	0	0	1	2	0	0	0	0	3
New Hampshire.....	0	0	0	0	1	0	0	1	0	0	0	0	2
New Mexico.....	1	0	0	0	1	0	0	1	0	0	0	0	3
New York.....	0	0	0	111	132	60	0	0	0	0	0	0	303
Ohio.....	0	0	0	6	4	1	0	0	0	0	0	0	11
Texas.....	0	0	0	0	0	0	0	0	0	1	0	0	1
Virginia.....	1	5	3	10	4	1	0	0	0	1	0	0	25
Washington.....	0	0	0	2	4	1	0	0	0	0	0	0	7
Wisconsin.....	0	0	0	0	0	0	1	0	1	0	0	0	2
Hawaii.....	1	0	0	0	0	0	0	0	0	0	0	0	1
Totals.....	240	153	156	204	250	173	1	2	10	7	0	3	1,190

In 1947, Alabama registered a graduate of a school of mechanotherapy.

In Colorado an osteopath receives a license to practice medicine. In Connecticut any registered osteopath may practice either medicine or surgery or both, as the case may be, if he passes a satisfactory examination before the medical examining board. In Delaware osteopaths are licensed as "osteopathic physicians." In the District of Columbia osteopaths are granted the right to practice surgery. In Indiana the licenses issued to osteopaths under a 1945 amendment to the medical practice act authorize the holders to practice medicine and surgery. Licentiates in osteopathy prior to 1945 have now been authorized to practice osteopathy, surgery and obstetrics. In Massachusetts the medical practice act, by definition, includes osteopathy in the practice of medicine and does not differentiate the type of license issued to an osteopathic applicant. According to a law passed in Nebraska in 1943, "any person now licensed to practice osteopathy may, if application was made prior to July 1, 1948 and upon payment of the prescribed fee, take the first regular examination given after the application is made before the Board of Examiners in Medicine. . . . If successful, he or she shall receive a license to practice medicine and surgery in the state." In New Hampshire osteopaths are granted the right to practice medicine and surgery.

New Jersey provides that osteopaths licensed prior to November 1, 1941 who furnish proof prior to that date of having served for a period of two years as an intern or resident surgeon in an osteopathic or medical hospital approved by the board of medical examiners, of having completed a postgraduate course of two years in a college of osteopathy or medicine approved by the board or of having had at least three years of practice in a hospital approved by the board can be admitted to an examination in pharmacology, therapeutics and surgery and, if successful, can obtain a license to practice medicine and surgery. Since 1941 all osteopathic applicants who have met the requirements of the medi-

cal practice act have been licensed to practice medicine and surgery.

In New York a law approved April 10, 1946 provides that any osteopathic licentiate who had obtained the additional right to use instruments for minor surgical procedures and to use anesthetics, antiseptics, narcotics and biologic products or any applicant who has met or shall meet all the preliminary and professional requirements as required as of Sept. 1, 1936 and has satisfactorily passed or shall satisfactorily pass the regular medical licensing examination shall be granted the right to practice medicine without limitation as defined by the statutes of the State of New York.

A law passed in Ohio in 1943 gives osteopaths who obtain their licenses under that act the right to practice osteopathic medicine and surgery. In Oregon they are granted the right to practice "in the subjects" covered by the examination, which includes surgery. The medical practice act of Texas provides for the issuing of a license to practice medicine only, and osteopaths are issued licenses unrestricted in scope. In Virginia osteopaths may obtain the right to use drugs and perform surgery with the use of instruments if they satisfy the board of medical examiners that they are qualified to do so. Wisconsin grants osteopaths the privilege of practicing surgery, and in Wyoming the statutes contain no specific provision for the licensing of osteopaths. The medical practice act of the latter state provides that the certificate issued to all applicants "shall be deemed licenses to practice medicine in all branches in which the applicant has taken examination in the state."

Licensure of Foreign Trained Physicians

The Council on Medical Education and Hospitals does not grade or classify medical schools outside the United States and Canada. It does not attempt to evaluate institutions which it is not in a position to visit to determine whether they meet the minimal essen-

TABLE 27.—*Graduates of Schools of Osteopathy Registered by Medical Boards, 1943-1948*

	Examination						Reciprocity & Endorsement						Totals
	1943	1944	1945	1946	1947	1948	1943	1944	1945	1946	1947	1948	
Alabama.....	0	0	0	0	1	0	0	0	0	0	0	0	1
Colorado.....	9	7	7	5	11	5	0	0	0	0	0	0	44
Connecticut.....	5	5	2	5	3	0	0	0	0	0	0	0	20
Delaware.....	0	3	0	0	0	0	0	0	0	4	0	0	7
Dist. Columbia	0	0	0	0	0	0	0	0	1	1	1	2	5
Indiana.....	2	3	0	43	0	0	3	3	7	7	0	0	68
Massachusetts.....	5	4	5	0	2	2	0	0	0	2	1	5	26
Nebraska.....	6	0	2	0	1	0	1	0	0	0	0	0	10
New Hampshire.....	0	3	0	0	0	0	1	2	0	0	3	6	13
New Jersey.....	18	30	15	9	9	3	0	0	0	0	2	3	89
New York.....	0	0	0	5	134	34	0	0	0	0	75	13	261
Ohio.....	155	72	48	47	12	21	0	3	1	7	10	12	391
Oregon.....	0	0	0	0	0	1	3	8	14	12	16	8	62
Texas.....	18	38	29	42	38	33	2	1	1	0	0	1	203
Virginia.....	0	0	0	1	0	1	0	0	0	0	0	1	3
Wisconsin.....	6	0	1	1	3	2	16	5	15	11	3	6	69
Wyoming.....	0	0	0	0	0	0	1	2	0	1	0	0	4
Totals.....	227	165	109	158	214	102	27	24	39	45	111	57	1,278

tials of an acceptable medical school as outlined by the Council. This was true even before the war.

For a period of twelve years beginning in 1926 the credentials of physicians coming from abroad were verified by the Council through official correspondence with the medical schools directly or through the diplomatic services. Prior to the onset of the war in Europe it was necessary to discontinue this effort, and on the licensing boards rests the responsibility of evaluating

the credentials presented by these graduates. In the 1942 edition of the American Medical Directory a symbol in the biographic data of foreign graduates indicates when the information given is the licensing board's

the problem of evaluation of foreign credentials submitted by physicians and students from foreign medical schools. This committee has held several meetings and on March 25, 1949 stated³ that the

TABLE 28.—Requirements of Candidates for Medical Licensure on the Basis of Credentials Obtained in Countries Other Than the United States and Canada

	Admitted to Examination	Admitted by Endorsement of State License *	Citizenship	Basic Science Certificate	Internship in Hospital in United States	Further Medical Training	Examination Fee, Dollars	Footnotes
Alabama.....	x	..	x	..	x	..	10	1
Arizona.....	Not accepted							
Arkansas.....	Not accepted							
California.....	x	x	x	..	x	x	25	2
Colorado.....	Not accepted							
Connecticut.....	x	x	1st P	x	..	..	25	3
Delaware.....	x	..	x	..	x	..	25	4
Distriet of Columbia.....	x	x	..	x	x	..	25	5
Florida.....	x	..	x	x	..	x	25	6
Georgia.....	Not accepted							
Idaho.....	Not accepted							
Illinois.....	x	..	1st P	..	x	..	15	..
Indiana.....	x	x	..	..	..	x	25	7
Iowa.....	x	..	x	x	x	x	25	8
Kansas.....	x	..	x	..	x	..	25	9
Kentucky.....	Not accepted							
Louisiana.....	Not accepted							
Maine.....	x	x	x	..	x	..	27	10
Maryland.....	x	..	1st P	..	x	..	20	11
Massachusetts.....	x	..	1st P	..	..	..	25	..
Michigan.....	x	x	..	x	x	x	25	7
Minnesota.....	x	..	x	x	..	..	20	12
Mississippi.....	x	..	x	..	x	..	10.25	..
Missouri.....	x	..	x	..	x	..	15	13
Montana.....	Not accepted							
Nebraska.....	x	x	x	x	..	..	25	13
Nevada.....	Not accepted							
New Hampshire.....	x	x	x	..	x	..	20	14
New Jersey.....	x	x	x	..	x	..	25	15
New Mexico.....	Not accepted							
New York.....	x	x	1st P	..	..	..	25	16
North Carolina.....	Not accepted							
North Dakota.....	x	..	x	..	x	x	25	17
Ohio.....	x	x	x	..	..	..	25	17, 18
Oklahoma.....	Not accepted							
Oregon.....	Not accepted							
Pennsylvania.....	x	..	1st P	..	x	..	25	19
Rhode Island.....	x	..	1st P	x	x	x	20	20
South Carolina.....	Not accepted							
South Dakota.....	Not accepted ²²							
Tennessee.....	x	..	x	x	..	..	25	..
Texas.....	x	..	x	..	..	..	25	21
Utah.....	Not accepted							
Vermont.....	Not accepted ¹⁴							
Virginia.....	x	..	1st P	..	..	..	25	13
Washington.....	Not accepted							
West Virginia.....	Not accepted							
Wisconsin.....	Not accepted							
Wyoming.....	Not accepted							
Alaska.....	x	x	x	x	x	..	25	..
Hawaii.....	x	..	x	..	x	..	25	14
Puerto Rico.....	x	x	x	..	x	..	30	..
Virgin Islands.....	Not accepted							

x. Implies Yes.

* Refer to chart "Reciprocity and Endorsement Policies" for further data.

1. Certificate of National Board of Medical Examiners required.

2. (a) Citizenship waived if country in which applicant is licensed will admit to licensure citizens of the United States. (b) Acceptable for reciprocal registration if license submitted was granted on same standards as in effect in California on the same date and on completion of an oral, clinical and written examination. (c) Rotating internship in approved hospital in United States or completion of senior year in approved medical school in United States.

3. Effective July 1, 1948, physicians who have graduated from medical schools located outside of the United States, Canada or the British Isles subsequent to Jan. 1, 1940 not eligible.

4. Residence of one year in Delaware required.

5. (a) Acceptable for reciprocal registration if similar privileges are accorded licentiates of District of Columbia by licensing agency or jurisdiction from which the applicant comes. (b) Regulations cited refer also to graduates of Canadian schools.

6. Senior year in an approved medical school in the United States or Canada, possess the degree of Master of Public Health from an acceptable school, or satisfactorily complete a one year's assistant residency, residency or fellowship in an approved hospital in the United States accepted as further training.

7. Further training—Completion of senior year in approved medical school in the United States.

8. Further training—Internship or one year in medical school in the United States.

9. (a) Applicant must be licensed to practice medicine and surgery in country in which school of graduation is located, otherwise required to complete senior year in approved medical school in United States. (b) In lieu of internship, certificate from three graduates of the applicant's medical school licensed to practice medicine in United States accepted.

record of the credential accepted as meeting the educational qualifications for licensure. The absence of the symbol may be interpreted to indicate that official verification is on file in the office of the Council.

A committee composed of representatives of nineteen interested organizations has been formed to consider

10. (a) Applicant must be licensed to practice medicine and surgery in country in which school of graduation is located, otherwise required to complete senior year in approved medical school in United States. (b) No applications accepted from countries other than England (certain schools), Ireland, Scotland and Australia.

11. These requirements apply also to graduates of medical schools of Canada.

12. Applicants considered individually.

13. At the discretion of the licensing board.

14. Diplomates of National Board of Medical Examiners eligible on reciprocity basis.

15. (a) Internship completed in foreign countries after July 1, 1934 not acceptable. (b) Matriculants of medical schools of Europe and Asia after Nov. 19, 1941 not accepted. (c) Graduates of medical schools of South American Republics, Mexico and Cuba not accepted.

16. Matriculants after Jan. 1, 1940 not accepted.

17. License to practice medicine and surgery in country in which school of graduation is located, otherwise required to complete senior year in approved medical school in United States.

18. Applicants limited to university medical schools of Great Britain.

19. Medical education completed in foreign medical schools since 1941 not acceptable.

20. (a) Matriculants in foreign medical faculties subsequent to Jan. 1, 1949 not acceptable. (b) Applicant must be licensed to practice medicine and surgery in country in which school of graduation is located.

21. European graduates after 1939 limited to English speaking schools.

22. Enabling legislation passed in 1949 permits licensure of graduates of foreign medical faculties under regulation to be set up by new Board of Medical and Osteopathic Examiners which relieves Board of Health of medical licensing duties.

various agencies concerned should unite their resources and devise a satisfactory method for securing reliable information concerning foreign medical schools at the earliest possible date. When such information is obtained, it should be possible for the accrediting agen-

cies to prepare a list of foreign medical schools whose graduates may be considered to have training comparable to that offered by medical schools in the United States.

The present requirements for candidates seeking medical licensure in the United States, Alaska, Hawaii, Puerto Rico and the Virgin Islands on the basis of credentials obtained in countries other than the United States and Canada are given in table 28. Twenty-one states and the Virgin Islands reported that the holders of such credentials are not eligible for licensure. Seventeen states, Alaska, Hawaii and Puerto Rico require full citizenship and eight states require naturalization papers as a condition precedent to taking the examination for licensure. The District of Columbia, Indiana and Michigan make no reference to citizenship. In some states the recognition or nonrecognition of foreign-trained physicians is by board ruling; in others the provision is by statute. Nine states and Alaska which will admit foreign graduates require a certificate from the state board of examiners in the basic sciences.

TABLE 29.—Physicians Examined on the Basis of Credentials Obtained in Countries Other Than the United States and Canada, 1930-1948

Year	Number Examined	Passed	Percentage Failed
1930.....	167	92	44.9
1931.....	158	91	42.4
1932.....	152	96	47.3
1933.....	200	129	35.5
1934.....	285	170	40.2
1935.....	437	303	30.7
1936.....	568	382	33.0
1937.....	920	637	30.8
1938.....	1,164	716	38.5
1939.....	1,691	839	50.4
1940.....	2,088	948	54.7
1941.....	1,717	678	59.2
1942.....	1,430	690	45.4
1943.....	1,071	518	49.8
1944.....	691	325	53.0
1945.....	475	209	56.0
1946.....	495	221	55.3
1947.....	601	283	52.9
1948.....	630	308	51.5
Totals.....	15,156	7,855	48.1

Sixteen states, the District of Columbia, Alaska, Hawaii and Puerto Rico require that the foreign-trained physician serve an internship in a hospital in the United States before examination for licensure. Additional qualifications are given in footnotes of the table.

Figures relating to foreign-trained physicians examined for medical licensure in the United States in 1948 are presented in table 30. These statistics represent both American and foreign-born physicians educated in countries other than the United States and Canada. Graduates of 85 faculties of medicine and 3 licensing corporations of eighteen European countries and 20 schools of thirteen other countries were examined. The number examined totaled 636 and were tested in twenty-seven states, the District of Columbia and Puerto Rico. The number who were successful was 308; failures numbered 328 or 51.5 per cent. Graduates of the University of Vienna represented the largest group from any one school, 76, who were examined in ten states, with a failure percentage of 48.7. Fewer than 31 of the graduates of any other school were tested.

The greatest number of foreign-trained physicians examined for licensure last year by any one state was

417 in New York, of whom 178 passed and 239 (57.3 per cent) failed. No other state tested more than 60 of these physicians.

Table 29 records the number of foreign-trained physicians examined for medical licensure in the United

OFFICERS OF STATE BOARDS OF MEDICAL EXAMINERS

Alabama	Dr. D. G. Gill, 519 Dexter Avenue, Montgomery 4.
Arizona	Dr. J. H. Patterson, 234 N. Central Ave., Phoenix.
Arkansas	Dr. L. J. Kosminsky, Texarkana.
California	Dr. Frederick N. Scatena, 1020 N Street, Sacramento 14.
Colorado	Dr. W. W. King, 831 Republic Bldg., Denver 2.
Connecticut	Dr. Creighton Barker, 258 Church Street, New Haven.
Delaware	Dr. J. S. McDaniel, 229 S. State Street, Dover.
District of Columbia..	Dr. G. C. Ruhland, 4130 E. Municipal Building, Washington.
Florida	Dr. Frank D. Gray, 12 N. Rosalind Avenue, Orlando.
Georgia	Mr. R. C. Coleman, 111 State Capitol, Atlanta 3.
Idaho	Miss Estella S. Mulliner, 355 State House, Boise.
Illinois	Mr. Noble J. Puffer, Capitol Building, Springfield.
Indiana	Dr. Paul R. Tindall, 1138 K of P Building, Indianapolis 4.
Iowa	Dr. M. A. Royal, 506 Fleming Building, Des Moines.
Kansas	Dr. J. F. Hassig, 905 N. Seventh Street, Kansas City 10.
Kentucky	Dr. Bruce Underwood, 620 S. Third Street, Louisville 2.
Louisiana	Dr. R. B. Harrison, 1507 Hibernia Bank Building, New Orleans.
Maine	Dr. A. P. Leighton, 192 State Street, Portland.
Maryland	Dr. Lewis P. Gundry, 1215 Cathedral Street, Baltimore 1.
Massachusetts	Dr. George L. Schadt, 413 E. State House, Boston 33.
Michigan	Dr. J. E. McIntyre, 100 W. Allegan Street, Lansing 8.
Minnesota	Dr. J. F. DuBois, 230 Lowry Medical Arts Building, St. Paul 2.
Mississippi	Dr. Felix J. Underwood, Jackson 113.
Missouri	Mr. John A. Hailey, State Capitol Building, Jefferson City.
Montana	Dr. O. G. Klein, First National Bank Building, Helena.
Nebraska	Mr. Oscar F. Humble, Room 1009, State Capitol Building, Lincoln.
Nevada	Dr. G. H. Ross, 112 N. Curry Street, Carson City.
New Hampshire	Dr. John S. Wheeler, 107 State House, Concord.
New Jersey	Dr. E. S. Hallinger, 28 West State Street, Trenton.
New Mexico	Dr. V. E. Berchtold, 141 Palace Avenue, Santa Fe.
New York	Dr. J. L. Lochner, 23 S. Pearl Street, Albany.
North Carolina	Dr. Ivan Procter, 226 Hillsboro Street, Raleigh.
North Dakota	Dr. C. J. Gaspel, Grafton.
Ohio	Dr. H. M. Platter, 21 West Broad Street, Columbus.
Oklahoma	Dr. F. C. Gallaher, 813 Braniff Building, Oklahoma City.
Oregon	Mr. Howard I. Bobbit, 608 Failing Building, Portland 4.
Pennsylvania	Mrs. M. G. Steiner, 351 Education Building, Harrisburg.
Rhode Island	Mr. Thomas B. Casey, 366 State Office Building, Providence.
South Carolina	Dr. N. B. Heyward, 1329 Blanding Street, Columbia.
South Dakota	Dr. G. J. Van Heuvelan, Capitol Building, Pierre.
Tennessee	Dr. H. W. Qualls, 1635 Exchange Building, Memphis 3.
Texas	Dr. M. H. Crabb, Medical Arts Building, Fort Worth.
Utah	Mr. W. R. McEntire, 324 State Capitol Building, Salt Lake City.
Vermont	Dr. F. J. Lawliss, Richford.
Virginia	Dr. K. D. Graves, 631 First Street, S.W., Roanoke.
Washington	Mr. Edward C. Dohm, Olympia.
West Virginia	Dr. N. H. Dyer, State Capitol, Charleston 5.
Wisconsin	Dr. C. A. Dawson, Tremont Bldg., River Falls.
Wyoming	Dr. Franklin D. Yoder, Capitol Bldg., Cheyenne.
Alaska	Dr. W. M. Whitehead, Box 140, Juneau.
Canal Zone	Dr. M. C. Stayer, Balboa Heights.
Hawaii	Dr. S. E. Doolittle, 881 S. Hotel St., Honolulu 53.
Puerto Rico	Mr. Luis Cueto Coll, Box 3717, Santurce.
Virgin Islands	Dr. Christian R. Moorehead, Charlotte Amalie.

States in nineteen years (1930 to 1948). In this period 15,156 were examined, of whom 7,855 passed and 48.1 per cent failed. At no time in this nineteen year period did fewer than 30.7 per cent fail. In 1936 the number of foreign-trained physicians began to increase, and by 1940 there were over three times as many tested as in 1936. Since 1940 there have been annual decreases, but the annual total still is greater than the 1936 figures

TABLE 30.—Foreign Trained Physicians Examined for Medical Licensure in the United States, 1948

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	Totals	Examined—Passed	Examined—Failed	Percentage—Failed	Number of Boards Examined by	Marginal Number			
SCHOOL	Alabama	California	Colorado	Connecticut	District of Columbia	Florida	Georgia	Illinois	Iowa	Kansas	Maine	Maryland	Massachusetts	Michigan	Mississippi	Missouri	New Hampshire	New Jersey	New York	North Dakota	Ohio	Pennsylvania	Rhode Island	South Dakota	Tennessee	Texas	Virginia	Washington	Puerto Rico	PP	PP	PP	PP	PP	PP	PP	PP	
1 Ecole de Plein Exercice de Medecine, Alger.....																			0 1											1 0	1 100.0	1	1					
2 Universidad Nacional de Buenos Aires.....																			1 0												1 1 0	0.0	1	2				
3 Karl-Franzens-Universität, Graz.....								1 0																							1 1 0	0.0	1	3				
4 Leopold Franzens-Universität, Innsbruck.....								0 1												22 30		1 0						2 0			76 39	37	48.7	10	5			
5 Medizinische Fakultät der Universität Wien.....				1 1	1 0	3 4						2 1 4 0	1 0																									
6 Université Libre de Bruxelles.....																			1 1												2 1 1	50.0	1	6				
7 Universiteit Gent.....												1 0																			1 1 0	0.0	1	7				
8 Université de Liège.....																		0 1													1 0	1 100.0	1	8				
9 Universidade do Rio de Janeiro.....													1 1																		2 1 1	50.0	1	9				
10 Universidad de Chile, Santiago.....																			0 1												1 0	1 100.0	1	10				
11 Peking Union Medical College.....																			1 0												1 1 0	0.0	1	11				
12 Pennsylvania Medical School, Shanghai.....									1 0																			0 1			3 1 2	66.7	3	12				
13 Woman's Christian Medical College, Shanghai.....																			1 0												1 1 0	0.0	1	13				
14 Aurora University, Shanghai.....																																1 1 0	0.0	1	14			
15 Universidad Nacional Facultad de Medicina, Bogotá.....																															1 1 0	0.0	1	15				
16 Universidad de la Habana Facultad de Medicina y Farmacia.....								7 6				0 1 0 1								1 1											1 0	23	14	9	39.1	9	16	
17 Deutsche Universität, Prag.....				1 1		0 1		1 1											11 13												20 14	16	53.3	5	17			
18 Universita Karlova, Praha.....									1 0										4 7												14	6	8	57.1	4	18		
19 Universita Komenského, Bratislava.....								1 0											4 2												8	6	2	25.0	3	19		
20 Masarykova Univerzita, Brno.....																			0 1												1 0	1 100.0	1	20				
21 Københavns Universitet.....																			1 0												1 1 0	0.0	1	21				
22 Universidad de El Salvador.....							1 1												0 1												5 1	4	80.0	3	22			
23 University of Birmingham.....														1 0																	1 1 0	0.0	1	23				
24 University of Bristol.....								1 0																							1 1 0	0.0	1	24				
25 University of London.....																			2 0												2 2 0	0.0	1	25				
26 Victoria University of Manchester.....																												1 0			2 2 0	0.0	2	26				
27 University of Oxford.....																			1 0												1 1 0	0.0	1	27				
28 Licentiate of the Royal College of Physicians of London, Member of the Royal College of Surgeons of England.....																			2 1												3 2 1	33.3	1	28				
29 Tartu Ülikooli.....																			0 1												1 0	1 100.0	1	29				
30 Université de Bordeaux.....																															2 1 1	50.0	1	30				
31 Université de Montpellier.....																															5 4	1 20.0	3	31				
32 Université de Paris.....																			3 5												14	9	6	35.7	2	32		
33 Université de Toulouse.....																			1 0												1 1 0	0.0	1	33				
34 Université d'Alx-Marseille.....																															2 1 1	60.0	1	34				

GERMANY

35	Friedrich-Wilhelms-Universität, Berlin	0 1	2 0 1 0	0 1	8 13	25 11 14 55 0 4 25
36	Rheinische Friedrich-Wilhelms-Universität, Bonn	0 1			0 1	2 0 2 100 0 2 26
37	Schlesische Friedrich-Wilhelms-Universität, Breslau				4 4	9 4 5 55 6 2 37
38	Friedrich-Alexanders-Universität, Erlangen				1 2	3 1 2 60 7 1 38
39	Friedrich-Ludwigs-Universität, Freiburg	2 0			0 2	4 2 2 50 0 2 39
40	Vereinigte Friedrichs-Universität, Halle-Wittenberg	0 1			0 1	1 0 1 100 0 1 40
41	Universität Heidelberg	0 2			0 3	5 0 5 100 0 2 41
42	Thüringische Landesuniversität, Jena	1 0			0 1	2 1 1 50 0 2 42
43	Christian-Albrechts-Universität, Kiel	1 1			0 1	1 0 1 100 0 1 43
44	Albertus-Universität, Königsberg	1 4			1 0	3 2 1 23 3 2 44
45	Universität Leipzig	0 1	0 1	1 0	3 3	6 1 5 83 3 2 45
46	Ludwig-Maximilians-Universität, München	0 1			0 1	9 4 5 55 6 4 46
47	Universität Rostock	1 1			0 1	3 1 2 60 7 2 47
48	Eberhard-Karls-Universität, Tübingen	0 1			0 1	1 0 1 100 0 1 48
49	Hamburgische Universität	1 1			0 1	2 1 1 50 0 2 49
50	Johann Wolfgang Goethe-Universität, Frankfurt-am-Main	1 0 1 0 1 0		0 1	2 1	7 5 2 28 6 5 50
51	Westfälische Wilhelms-Universität, Münster	0 1			1 1	3 1 2 60 7 2 51

GREECE

52	National University of Athens	1 0	0 2	1 0 1 0	0 1	1 0 10 4 6 60 0 8 52
----	-------------------------------	-----	-----	---------	-----	----------------------

HAITI

53	Ecole Nationale de Médecine et de Pharmacie, Port-au-Prince	2 1				3 2 1 33 3 1 53
----	---	-----	--	--	--	-----------------

HUNGARY

54	Magyar Királyi Pázmány Petrus Tudományegyetem, Budapest	1 0	0 2		0 1	11 2 9 81 8 7 54
55	Magyar Királyi Ferencz József Tudományegyetem, Szeged	0 1			0 2	3 0 3 100 0 2 55
56	Magyar Királyi Erzsébet Tudományegyetem, Pécs	1 0			2 7	11 3 8 73 7 3 56
57	Magyar Királyi Tisza-Isztván Tudományegyetem, Debrecen				0 1	1 0 1 100 0 1 57

IRAN

58	Madrassch Teh, Teheran				0 3	3 0 3 100 0 1 58
----	------------------------	--	--	--	-----	------------------

IRELAND

59	University of Ireland	0 1				1 0 1 100 0 1 59
----	-----------------------	-----	--	--	--	------------------

IRELAND

60	National University of Ireland				5 3	8 5 3 37 5 1 60
61	University of Dublin	1 0			1 0	3 3 0 0 0 3 61
62	Lieutenant of the Royal College of Physicians, Lieutenant of the Royal College of Surgeons				1 0	1 1 0 0 0 1 62

ITALY

63	Regia Università degli Studi di Bologna	0 1	1 0	1 1	4 13	22 7 15 68 2 5 63
64	Regia Università degli Studi di Milano				1 0	1 1 0 0 0 1 64
65	Regia Università degli Studi di Firenze				1 0	1 1 0 0 0 1 65
66	Regia Università degli Studi di Genova	0 1			0 2	3 0 3 100 0 2 66
67	Regia Università di Napoli	0 1	0 1	1 0	2 8	14 3 11 75 6 6 67
68	Regia Università degli Studi di Padova				2 1	3 2 1 33 3 1 68
69	Regia Università degli Studi di Palermo	0 1			1 0 2	5 1 4 80 0 3 69
70	Regia Università degli Studi di Perugia	0 1			1 0	1 0 1 100 0 1 70
71	Regia Università di Pisa	2 0			0 2	3 1 2 60 7 2 71
72	Regia Università degli Studi di Roma	1 3			1 0	17 8 9 52 9 4 72
73	Regia Università degli Studi di Siena	1 0			1 0	3 2 1 33 3 2 73
74	Regia Università di Torino	1 0			1 3	5 2 3 60 0 2 74
75	Regia Università degli Studi "Renzo Mussolini" di Bari				0 1	1 0 1 100 0 1 75

LEBANON

76	American University of Beirut	1 0	1 0		2 0	6 6 0 0 0 5 76
----	-------------------------------	-----	-----	--	-----	----------------

LITHUANIA

77	Vytauto Didziodo Universiteto, Kaunas	3 3			3 5	14 6 8 57 1 2 77
----	---------------------------------------	-----	--	--	-----	------------------

MEXICO

78	Universidad Nacional, Mexico	0 2	1 0			5 3 2 10 0 4 78
79	Universidad de Guadalajara	0 2				2 0 2 100 0 1 79
80	Universidad Autónoma Guadaluajara					1 0 1 1 0 0 0 1 80

Marginal Number..... 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29

TABLE 30.—Foreign Trained Physicians Examined for Medical Licensure in the United States, 1948—Continued

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29		
	Alabama	California	Colorado	Connecticut	District of Columbia	Florida	Georgia	Illinois	Iowa	Kansas	Maine	Maryland	Massachusetts	Michigan	Mississippi	Missouri	New Hampshire	New Jersey	New York	North Dakota	Ohio	Pennsylvania	Rhode Island	South Dakota	Tennessee	Texas	Virginia	Washington	Puerto Rico	Totals	
	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	
81 Universiteit van Amsterdam.....	2	1										1	0							1	0									5	
82 Rijks-Universiteit te Leiden.....													0	1																1	
83 Rijks-Universiteit te Utrecht.....				1	1															1	1									4	
PHILIPPINES																															
84 University of the Philippines, Manila.....																						1	0							1	
85 University of Santo Tomas, Manila.....																														1	
POLAND																															
86 Uniwersytet Jagielloński, Cracow.....												0	1							2	2									5	
87 Uniwersytet Jana Kazimierza, Lwów.....																				2	3									5	
88 Uniwersytet Józefa Piłsudskiego, Warszawa.....																				3	4									7	
89 Uniwersytet Stefana Batorego, Wilno.....																				8	3									11	
90 Uniwersytet Poznański, Poznań.....								0	1			2	0							0	2									5	
ROMANIA																															
91 Universitatea Regele Ferdinand I-in Cluj.....													0	1					0	1	0									3	
SCOTLAND																															
92 School of Medicine of the Royal Colleges, Edinburgh.....																														1	
93 University of Edinburgh.....																														1	
94 University of Glasgow Medical Faculty.....																														3	
95 Licensate of the Royal College of Physicians and Surgeons of Edinburgh, and Licensate of the Royal Faculty of Physicians and Surgeons of Glasgow.....																														3	
SPAIN																															
96 Universidad de Barcelona.....																														1	
97 Universidad de Valencia.....																														2	
SWITZERLAND																															
98 Universität Basel.....																														13	
99 Universität Bern.....																														16	
100 Université de Genève.....																														17	
101 Université de Lausanne.....																														26	
102 Universität Zürich.....																														13	
UNION OF SOVIET REPUBLICS																															
103 Voronezh Medical Institute.....																														2	
104 Kazan Medical Institute.....																														1	
105 First Moscow Medical Institute.....																														10	
106 Odessa Medical Institute.....																														17	
107 Severo-Kavka Medical Institute, Rostov-on-the-Don.....																														36	
108 Second Moscow Medical Institute.....																														13	
YUGOSLAVIA																															
109 Beogradskog Univerziteta, Belgrade.....																														2	
Totals.....	1	28	7	14	1	6	3	69	1	2	3	17	23	1	2	3	3	6	417	2	2	8	2	2	2	1	5	3	4	2	636
Totals—Examined—Passed.....	0	15	7	9	1	3	1	27	1	2	3	11	13	1	2	5	3	1	178	2	0	8	2	2	1	2	2	4	2	305	
Totals—Examined—Failed.....	1	13	0	5	0	3	1	33	0	0	0	6	10	0	0	0	0	5	239	0	2	0	0	0	0	0	3	1	0	0	331
Percentage Failed.....	100.0	10.1	0.0	35.7	0.0	50.0	30.0	55.0	0.0	0.0	0.0	35.3	55.2	0.0	0.0	0.0	0.0	83.3	67.3	0.0	100.0	0.0	0.0	0.0	0.0	60.0	33.3	0.0	0.0	51.5	
Marginal Number.....	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29		

P—Passed; F—Failed.

BOARDS OF EXAMINERS IN THE BASIC SCIENCES

A basic science law provides for the establishment of a board of examiners and requires that each person who desires to practice the healing arts appear before that board and demonstrate his knowledge of the basic sciences. Such boards are distinct from licensing boards. A certificate of proficiency in the basic sciences does not authorize the possessor to practice the healing art; it enables him only to apply for licensure.

A basic science certificate is a prerequisite for licensure in seventeen states, the District of Columbia and the Territory of Alaska. The states comprising this group, together with the year of enactment of their basic science law, are recorded in table 31.

The subjects in which examinations are given are specified in the law. Table 32 lists the states and the subjects in which examination is required. These subjects are not uniform, although all boards examine in anatomy, pathology and physiology, seventeen examine in chemistry, fifteen in bacteriology, nine in hygiene, two in diagnosis and one in public health. The laws in some states provide for certification without examination by the endorsement of a basic science certificate issued in another state and the acceptance of successful

TABLE 31.—States Having Basic Science Laws and Year of Enactment

Alaska.....	1946	Nebraska.....	1927
Arizona.....	1936	New Mexico.....	1941
Arkansas.....	1929	Oklahoma.....	1937
Colorado.....	1937	Oregon.....	1933
Connecticut.....	1925	Rhode Island.....	1940
District of Columbia.....	1929	South Dakota.....	1939
Florida.....	1939	Tennessee.....	1943
Iowa.....	1935	Washington.....	1927
Michigan.....	1937	Wisconsin.....	1925
Minnesota.....	1927		

examinations in the required subjects given by a state licensing board or the National Board of Medical Examiners.

The results of examinations given and the number of certificates issued on the basis of reciprocity or endorsement as reported by the basic science boards are shown in tables 33 and 34. The laws do not specify that a candidate reveal his school of practice. The lists submitted by the respective boards, however, have been checked with the biographic records of physicians and medical students maintained by the American Medical Association and with various directories. In this way it has been possible to determine the profession of the majority of candidates. By this means the figures have been tabulated in four groups; namely, physicians and medical students, osteopaths, chiropractors and unclassified applicants. The latter category include those for whom it was not possible to determine the profession represented. In Rhode Island, however, the unclassified group represent doctors of dentistry. It is probable that others in this unclassified group include osteopaths, chiropractors and naturopaths who have not been identified by the reference material available.

The nineteen boards in operation in 1948 examined 3,947 candidates. The numbers examined in the four groups named are shown in table 33. Physicians and medical students represent the greatest number examined. There were 3,000 in this group. There were also examined 173 osteopaths, 216 chiropractors and

438 in the unclassified group. Of all applicants 23 per cent failed, of the physicians and medical students examined 13.3 per cent failed, osteopaths 38.7 per cent, chiropractors 65.2 per cent and unclassified 41.3 per cent. The basic science board of Florida examined the greatest number, 609, representing 533 physicians and

TABLE 32.—Subjects Included in Basic Science Examinations

	Examinations Required in							
	Anat- omy	Bacteri- ology	Chem- istry	Diag- nosis	Hy- giene	Pathol- ogy	Physi- ology	Public Health
Alaska.....	+	+	+	..	+	+	+	..
Arizona.....	+	+	+	..	+	+	+	..
Arkansas.....	+	+	+	..	..	+	+	..
Colorado.....	+	+	+	..	..	+	+	..
Connecticut.....	+	..	..	+	+	+	+	..
Dist. Columbia	+	+	+	..	..	+	+	..
Florida.....	+	+	+	..	..	+	+	..
Iowa.....	+	+	+	..	+	+	+	..
Michigan.....	+	+	+	..	+	+	+	+
Minnesota.....	+	+	+	..	+	+	+	..
Nebraska.....	+	+	+	..	+	+	+	..
New Mexico.....	+	+	+	..	..	+	+	..
Oklahoma.....	+	+	+	..	..	+	+	..
Oregon.....	+	..	+	..	+	+	+	..
Rhode Island..	+	+	+	..	..	+	+	..
South Dakota..	+	+	+	..	..	+	+	..
Tennessee.....	+	+	+	..	..	+	+	..
Washington....	+	..	+	..	+	+	+	..
Wisconsin.....	+	..	..	+	..	+	+	..

TABLE 33.—Applicants Examined in Basic Sciences, 1948

	Physicians and Medical Students		Osteopaths		Chiropractors		Unclassified		Total Examined	Passed	Failed	Percentage Failed
	P	F	P	F	P	F	P	F				
Alaska.....	2	1	0	0	0	0	0	0	3	2	1	33.3
Arizona.....	70	0	3	0	3	0	7	0	116	83	33*	39.8
Arkansas.....	92	2	2	1	1	1	0	0	99	95	4	4.0
Colorado.....	160	17	1	0	0	0	8	3	189	169	20	10.6
Connecticut.....	140	4	1	1	2	2	0	0	150	143	7	4.7
Dist. of Columbia.....	20	3	0	0	0	0	0	0	23	20	3	13.0
Florida.....	412	121	4	6	0	5	35	26	609	451	158	24.4
Iowa.....	140	27	64	49	25	75	95	119	594	324	270	45.4
Michigan.....	253	47	4	2	1	0	13	6	326	271	55	16.8
Minnesota.....	258	0	18	0	2	0	53	0	418	331	87*	20.8
Nebraska.....	78	23	0	0	0	0	0	0	101	78	23	22.8
New Mexico.....	72	0	0	0	0	0	0	0	72	72	0	0.0
Oklahoma.....	86	10	0	0	0	0	0	0	96	86	10	10.4
Oregon.....	114	42	0	1	0	0	19	20	196	133	63	32.1
Rhode Island.....	43	3	2	0	0	0	21	7	81	71	10	12.3
South Dakota.....	42	11	1	1	28	35	0	0	118	71	47	39.8
Tennessee.....	183	48	0	0	0	0	5	1	237	188	49	20.6
Washington.....	270	31	6	6	2	0	0	0	315	276	39	12.3
Wisconsin.....	161	9	0	0	13	21	0	0	204	174	30	14.7
Total—Examined.....	3,000	173	216	438	3,947							
Totals—Passed.....	2,601	106	75	256	3,038							
Totals—Failed.....	399	67	141	182							909	
Percentage Failed.....	13.3	38.7	65.2	41.3								23.0

* Nature of practice undeterminable since names of failures not supplied.

† Figures in unclassified column refer to doctors of dentistry.

76 others with 24.4 per cent failures. Iowa, Michigan and Minnesota examined more than 300. The percentage of failures in these states was 45.4, 16.8 and 20.8, respectively. New Mexico reported no failures. The percentage of failures for physicians and medical students seems rather high, particularly when compared with the extent of failures before the state examining boards of the respective states.

It is the policy of the Arizona and Minnesota boards in reporting results of its examinations to omit the names of applicants who fail examinations. The number who fail are therefore recorded only in the total column.

Physicians or medical students were examined in all states, osteopaths in twelve states and chiropractors by ten boards.

Twelve boards granted basic science certificates without examination, by reciprocity, endorsement, waiver or exemption. There were 1,418 certificates awarded by this method in 1948. By both examination and endorsement, 4,456 certificates of proficiency were issued. The number of successful candidates in these two groups are recorded for each state in table 34. Among the successful candidates were 3,670 physicians or medical students, 218 osteopaths, 137 chiropractors and 431 others.

Table 35 records the number of candidates examined and the number certified without examination by basic science boards in twenty-two years, 1927 to 1948 inclusive. In 1927, when five boards were functioning, there were 305 physicians examined, of whom 8.5 per cent failed, and 22 others, of whom 31.8 per cent failed. In 1948 there were examined 3,000 physicians with 13.3 per cent failures and 827 others, of whom 47.1 per cent failed.

In twenty-two years, 31,566 physicians and medical students were examined, of whom 26,946 were successful in their examinations. In the same period 5,080 other practitioners were tested and 2,627 were successful. By both examination and endorsement there were 34,100 physicians or medical students issued certificates in twenty-two years and 4,247 certificates were issued to other practitioners.

Basic science laws have been enacted in order that all who seek to care for sick and injured persons can

for basic science registration is done in many states by nonmedical examiners.

The basic science boards now operating have formed an American Association of Basic Science Boards which is in position to provide information to states contem-

TABLE 35.—Total Candidates for Basic Science Certification, 1927-1948

	No. of Boards	Physicians and Medical Students					Other Practitioners				
		Examined	Passed	Failed	Percentage Failed	Endorsement Total Certified	Examined	Passed	Failed	Percentage Failed	Endorsement Total Certified
1927	5	305	279	26	8.5	26	305	22	15	7	31.8
1928	5	646	586	60	9.3	19	605	59	31	23	47.5
1929	7	668	610	58	8.7	75	685	66	31	35	53.0
1930	7	685	606	79	11.5	118	724	78	30	48	61.5
1931	7	680	666	14	13.8	141	727	107	48	59	55.1
1932	7	657	590	67	10.2	106	696	78	44	34	43.6
1933	8	601	527	74	12.3	121	648	60	30	30	50.0
1934	9	815	725	90	11.0	127	852	51	26	25	49.0
1935	10	882	761	121	13.7	110	871	74	33	41	55.4
1936	10	1,032	891	141	13.7	230	1,121	66	26	40	60.6
1937	12	1,231	1,061	170	13.8	192	1,253	113	41	72	63.7
1938	12	1,165	1,026	142	12.2	267	1,293	158	70	88	55.7
1939	14	1,141	1,013	128	11.2	727	1,740	218	97	121	55.5
1940	16	1,303	1,140	163	12.5	324	1,464	280	153	127	43.9
1941	17	1,763	1,560	203	11.8	250	1,840	356	191	165	46.3
1942	17	1,725	1,476	249	14.4	218	1,639	497	249	248	49.9
1943	18	2,330	2,093	232	10.0	296	2,394	389	211	178	45.8
1944	18	2,284	1,868	416	18.2	222	2,000	465	276	189	40.6
1945	18	2,570	2,146	424	16.6	412	2,555	397	193	204	51.4
1946	19	2,937	2,391	546	18.7	1,308	3,699	818	167	146	46.6
1947	19	3,132	2,405	727	23.2	771	3,176	406	228	178	43.8
1948	19	3,000	2,601	399	13.3	1,069	3,670	827	437	300	47.1
Totals...	31,566	26,946	4,020	14.6	7,154	34,100	5,080	2,627	2,453	48.3	1,620

TABLE 34.—Basic Science Certificates Issued by Examination, Reciprocity and Endorsement, 1948

	Examination				Reciprocity, Endorsement or Waiver				Registered
	Physicians and Medical Students	Osteopaths	Chiropractors	Unclassified	Physicians and Medical Students	Osteopaths	Chiropractors	Unclassified	
Alaska.....	2	0	0	0	2	5	0	0	7
Arizona.....	70	3	7	83	93	66	80	58	330
Arkansas.....	92	2	1	95	70	1	2	0	73
Colorado.....	160	1	0	169	43	9	3	22	240
Connecticut.....	140	1	2	143	0	0	0	0	143
District of Columbia.....	20	0	0	20	120	0	0	0	120
Florida.....	412	4	0	451	0	0	0	0	451
Iowa.....	140	64	25	229	117	5	0	11	257
Michigan.....	253	4	1	258	40	12	0	47	370
Minnesota.....	258	18	2	331	162	1	0	2	365
Nebraska.....	78	0	0	78	47	0	0	0	125
New Mexico.....	72	0	0	72	0	0	0	0	72
Oklahoma.....	86	0	0	86	0	0	0	0	86
Oregon.....	114	0	0	113	89	12	7	35	276
Rhode Island.....	48	2	0	50	1	0	0	0	71
South Dakota.....	42	1	28	71	9	0	1	0	81
Tennessee.....	183	0	0	188	115	0	0	0	303
Washington.....	270	6	0	276	0	0	0	0	276
Wisconsin.....	161	0	13	174	159	6	19	0	355
Totals.....	2,601	106	75	3,082	1,069	112	62	175	4,456

be tested to determine whether they possess a reasonable knowledge of the sciences fundamental to the healing art. The results of the examinations demonstrate that, in general, practitioners other than physicians are not adequately equipped in the fundamentals of medical care. This is particularly significant, since the testing

plating basic science legislation. Procedures are under consideration to facilitate reciprocity arrangements. At present, certification by reciprocity is difficult because of differences in the laws of the various states.

The present executive officer of each of the nineteen basic science boards is as follows:

OFFICIALS OF BASIC SCIENCE BOARDS

Arizona—Mr. Francis A. Roy, Science Hall, University of Arizona, Tucson.

Arkansas—Mr. L. E. Gebauer, 1002 Donaghey Building, Little Rock.

Colorado—Esther B. Starks, D.O., 1459 Ogden Street, Denver.

Connecticut—Mr. C. M. Bakewell, 110 Whitney Avenue, New Haven.

District of Columbia—Dr. G. C. Ruhland, 4130 East Municipal Building, Washington.

Florida—Mr. M. W. Emmel, University of Florida, Gainesville.

Iowa—Dr. Ben H. Peterson, Coe College, Cedar Rapids.

Michigan—Miss Eloise LeBeau, 101 North Walnut Street, Lansing.

Minnesota—Dr. Raymond N. Bieter, 105 Millard Hall, University of Minnesota, Minneapolis 14.

Nebraska—Mr. Oscar F. Humble, 1009 State Capitol Building, Lincoln 9.

New Mexico—Miss Marguerite Kilkenny, 110 West Houghton Street, Santa Fe.

Oklahoma—Dr. Frank C. Gallagher, 813 Braniff Building, Oklahoma City.

Oregon—Dr. C. D. Byrne, University of Oregon, Eugene.

Rhode Island—Mr. Thomas B. Casey, 366 State Office Building, Providence.

South Dakota—Dr. G. M. Evans, 310 East 15th Street, Yankton.

Tennessee—Dr. O. W. Hyman, 874 Union Avenue, Memphis.

Washington—Mr. Edward C. Dohm, Olympia.

Wisconsin—Mr. William H. Barber, Watson and Scott Streets, Ripon.

Alaska—Dr. C. Earl Albrecht, Box 1931, Juneau.

NATIONAL BOARD OF MEDICAL EXAMINERS

The certificate of the National Board of Medical Examiners is accepted as an adequate qualification for registration by the licensing boards of all the forty-eight states except Florida, Montana and Wisconsin. It is also recognized by the District of Columbia, the territories of Alaska, Hawaii and Puerto Rico and the Canal Zone.

The licensing board of Louisiana exempts diplomates of the National Board from the state examination if they have also been licensed in a state with which Louisiana reciprocates. Additional examinations are required by some licensing boards. These are oral examinations in Hawaii, Illinois, Maine, Rhode Island and Wyoming and a brief supplemental written examination in Michigan.

The boards of examiners in the basic sciences of Alaska, Connecticut, Iowa, Minnesota, Oklahoma, Tennessee and the District of Columbia honor the examination of the National Board and give a qualifying certificate to its diplomates without further examination. The basic science board in Nebraska accepts the board's examinations in most instances after reviewing the answer papers.

TABLE 36.—States Endorsing Certificates of the National Board of Medical Examiners

Alabama	Illinois ¹	Nebraska ²	Puerto Rico
Alaska ³	Indiana	Nevada	Rhode Island ¹
Arizona	Iowa ³	New Hampshire	South Carolina
Arkansas	Kansas	New Jersey	South Dakota
California	Kentucky	New Mexico	Tennessee ²
Canal Zone	Louisiana	New York	Texas
Colorado	Maine ¹	North Carolina	Utah
Connecticut ²	Maryland	North Dakota	Vermont
Delaware	Massachusetts	Ohio	Virginia
Dist. of Columbia ³	Michigan ²	Oklahoma ³	Washington
Georgia	Minnesota ²	Oregon	West Virginia
Hawaii ¹	Mississippi	Pennsylvania	Wyoming ¹
Idaho	Missouri		

1. Oral examination required.
2. Brief supplemental written examination required.
3. Examination in basic sciences accepted by state basic science board.

TABLE 37.—National Board Examinations, 1916-1921

Date	Total Examined	Failed	Percentage Failed
October 1916.....	10	5	50.0
June 1917.....	12	3	25.0
October 1917.....	23	6	21.4
January 1918.....	20	2	10.0
April 1918.....	23	5	21.7
December 1918.....	16	1	6.3
June 1919.....	52	1	1.9
February 1920.....	48	12	25.0
May 1920.....	60	14	23.3
February 1921.....	16	5	31.3
June 1921.....	40	3	7.5
Totals.....	325	57	17.5

Diplomates of the National Board are admitted to the final examination of the Examining Board in England, of the Triple Qualification Board of Scotland and of the Conjoint Board in Ireland. The National Board admits directly to Parts II and III of its examinations the diplomates of these boards provided they hold a degree in medicine from an acceptable university. Diplomates may also be admitted without further examination to the Mayo Foundation for Medical Education and Research provided they possess the other necessary qualifications.

The states, territories and possessions which will endorse the certificate of the National Board are recorded in table 36.

The almost universal recognition of the examinations of the National Board is evidenced by the acceptance of the board's examinations by many schools as part of their own examination and promotion procedures. At some of the schools the students are required to pass part I at the end of the second year and part II at

TABLE 38.—National Board Examinations in Part I, 1922-1948

Date	Total Examinations	Passed	Incomplete	Failed	Percentage Failed
February 1948.....	611	499	49	63*	11.2
June 1948.....	1,964	940	824	200	17.5
September 1948.....	1,232	739	359	104	12.3
Totals.....	3,807	2,178	1,262	367	14.4
1922.....	388	263	58	67	20.3
1923.....	507	349	77	81	16.8
1924.....	591	415	69	107	20.5
1925.....	608	400	50	158	26.3
1926.....	625	436	104	85	16.3
1927.....	702	452	159	91	16.8
1928.....	843	533	231	79	12.9
1929.....	1,096	675	331	90	11.8
1930.....	1,260	801	345	114	12.5
1931.....	1,277	755	425	97	11.4
1932.....	1,307	847	371	89	9.5
1933.....	1,234	732	316	136	14.8
1934.....	1,241	809	347	85	9.5
1935.....	1,264	785	410	69	8.1
1936.....	1,344	858	363	123	12.5
1937.....	1,435	871	415	149	14.6
1938.....	1,634	956	508	160	14.0
1939.....	1,733	1,048	460	225	17.7
1940.....	1,633	1,069	375	209	16.4
1941.....	1,640	1,087	346	207	16.0
1942.....	1,867	1,204	471	192	13.8
1943.....	2,656	1,441	962	253	14.9
1944.....	4,229	2,326	1,465	438	15.9
1945.....	3,865	2,106	1,475	284	11.8
1946.....	3,148	1,695	1,189	264	13.5
1947.....	3,514	1,844	1,352	318	14.7
1948.....	3,807	2,178	1,262	367	14.4
Totals.....	45,488	27,015	13,936	4,337	14.0

TABLE 39.—National Board Examinations in Part II, 1922-1948

Date	Total Examinations	Passed	Incomplete	Failed	Percentage Failed
February 1948.....	310	309	0	1	0.3
April 1948.....	1,059	1,044	0	15	1.4
June 1948.....	264	263	0	1	0.4
September 1948.....	100	109	0	0	0.0
Totals.....	1,742	1,725	0	17	0.9
1922.....	109	90	0	19	17.4
1923.....	192	170	2	20	10.5
1924.....	267	227	0	40	15.0
1925.....	342	309	0	33	9.6
1926.....	381	334	1	46	12.1
1927.....	361	314	1	46	12.8
1928.....	410	371	1	38	9.3
1929.....	465	399	19	47	10.5
1930.....	620	543	7	70	11.4
1931.....	719	630	2	87	12.1
1932.....	732	674	0	58	7.9
1933.....	714	651	0	63	8.8
1934.....	633	553	0	50	7.9
1935.....	689	620	0	69	10.0
1936.....	708	716	2	30	6.5
1937.....	855	803	1	51	6.0
1938.....	861	815	0	46	5.3
1939.....	988	884	0	54	5.8
1940.....	1,023	963	9	56	5.5
1941.....	1,001	954	1	46	4.6
1942.....	1,072	1,031	0	41	3.8
1943.....	1,861	1,805	0	56	3.0
1944.....	1,465	1,350	0	55	3.9
1945.....	1,599	1,565	0	34	2.1
1946.....	1,823	1,782	0	43	2.4
1947.....	1,641	1,613	0	28	1.7
1948.....	1,742	1,725	0	17	0.9
Totals.....	23,230	21,921	46	1,263	5.5

the end of the fourth year. Other schools require only that part II be passed at the end of the fourth year. In addition, there are a few schools at which those students who voluntarily take and pass the board's examinations, either in part I or part II, are excused from the corresponding final school examinations.

Requirements for admission to the National Board examinations include a standard four year high school course, two years of acceptable college work including English, physics, chemistry, and biology, and medical training satisfactorily completed in approved medical schools in the United States and Canada. Graduates

TABLE 40.—National Board Examinations in Part III, 1922-1948

Date	Total Examinations	Passed	Failed	Percentage Failed
1922.....	22	22	0	0.0
1923.....	82	81	1	1.2
1924.....	126	120	6	4.8
1925.....	219	206	13	5.9
1926.....	255	243	12	4.7
1927.....	293	272	21	7.2
1928.....	322	306	16	5.0
1929.....	352	337	15	4.3
1930.....	420	401	19	4.5
1931.....	437	419	18	4.1
1932.....	550	522	28	5.1
1933.....	551	526	25	4.5
1934.....	567	548	19	3.4
1935.....	598	578	20	3.3
1936.....	576	547	29	5.0
1937.....	668	630	38	5.7
1938.....	706	682	24	3.4
1939.....	770	729	41	5.3
1940.....	792	771	21	2.7
1941.....	910	885	25	2.7
1942.....	1,054	1,041	13	1.2
1943.....	1,230	1,213	17	1.4
1944.....	1,168	1,146	22	1.8
1945.....	1,245	1,232	13	1.0
1946.....	1,634	1,613	21	1.2
1947.....	1,741	1,723	18	1.0
1948.....	1,715	1,700	15	0.9
Totals.....	19,003	18,493	510	2.6

of the university medical schools of Great Britain and Ireland are admitted to the examinations provided these graduates have been licensed to practice in the country in which the school attended is located.

In the following paragraphs data are presented for the thirtieth consecutive year regarding the examinations conducted and the issuance of certificates by the National Board.

The first examination was given in October 1916. From that date and up to and including a test given in June 1921, eleven examinations were given and 268 candidates were certified. The results of each examination during this period are given in table 37.

Since 1922 the examination of the National Board has been divided into three parts, which must be taken and completed in the following sequence: part I, consisting of a written examination in the basic sciences; part II, a written examination in five major clinical subjects, and part III, a clinical and practical examination in six major clinical divisions and their component subjects or subdivisions. Parts I and II are given in approved medical schools throughout the country, while part III is given under the direction of local subsidiary boards in twenty-five centers at times sufficiently frequent to accommodate all eligible candidates.

The tables that are hereinafter presented enumerate the results of examinations in parts I, II and III for each calendar year since 1922, including those who passed and failed examinations and those certified.

A candidate is eligible for part I who has completed successfully the first two years of work in an approved medical school. An incomplete examination is allowed candidates taking part I at the end of their second medical year in schools whose third year curriculum includes courses in one or two subjects of this part. Examinations in these subjects may be taken after the candidate has completed them in his medical school. They are recorded in these tabulations under the heading "Incomplete Examinations" and are excluded from the calculations referring to the percentage of failures. Divided examinations, which allow the writing of examinations in four subjects at one time and the remaining two at a subsequent examination, is also permitted. Such examinations are not reported until completion of the entire test and are not recorded in the compilations presented.

To be eligible for part II, a candidate must have completed successfully a four year medical school course in an approved medical school and must have passed part I.

A candidate is eligible for part III who has passed parts I and II, received his medical degree and completed an internship of one year in a hospital approved for such training by the American or Canadian medical associations, or has served in a laboratory acceptable to the National Board.

TABLE 41.—Parts I, II and III, Excluding Duplications, 1922-1948

Date	Total Examinations	Passed	Incomplete	Failed	Percentage Failed
1922.....	525	381	58	86	18.4
1923.....	775	594	79	102	14.7
1924.....	978	756	63	153	16.8
1925.....	1,167	915	50	202	18.1
1926.....	1,161	930	105	126	11.9
1927.....	1,248	947	142	159	14.4
1928.....	1,430	1,101	211	118	9.7
1929.....	1,723	1,280	310	124	8.8
1930.....	2,044	1,547	322	175	10.2
1931.....	2,218	1,632	410	176	9.7
1932.....	2,342	1,850	355	137	6.9
1933.....	2,277	1,806	280	191	9.6
1934.....	2,261	1,801	330	130	6.7
1935.....	2,368	1,831	408	129	6.6
1936.....	2,517	1,989	353	175	8.1
1937.....	2,735	2,151	397	187	8.0
1938.....	2,992	2,303	493	191	7.6
1939.....	3,221	2,476	443	302	10.9
1940.....	3,188	2,597	363	223	8.1
1941.....	3,318	2,749	332	237	7.9
1942.....	3,607	3,014	391	202	6.3
1943.....	4,514	3,671	606	237	6.1
1944.....	5,363	4,235	759	369	8.0
1945.....	5,614	4,463	886	260	5.5
1946.....	5,912	4,730	898	284	5.7
1947.....	6,249	4,965	1,002	282	5.3
1948.....	6,389	5,194	902	293	5.3
Totals.....	78,136	61,918	10,963	5,255	7.8

Three examinations were given in part I in 1948 and four in part II, while tests in part III were held at various times during the year.

The figures in tables 38 and 39 cover details of each examination given during 1948 and since 1922. The data shown represent examinations conducted rather

than persons examined. The figures include candidates who fail and are reexamined during the same year and those who pass parts I and II in the same year.

In 1948, 3,807 examinations were given in part I; 2,178 passed and 367, 14.4 per cent, failed. There were 1,262 incomplete examinations given. In part II, 1,742 examinations were held; 1,725 passed and 17, or 0.9

TABLE 42.—*Diplomates from Individual Medical Schools, 1948*

Medical College of Alabama.....	1	New York Medical College.....	112
University of Arkansas.....	1	New York University.....	114
College of Medical Evangelists.....	41	Syracuse University.....	18
Stanford University.....	8	University of Buffalo.....	67
University of California.....	5	University of Rochester.....	45
Univ. of Southern California..	2	Duke University.....	52
University of Colorado.....	15	Bowman-Gray School of Med..	3
Yale University.....	60	University of Cincinnati.....	1
George Washington University..	73	Western Reserve University....	4
Georgetown University.....	70	University of Oklahoma.....	4
Howard University.....	1	University of Oregon.....	1
Loyola University.....	9	Hahnemann Medical College..	22
Northwestern University.....	23	Jefferson Medical College.....	17
University of Chicago.....	1	Temple University.....	23
University of Illinois.....	17	University of Pennsylvania....	48
Indiana University.....	2	University of Pittsburgh.....	5
State University of Iowa.....	33	Woman's Medical College.....	15
University of Louisville.....	5	Med. Coll. of South Carolina..	1
Tulane University.....	11	Meharry Medical College.....	6
Johns Hopkins University.....	13	University of Tennessee.....	1
University of Maryland.....	9	Vanderbilt University.....	9
Boston University.....	57	Southwestern Medical College..	1
Harvard Medical School.....	118	University of Texas.....	4
Tufts College Medical School..	110	University of Utah.....	1
University of Michigan.....	21	University of Vermont.....	30
Wayne University.....	1	Medical College of Virginia...	6
University of Minnesota.....	7	University of Virginia.....	3
St. Louis University.....	13	Marquette University.....	15
Washington University.....	7	University of Wisconsin.....	1
Creighton University.....	7	Laval University.....	1
University of Nebraska.....	5	McGill University.....	9
Albany Medical College.....	45	Queen's University.....	4
Columbia University.....	88	University of Toronto.....	6
Cornell University.....	67	Foreign Schools.....	9
Long Island College of Med... 87			
Total.....	1,700		

per cent, failed. Incomplete examinations are only rarely given in part II. There were none given in 1948.

There have been 45,488 examinations given in part I since 1922 and 23,230 in part II. During this period 27,015 passed part I and 21,921 passed part II. In twenty-seven years there have been 4,537 failures in part I, 14 per cent, and 1,263 in part II, 5.5 per cent. The increasing recognition of the National Board's examinations by medical schools and licensing boards is reflected in the figures presented in these two tables and particularly since 1943. The greatest number of examinations were given in part I in 1944 and in part II in 1943 when medical schools were operating on an accelerated program.

Tests in part III in 1948 totaled 1,715, including 1,700 successful examinations and 15, or 0.9 per cent, failures. Results of examinations given in this part in twenty-seven years are presented in table 40. During this period 19,003 were tested, of whom 18,493 were granted certificates. The percentage of failures in this final examination in twenty-seven years was 2.6. Since 1915, when the board's first examination was given, 18,761 certificates have been awarded. Physicians who

earn the certificate are known as diplomates and are privileged to use the designating initials "D.N.B."

The figures thus far presented represent examinations given. The number of persons tested during any one year is recorded for the twenty-seven year period in table 41. The classification "Passed" or "Failed" in cases in which more than one examination has been taken in a given year was based on the results of the last examination during the year in question. Thus, if in 1948 a candidate passed part I but at a subsequent examination in 1948 he failed part II, he is computed in this tabulation as having failed. These figures reveal that there were 6,389 who took at least one of the tests of the National Board in 1948, as compared with 525 in 1922. The greatest number was evidenced last year. In all 78,136 persons were examined in one or more of the annual examinations in the twenty-seven years shown, of whom 61,918 passed, 10,963 took incomplete examinations and 5,255, or 7.8 per cent, failed.

The 1,700 physicians certified as diplomates in 1948 represented sixty-four medical schools in the United States, four in Canada and nine foreign universities. The school and the number of examinees from each are included in table 42.

Diplomates licensed to practice medicine on the basis of their credentials increased from 2 in 1917 to 2,474 in 1948 (table 43), and 16,694 have been so licensed since the National Board was formed. However, 18,493 have received the certificate of the board.

The membership of the National Board is composed of thirty-two persons, representing the federal services, the Federation of State Medical Boards of the United States, the Association of American Medical Colleges,

TABLE 43.—*Licenses Granted on the Basis of National Board Certificates, 1948*

Alabama.....	13	New Jersey.....	95
Arizona.....	19	New Mexico.....	5
Arkansas.....	9	New York.....	703
California.....	222	North Carolina.....	44
Colorado.....	24	North Dakota.....	6
Connecticut.....	126	Ohio.....	58
Distriet of Columbia.....	105	Oklahoma.....	7
Georgia.....	19	Oregon.....	20
Idaho.....	7	Pennsylvania.....	68
Illinois.....	65	Rhode Island.....	17
Indiana.....	22	South Carolina.....	5
Iowa.....	41	South Dakota.....	3
Kansas.....	11	Tennessee.....	16
Kentucky.....	10	Texas.....	33
Maine.....	24	Utah.....	10
Maryland.....	55	Vermont.....	22
Massachusetts.....	295	Virginia.....	46
Michigan.....	23	Washington.....	44
Minnesota.....	55	West Virginia.....	17
Mississippi.....	5	Wyoming.....	4
Missouri.....	24	Alaska.....	1
Nevada.....	1	Hawaii.....	12
New Hampshire.....	35	Puerto Rico.....	8
Total.....	2,474		

the Council on Medical Education and Hospitals of the American Medical Association and members elected at large. The president of the board is Bordon S. Veeder, M.D., St. Louis; the medical secretary is J. S. Rodman, M.D., and the executive secretary is Mr. E. S. Elwood. The address of the board is 225 South 15th Street, Philadelphia.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

535 NORTH DEARBORN STREET - - - CHICAGO 10, ILL.

Edited by
MORRIS FISHBEIN, M.D.
Assistant Editor, **AUSTIN SMITH, M.D.**

Associate Editors
JOHNSON F. HAMMOND, M.D. **RICHARD J. PLUNKETT, M.D.**

Editor for Current Medical Literature, **GEORGE HALPERIN, M.D.**

Assistant to the Editor, **JEWEL F. WHELAN**

Subscription price - - - Twelve dollars per annum in advance

Cable Address - - - "Medic, Chicago"

Please send in promptly notice of change of address, giving both old and new; always state whether the change is temporary or permanent. Such notice should mention all journals received from this office. Important information regarding contributions will be found on second advertising page following reading matter.

SATURDAY, MAY 21, 1949

MEDICAL LICENSURE

In this issue appears the annual report on the examination and licensure of physicians in the United States and its territories and outlying possessions for the year 1948. The tables and the summaries show conditions at present and indicate trends over many years. During the last year, 13,551 applicants were licensed to practice, 5,967 by examination and 7,584 by endorsement of credentials.

The increment of the medical profession consisting of physicians licensed for the first time was 6,597. During the year 3,230 physicians died. The net gain to the physician population was 3,367. The registration of physicians revealed that 94.8 per cent were graduates of approved medical schools.

The percentage of failures from existing United States schools was 3.3; of graduates of unapproved schools 42.7 per cent failed; graduates of schools of osteopathy admitted to the medical licensure examinations represented 37.8 per cent failures, and 51.5 per cent of foreign-trained physicians failed licensure examinations last year. The total percentage of failures was 10.9.

Data pertaining to examinations given by the boards of examiners in the basic sciences and the National Board of Medical Examiners are included in this study. Osteopaths and chiropractors represented the greatest number of failures before basic science boards. During the year 3,827 certificates were issued by the nineteen basic science boards. The National Board of Medical Examiners, the influence of which has steadily increased since its inception in 1915, issued 1,700 certificates in 1948. All states except Florida, Montana and Wisconsin recognize the certificate of the National Board for licensure, and 2,474 physicians were granted medical licenses on the basis of National Board credentials in 1948.

The publication of these statistics annually is made possible by the conscientious reporting of examination and reciprocity actions by every governmental unit of the United States, its territories and possessions, as well as the basic science boards and the National Board. The cooperation of all these agencies is appreciated and is gratefully acknowledged.

CATHOLIC AGENCIES MAKE STATEMENT ON THE NATIONAL HEALTH PROGRAM

Recently the Bureau of Health and Hospitals of the National Catholic Welfare Conference, the National Conference of Catholic Charities and the Catholic Hospital Association issued a statement entitled "A Voluntary Approach to a National Health Program," under the auspices of the Most Reverend Karl J. Alter, Bishop of Toledo, Episcopal Chairman, Bureau of Health and Hospitals, Social Action Department of the National Catholic Welfare Conference, and Chairman of the Administrative Board of the Catholic Hospital Association of the United States and Canada. In his introduction to the statement, Bishop Alter points out that the agencies concerned "recognize the existence of social responsibility but at the same time they reject the concept of an exclusive state responsibility for the health and well-being of the American people." Bishop Alter says:

They reaffirm their conviction that a partnership between the state and voluntary associations provides the better solution and is more consistent with our democratic processes. Monopoly means control: partnership means freedom.

After rejecting the administration's proposals and after an analysis of the Brookings report and the Ewing statement, the Catholic agencies offer their own constructive program. In their program they recommend establishment of a medical administrator in the Federal Security Agency under the direction of a federal health council. They recommend increase in grants for hospital construction, assistance to medical colleges by paying up to 50 per cent of the salaries of the teaching staff with a ceiling of \$10,000 per person per year. They also recommend grants in aid for the medical schools, loan scholarships to medical students and subsidizing of physicians to encourage service in rural areas. They recommend an appropriation of \$25,000,000 for medical research in medical colleges, assistance to schools of nursing and aid for the development of auxiliary medical personnel. They would meet the costs of prepayment plans for medical care by permitting a reduction of premiums up to \$75 for health insurance from the net income tax of all persons in the lower income brackets, the funds thus lost by the government to be replaced with new taxation. They also recommend appropriation of \$200,000,000 annually to assist the

states in providing health care for the indigent and medically indigent, the money to be used in purchasing insurance and in voluntary plans for those thus classified. Each state would establish a state health insurance agency with the council appointed by the governor to determine policies and approve regulations made by the federal council.

In their conclusion the Catholic agencies call attention to the fact that compulsory governmental insurance programs would by necessity destroy existing voluntary programs. They venture also the opinion that the highly complicated system of assigning, regulating and controlling health services set forth in Senate Bill 5, which is the Wagner-Murray-Dingell bill, would in the judgment of hospital authorities and medical men be practically unmanageable and would so increase demands on existing facilities and personnel that the very weight of the premature demand would necessarily cause deterioration in the quality of the service rendered.

REHABILITATION

The family physician, after seeing a patient through the acute stages of an illness and subsequent convalescence, watched him until his ultimate return to work. The patient, usually stimulated by the daily needs of life on the farm and in the home, was chiefly interested in regaining his former place in his society. As he recuperated, he could make himself useful in many simple tasks. Gradually more difficult and strenuous skills would be regained. The relationship of the family physician to the home was sufficiently direct to permit him to help substantially in the process.

Now, however, and especially in cities, the family physician can no longer help effectively in this rehabilitative phase of medical care. Many people live almost monastically in apartments like cubicles. From the hospital the inmate returns to this cell, where his metabolism can be described in terms like those used by the cytologist in describing the life processes of an erythroblast. Materials to be metabolized are delivered to the service door by the smoothly flowing circulatory system of the metropolis, and the products of this metabolism disappear down chutes, drains and pipes. Of visible motion there is none. The activities of this cell are paradoxically not active, but passive; they consist of looking at papers, listening to radios and watching television. A patient returning to such an environment from a hospital is not stimulated. He has been looking at papers, listening to radios and watching television in the hospital, too. If he gains strength, he may go out to theaters and stadiums, where he will hear and see more of the same thing in the same passive way. Little incentive develops for regaining useful skills. Seldom are there facilities for use by the patient in preparing to resume his former

occupation. The physicians who may have served the patient well during the phases of his recovery in the hospital can do little or nothing for him during the rehabilitative phase.

The consequences of this are stated, with an almost brutal use of statistics, by Howard A. Rusk in an article elsewhere in this issue. Added strains are manifest both in the home, where cramped quarters distress patient and family alike, and in the hospital, where slow recoveries tie up beds. Rusk sees rehabilitation as an essential "third phase" of medical care. The importance of finding places for the handicapped in American industry is made undeniably clear. The roles of physical medicine and of occupational therapy in rehabilitation are seen in a new light.

The interrelations of physical medicine, occupational therapy and rehabilitation are important because of their bearing on the education of young physicians. Hospital residencies may be planned to provide some training in all three fields, and credit should be allotted for such training. The three fields concerned, although they overlap extensively, have in addition certain distinctive areas of their own. The difficulties about residencies have claimed the attention of the Council on Medical Education and Hospitals, and have concerned especially the Council on Physical Medicine. The latter council recently voted to enlarge its scope and to change its name to the Council on Physical Medicine and Rehabilitation; this action should clarify some of the thinking on the subject and will help greatly in dealing with problems like that of residencies. The Board of Trustees of the American Medical Association has voted approval of this change of name.

HUMAN SKIN GRAFTS ON CHICK EMBRYOS

In 1938 Goodpasture¹ and his associates of Vanderbilt University developed a new technic in immunologic and virus research. They found that intact human skin can be successfully grafted on the chorioallantois of the chick embryo. The graft becomes adherent to the membrane and within two to four days becomes vascularized with capillaries carrying chick erythrocytes. The graft is apparently adequately nourished till shortly before hatching, thus giving eight to ten days for its technical use. Attempts to prolong the life of the graft by transfer to a second embryo were almost invariably unsuccessful. Goodpasture inoculated several of his grafts with the virus of herpes simplex, vaccinia and smallpox. The resulting lesions and cellular changes were typical of these infections.

Improvements in this technic are now reported by Blank² and his associates, of the departments of derma-

1. Goodpasture, E. W.; Douglas, B., and Anderson, K.: *J. Exper. Med.* **68**: 891, 1938.

2. Blank, H.; Coriell, L. L., and Scott, T. F. McN.: *Proc. Soc. Exper. Biol. & Med.* **69**: 341, 1948.

tology and pediatrics, University of Pennsylvania. Human skin used in most of their experiments was obtained at circumcision of children. The prepuce was cleaned preoperatively with soap, water and alcohol, other antiseptics being avoided. Usually within two hours after the operation the prepuce was further cleaned by bathing in a buffered isotonic sodium chloride solution, containing 0.5 per cent gelatin, penicillin and streptomycin. Previous studies had shown the antibacterial effectiveness and innocuous character of this solution. The connective tissue was carefully dissected off, leaving the epidermis and attached corium as thin as possible. Squares of the desired size were then planted on the chorioallantoic membranes of 10 day old embryonated hen's eggs. Bacterial contamination was rare. The 232 successful takes showed active proliferation of the epidermis and the establishment of chick circulation in the corium.

At the end of seven days the grafts were removed aseptically and placed in a sterile Petri dish. All the attached chorioallantois and any additional connective tissue which had grown in the corium were now trimmed away. The grafts were then transferred to the chorioallantoic membranes of a second 10 day embryonated egg. By this technic serial transfer could be continued at seven day intervals, apparently indefinitely. Of 124 regrafts only 7 failed to take.

The Philadelphia investigators found that both the initial grafts and the regrafts are readily inoculated with herpes simplex or with vaccinia virus, with the formation of characteristic inclusion bodies. Successful inoculations with herpes zoster virus were also made, thus confirming Goodpasture's³ single successful cultivation of this virus outside of the human body.

Aside from its possible use in the growth of viruses that cannot be cultivated by other methods, the skin graft technic has numerous possible applications to the solution of basic immunologic problems. The still unsolved problem of the relation of humoral and fixed cellular factors in acquired immunity was thus tested by Goodpasture.⁴ He grafted skin taken from chickens immune to fowl pox virus onto the chorioallantoic membrane. Tests showed that such grafts are fully susceptible to fowl pox infection. From this Goodpasture concluded that acquired fowl pox immunity is due in the main, at least, to humoral antibodies. These were presumably diluted out of the skin graft by the chorioallantoic circulation. Other interpretations are of course possible.

The possibility of making similar egg grafts of human mucous membranes, human blood vessels or other key human tissues has not yet been reported.

EXTRANEURAL MULTIPLICATION OF POLIOMYELITIS VIRUS

In 1936 Sabin and Olitsky¹ of the Rockefeller Institute reported the successful cultivation of poliomyelitis virus in test tube suspensions of human embryonic nervous tissue. Control tests with suspensions of tissues from human embryonic lungs, kidney, liver or spleen gave negative results. These observations were in accord with the currently accepted theory, which assumed that poliomyelitis virus is strictly neurotropic, incapable of invading any human tissue, except those of the nervous system.

Evans,² Rustigian³ and others have recently challenged this theory, on analogy with various poliomyelitis-like viruses of mice, which are known to be able to multiply in nonnervous tissues. The early test tube experiments of Sabin and Olitsky have therefore been repeated by Enders⁴ and his associates of Harvard University, using the improved tissue culture technic recently perfected by Weller⁵ for the cultivation of mumps virus.

The cultures consisted of embryonic human tissue fragments suspended in 3 cc. of a mixture of balanced salt solution and ox serum ultrafiltrate. Tissues from human embryos of two and one-half to four and one-half months were used as well as from a premature infant of seven months. Fragments were taken from the arm, legs, intestines and brains.

The primary inoculum of these tissue cultures consisted of 0.1 cc. of a suspension of mouse brain infected with the Lansing strain of poliomyelitis virus. In each test tube the nutrient fluid was removed as completely as possible at four to seven day intervals and replaced with fresh nutrient fluid. Subcultures on fresh tissues were made at eight to twenty day intervals.

Cultures composed chiefly of early embryonic skin, muscle and connective tissue have thus far been maintained for sixty-seven days. During this time the primary inoculum has been diluted approximately 10^{17} times, with little or no decrease in mouse infectivity titer. From this there was a calculated 10^{15} -fold multiplication of the virus. Cultures of early embryonic intestinal tissues gave a calculated multiplication of about 10^{12} -fold, by the end of two subcultures and seven changes in the nutrient fluid. With embryonic human brain tissues, the multiplication was also 10^{12} -fold.

Full identification of the virus was made by mouse inoculation, rhesus inoculation and serum neutralization tests. Tissue fragments removed after thirty days of cultivation in control uninoculated tubes apparently

3. Goodpasture, E. W., and Anderson, K.: *Am. J. Path.* **20**: 447, 1944.

4. Goodpasture, E. W., and Anderson, K.: Immunity to Fowlpox Studied by Means of Skin Grafts on Chorioallantois of Chick Embryo, *Arch. Path.*, **30**: 212 (July) 1940.

1. Sabin, A. B., and Olitsky, P. K.: *Proc. Soc. Exper. Biol. & Med.* **34**: 357, 1936.

2. Evans, C. A., and Chambers, V. C.: *Proc. Exper. Biol. & Med.* **68**: 436, 1948.

3. Rustigian, R., and Pappenheimer, A. M.: *J. Exper. Med.* **89**: 69, 1949.

4. Enders, J. F.; Weller, T. H., and Robbins, F. C.: *Science*, **109**: 85 (Jan. 28) 1949.

5. Weller, T. H., and Enders, J. F.: *Proc. Soc. Exper. Biol. & Med.* **69**: 124, 1948.

contained viable cells, as indicated by normal staining properties of both nuclei and cytoplasm. In contrast, the majority of the cells in the inoculated cultures showed losses of normal staining reactions. From this and other evidence Enders concludes that multiplication of the Lansing strain of poliomyelitis virus conceivably occurs in cells not of nervous origin. Adult extra-neural human tissues, however, have not been tested.

Current Comment

THE NATIONAL HEALTH SERVICE TRIBUNAL

Under the National Health Service Act in Great Britain provision is made for disciplinary machinery which may be applied to members of the various professions that take part in the National Health Services. Such disciplinary action is in charge of a tribunal which considers representations that the continued inclusion of the name of any doctor, dentist, optician or pharmacist would be prejudicial to the efficiency of the service and that the person concerned should be "struck off." Obviously the "striking off" of the name of any professional man in such a manner would be equivalent to forcing him out of the practice of his profession. The hearings are held by a group including a permanent chairman appointed by the Lord Chancellor, a permanent member appointed by the Association of Executive Councils and one other person representing the profession involved. Any appeal from a decision of the tribunal goes to the Minister of Health and not to the courts. The regulations controlling the activities of the tribunal have been published. Obviously the medical and related professions in Great Britain no longer have any power or authority to govern themselves and the power of professional death or survival ultimately rests in the hands of one man, the Minister of Health. Apparently all that the Minister has to do is to publish hearings in "such manner as he sees fit." But even that decision is modified by the following: "The Minister or Tribunal may dispense with any requirements of these regulations respecting notices, applications, documents or otherwise in any case where it appears to the Minister or the Tribunal just and proper to do so."

HOMELESS MEN

A statistical report from the Welfare Council of New York City¹ indicates that the number of homeless men needing care in New York City has shown a rapid postwar rise. The committee obtained data from all public and private civic and social organizations which maintain or are concerned with lodging houses for homeless men in New York City. Composition of the so-called homeless men's group differed considerably from the expected. A three month study of men applying to one municipal lodging house demonstrated that 80 per cent were native-born Americans, 75 per

cent were white, 35 per cent had veteran status, and only one third had been in the city for less than one year. The majority were under 45 years of age, and an overwhelming majority were considered employable. Previous records of homeless men in the depression years 1932-1940 show a peak load during 1935, at which time the number of lodgings provided ran from 15,000 to 19,000 a day. The number gradually declined to 550 per day, in July and August of 1940. If the present upward trend continues the daily average may reach 3,000 to 3,500 per day. The problem presented was not attributed to advanced age, transiency, veteran or nonveteran status or alcoholism. Race, color and religious belief were not considered significant parts of the problem. A lack of opportunity as exemplified by the level of education obtained and lack of attachment to home or family are believed to be the two most significant factors. As present facilities for homeless men were considered inadequate, the committee recommended that a system be established for complete examination and registration by trained medical and social personnel. Individual specialized treatment would thus replace stereotyped handling methods now employed.

THE DISTINGUISHED SERVICE AWARD

The Distinguished Service Medal of the American Medical Association will be awarded for the twelfth time at the Inaugural Meeting Tuesday evening, June 7, 1949, during the Atlantic City Session. This Medal was first presented in 1938 to Dr. Rudolph Matas of New Orleans and has come to be recognized as one of the highest honors within the gift of the American Medical Association. In the years since the first award, the medal has been presented to Dr. James B. Herrick, Chicago; Dr. Chevalier Jackson, Philadelphia; Dr. James Ewing, New York; Dr. Ludvig Hektoen, Chicago; Dr. Elliott P. Joslin, Boston; Dr. George Dock, Pasadena, Calif.; Dr. George R. Minot, Boston; Dr. Anton J. Carlson, Chicago; Dr. Henry A. Christian, Boston, and Dr. Isaac A. Abt, Chicago. Any Fellow of the American Medical Association may submit nominations, which should be sent, together with a record of the scientific attainments of the nominees, to Dr. George F. Lull, Secretary of the Association, 535 North Dearborn Street, Chicago, who will refer them to the Committee on Distinguished Service Award. After careful consideration of all nominations received, the Committee will submit five names to the Board of Trustees, and the Board will select three of the five for presentation to the House of Delegates at its first meeting in Atlantic City. The House of Delegates makes the final selection by official ballot. Those to whom the Medal has been awarded thus far have all been men of the highest distinction, professionally and otherwise, and in their selection honor has accrued not only to the men themselves but also to the American Medical Association. Nominations should be sent to the Secretary of the Association immediately in order that they may be in hand at Atlantic City on Sunday, June 5.

1. Homeless Men in New York City, Report of the Project Committee on Homeless Men, Welfare Council of New York City, December, 1948.

ORGANIZATION SECTION

Washington Letter

(From a Special Correspondent)

May 16, 1949.

Congress Accelerates Handling of Health Legislation

Confronted with the largest and most diversified volume of medical and public health bills in the memory of Capitol Hill officials, Congress has begun to speed up the pace of considering them in order to assure enactment of some of the measures—particularly those in the noncontroversial class—before the session ends. On May 12 two Senate subcommittees concluded public hearings on bills providing for increased federal funds for hospital construction, assistance to local public health departments and for medical research in specialized fields. By the end of May, hearings are expected to be well under way, conducted concurrently by House and Senate committees, on the more controversial national health bills.

May 23 is the newly designated date for opening of hearings by the Senate health subcommittee on the Taft-Smith-Donnell, Hill, Lodge and Thomas-Murray-Dingell bills. Originally scheduled to open a week earlier, a postponement was ordered when numerous prospective witnesses requested an extension of time. A group of Republican Senators and Representatives are reportedly working on still a different type of national health bill, which may be introduced and referred to the Murray subcommittee prior to the launching of its hearings. Meanwhile, hearings on the House side will be conducted by a subcommittee of which Representative J. Percy Priest (Democrat, Tennessee) is chairman.

Senators Hear Arguments for Increased Hospital Aid

Three days of public hearings on amendment of the Hill-Burton Hospital Survey and Construction Act were concluded May 9 by a special subcommittee of Senate Labor and Public Welfare Committee. All witnesses indorsed the amending bill, S. 614, some of them recommending certain minor changes.

Dr. George F. Lull said the A.M.A.'s official position on the proposed legislation, which would double federal support of hospital construction to \$150,000,000 annually, will be taken at the Atlantic City meeting in June.

George Bugbee, executive director of American Hospital Association, favored a flat 40 per cent as the federal share, rather than a flexible scale based on the various states' incomes. The sliding scale formula was indorsed by Lloyd C. Halverson, secretary of the National Grange Interim Committee on Health.

Other witnesses supporting passage of S. 614 were Dr. W. T. Sanger, president of Medical College of Virginia; E. A. van Steenwyck, Associated Hospital Service of Philadelphia; Dr. John A. Ferrell, North Carolina Medical Care Commission; Dr. D. V. Galloway, Mississippi Commission on Hospital Care; Dr. R. H. Hutcheson, Tennessee Health Commissioner; Dr. Albert D. Kaiser, Rochester (N. Y.) Health Officer; Rt. Rev. Msgr. George L. Smith, Catholic Hospital Association; Rev. John G. Martin, American Protestant Hospital Association; Dr. Hugh R. Leavell, Harvard School of Public Health, and several members of Congress.

\$125,000,000 Subsidy of Medical Care Plans Sought

Senator Hubert Humphrey (Democrat, Minnesota) on May 6 introduced a bill, S. 1805, authorizing federal subsidies of \$125,000,000 over a five-year period for cooperatives and non-profit associations operating prepaid medical care plans. The

bill's provisions are similar to those contained in the Truman Administration's compulsory health insurance bill (S. 1679). The government funds would be made available as loans and grants for acquisition, construction and equipping of physical facilities.

"Three national rural health conferences," said Sen. Humphrey, "under the auspices of the American Medical Association, have studied this problem and it is the consensus of the large farm organizations in the country that many of the problems of health they face can largely be worked out by the people themselves on a local community level. The granting of Federal assistance would give great impetus to the widespread demand for providing modern facilities to induce physicians to locate in rural areas."

He estimated that the \$25,000,000 annual assistance for five years would be sufficient to finance some 250 plans a year. In order to qualify, each plan would have to give assurance that there is no lay interference with practice of medicine; that its governing body is not dominated numerically by participating physicians, and that participation by patient-members and physicians is voluntary.

Broad Attack on Neurologic and Rheumatic Diseases Demanded

Five days of hearings, which began May 3 and ended May 10, on separate bills for acceleration of research in epilepsy, cerebral palsy, leprosy, arthritis and rheumatic conditions, and multiple sclerosis, elicited testimony by physicians and laymen, the latter including several patients. Supporting the arthritis bill were Drs. Russell L. Cecil, of Cornell; W. Paul Holbrook, of Tucson, Ariz.; Robert M. Stecher, of Cleveland, and several businessmen. The case for a stimulated, federally supported drive on multiple sclerosis was presented by Mrs. Lou Gehrig, Senator Charles W. Tobey and Drs. Herman Kabat, Tracy Putnam, Huston Merritt and C. H. Traeger. Spokesmen on cerebral palsy included Drs. Ross T. McIntire and Rene Caillet. Witnesses in behalf of an expanded program of leprosy control and education included Perry Burgess, president, Leonard Wood Memorial; Paul Strachan, American Federation of the Physically Handicapped, and Drs. Otis L. Anderson, Hartman Lichtwardt and F. C. Landrum. Another witness was Nick Farrell (an assumed name), who for five years was a patient at the U. S. Marine Hospital at Carville, La.

The Murray subcommittee, which conducted the hearings on these special character bills, terminated its two weeks of morning sessions on May 12 with taking of testimony on S. 904. This bill, sponsored by Senator Paul Douglas (Democrat, Illinois), provides for the institution of a federal child research program in matters of health and welfare. Testifying in support were Dr. Martha Eliot, Children's Bureau; Robert R. Sears, University of Iowa, and others.

Local Public Health Unit Bill Unanimously Supported

Passage of S. 522 or comparable legislation which would strengthen county and city public health agencies with federal funds was strongly urged at the Senate subcommittee hearings May 10-11 by physicians, medical educators, members of Congress and others. Among the witnesses were Surgeon General Leonard A. Scheele; Dr. James S. Simmons, dean of Harvard School of Public Health; Dr. James R. Miller, trustee of the American Medical Association, of Hartford, Conn.; Dr. Edwin L. Crosby, director, Johns Hopkins Hospital; Mrs. Dwight S. Perrin, a director of American Social

Hygiene Association; Dr. James E. Perkins, managing director, National Tuberculosis Association; Mrs. Stanley G. Cook, legislative chairman, National Congress of Parents and Teachers; Dr. Franklin M. Foote, executive secretary, National Society for Prevention of Blindness; Dr. Vlado A. Getting, Massachusetts Health Commissioner; Dr. Gaylord M. Anderson, secretary, Association of Schools of Public Health, and Dr. Haven Emerson, National Health Council.

Senate Passes School Health Services Bill

Without a dissenting vote, the Senate on April 29 passed S. 1411, a school health services bill authorizing \$35,000,000 annually in federal grants to the states for prosecution of programs designed to elevate standards of child health. This measure is not to be confused with S. 904, on which the Murray subcommittee was scheduled to hold public hearings May 11-12. The latter authorizes a broad research program in the field of juvenile welfare, including health; S. 1411 is strictly a child health bill, encompassing preventive, diagnostic and therapeutic care in such states as may choose to participate. Its enactment by the House and approval by the President are held probable.

Lobbying Reports Filed for First Quarter

National organizations which support or oppose prospective legislation have filed their financial reports for the first quarter of 1949, as required by the National Lobbying Act. The National Physicians Committee reported \$230,493 in contributions and \$130,969 in expenditures. The Committee for the Nation's Health certified to receipts of \$40,084 and expenses aggregating \$23,865. The American Medical Association reported that \$1,151,633 had been received into its educational fund up to April 7. During the quarter, Whitaker and Baxter received \$115,248 from the fund for furtherance of the educational campaign, \$76,654 of the total being for expenses. The American Hospital Association reported expenditures of \$13,418; the American Dental Association, \$4,916, and the American Optometric Association, \$2,097.

X-Ray Protection Manual Published

National Bureau of Standards has published a 42 page handbook, "Medical X-Ray Protection up to Two Million Volts," which is purchasable (15 cents) from the Superintendent of Documents, Washington 25, D. C. Bearing six illustrations and nine tables, the booklet is concerned with standards of safety in installation and operation of high voltage equipment utilized in diagnosis and treatment. It was prepared by a subcommittee of the National Committee on Radiation Protection. Recommended rules are included for working conditions, survey and inspection of installations, planning an x-ray installation and structural details of protective barriers.

Tydings Files Military Medical Bills

On April 25 Senator Millard Tydings (Democrat, Maryland), chairman of the Senate Armed Services Committee, filed separate bills to authorize commissioning of women physicians in the Regular Army Medical Corps and to liberalize the promotion system of the Army Medical Service Corps. The former (S.1687) provides for appointment of women in the Dental and Veterinary Corps, as well as Medical Corps, on the same basis as men. It also authorizes commissioning of women as pharmacists, sanitary engineers, optometrists and allied scientists in the Medical Service Corps. S.1688 defines precedence of Medical Service Corps personnel on the promotion list.

Child Research Bill to be Considered

May 11 and 12 have been scheduled for public hearings on the Douglas bill (S.904), which provides for a federal research program into medical, psychologic, sociologic and other aspects of child health. The American Parents Committee is a supporter of the bill and was instrumental in having it introduced by Senator Paul Douglas (Democrat, Illinois). The hearings will be conducted by the health subcommittee of the Senate Labor and Public Welfare Committee.

Medical Legislation

STATE LEGISLATION

Alabama

Bill Introduced.—S. 102 proposes to authorize any inhabitant of the state over the age of 21 years and of sound mind to arrange or prescribe, by an instrument in writing executed as a deed and filed for record in the office of the judge of probate of the county of his residence, for the disposition to be made, after death, of his body or any organ, member, or part thereof, provided the disposition of said body or part thereof is made for the purpose of advancement of medical science, or for the replacement of diseased or worn out parts of other human beings, or for the rehabilitation of human parts or other organs.

Colorado

Bill Enacted.—S. 84 was approved April 29, 1949. It creates a Colorado Commission on Alcoholism to study the problem of alcoholism, including methods and facilities available for the care, custody, detention, treatment, employment and rehabilitation of persons addicted to the intemperate use of spiritous or intoxicating liquors.

Florida

Bills Introduced.—H. 138 proposes to grant to expert witnesses a witness fee in such reasonable amount as the trial judge may determine, the same to be taxed as costs in the case. S. 459 and H. 706, to amend the medical practice act, propose that every person licensed under the laws of the State of Florida to practice medicine, surgery, osteopathic medicine, chiropractic, naturopathy, chiropody or any other kind or branch of the medical or material healing art, whenever actively engaged in the practice of same, or whenever holding himself out as a practitioner of same, shall cause to be placed and kept in a conspicuous place at each entrance to his office or usual place of business, words or proper abbreviations in block letters, in intelligible lettering not less than 2½ inches in height and 1 inch in width clearly denoting the particular kind or branch of the medical or material healing art he is licensed to practice. This same requirement is made of every sign wherever situated which the doctor may use.

Illinois

Bill Introduced.—S. 500 proposes the creation of a commission on the care of chronically ill persons to make a thorough investigation and study of the hospitalization and other care and treatment facilities available in the state for persons who are chronically ill, the adequacy of such facilities, the need of developing additional facilities for such purpose, the desirability of enacting enabling or corrective legislation to increase or improve such facilities, and all matters germane thereto. The investigation and study should embrace both governmental and private facilities.

Iowa

Bill Enacted.—S. 339 was approved May 5, 1949. It is a food and drug act and provides, among other things, that any drug sold at retail and containing any quantity of aminopyrine, barbituric acid, pituitary, thyroid or their derivatives must be labeled in accordance with the provisions of the act unless it is sold on the written prescription of a doctor, dentist or veterinarian.

Maryland

Bills Enacted.—S. J. Res. 15 has become Joint Resolution No. 11 of the Laws of 1949. It requires the governor to appoint a commission to study the laws of Maryland requiring licenses to engage in a trade or occupation. S. 216 has become chapter 442 of the Laws of 1949. It provides that no deputy state health officer shall practice medicine or engage in any other occupation which would conflict with the performance of his individual duties. S. 350 has become chapter 464 of the Laws of 1949. It amends the workmen's compensation act by providing for the appointment of a medical board consisting of three members, to be appointed by the governor from a list of nominees to be submitted by the deans of the medical departments of the University of Maryland and of the Johns Hopkins University and by the council of the Medical and Chirurgical Faculty of Maryland, each of these three agencies to submit a list of at least three persons, two of whom shall be especially experienced in occupational diseases, and one of whom shall be an experienced roentgenologist.

Massachusetts

Bills Introduced.—H. 2100, App. 1, proposes that the commissioner of public health shall be a graduate of an approved medical school and an accredited school of public health with three years' experience in a full time position in public health administration or, in lieu of graduation from a school of public health, he shall have had at least five years' experience in a full time approved position in public health. H. 2100, App. 18, proposes to require any physician having charge of the birth of a prematurely born infant to immediately notify the board of health and the board of public welfare of the town where the infant is born.

Michigan

Bills Introduced.—H. 483 proposes the creation of a board of chiropractic examiners and provides that licentiates under such a proposal would be authorized to practice a system of healing in the state of Michigan as taught by the approved colleges or schools of chiropractic and to use all necessary mechanical, hygienic and sanitary measures incident to the care of the body, but it shall not authorize the use of

compounded drugs, dentistry or optometry. Licentlates would be required to renew their license annually and, at the time of such renewal, to furnish satisfactory evidence that they have attended not less than a three-day postgraduate conference as authorized by the Michigan state board of chiropractic examiners and conducted by the Michigan state chiropractic society, incorporated, or its equivalent. S. 323 proposes to repeal the basic science law.

New York

Bills Enacted.—S. 412 has become chapter 733 of the Laws of 1949. It provides for the creation of a state commission to be known as the mental health commission to initiate, formulate and execute a master plan for the promotion of mental health programs within the state. S. 2666 has become chapter 819 of the Laws of 1949. It provides for the establishment of state scholarships for professional education in medicine and dentistry.

North Carolina

Bill Enacted.—H. 835 was approved April 23, 1949. It provides for the establishment of a commission to study problems relating to the care of the aged and the intellectually handicapped.

Ohio

Bill Introduced.—S. 338 proposes the creation of a state board of chiropractic examiners and defines chiropractic as the art and science of locating, the procedure preparatory to adjusting, and the adjusting by hand of the subluxations of the articulations of spinal column, which is deemed to be the twenty-four movable vertebrae, including the sacrum and coccyx and adjacent tissues, for the purpose of removing any interference with nerve transmission; but it shall not include surgery nor the administration or prescription of any drug included in materia medica, and it shall not be deemed to be a branch of the practice of medicine or surgery.

Oklahoma

Bill Introduced.—S. 261 proposes that all persons who practice the healing art or any branch thereof shall report to the State Department of Health the name and address of any person under their care who is afflicted with epilepsy, mental disease or any other disease which brings on momentary lapse of consciousness.

Pennsylvania

Bills Introduced.—H. Res. 68 proposes the appointment of a commission to study existing and proposed legislation pertaining to the regulation and licensure of the practice of diagnosis and treatment of human ills and its related limited branches with a view to combining all of the existing boards under one board which shall have representatives from each of the various branches and to make provision thereon for future additions. This commission would be required to report its findings and conclusions to the next regular session of the General Assembly. H. 313 proposes the creation of a state board of chiropractic examiners and defines chiropractic as a philosophy, science and art of things natural with the human body, a system of locating misaligned or displaced vertebrae of the human spine, the procedure preparatory to and the adjustment by hand of such misaligned or displaced vertebrae and other articulations and tissues of the human body together with the use of scientific instruments of analysis. S. 925 proposes an appropriation to the alcoholic information center and clinic for the purpose of expanding their facilities for research and training of personnel in the care, treatment and rehabilitation of alcoholic addicts. S. 952 proposes the creation of a state board of psychological examiners, one member of which shall be a qualified neuropsychiatrist who is a doctor of medicine licensed to practice medicine and surgery in Pennsylvania and experienced in mental and nervous diseases.

Bills Enacted.—H. 220 has become Act No. 123 of the Acts of 1949. It authorizes the department of health to investigate the subject of alcoholism in respect to rehabilitation and to compile and maintain reliable statistics indicating the effectiveness of any rehabilitation programs carried forward by state aided clinics for alcoholics, state hospitals and state-aided hospitals receiving alcoholics. H. 450 has become Act No. 123 of the Acts of 1949 and H. 451 has become Act No. 124 of the Acts of 1949. These laws provide that medical service plan corporations shall include the services of doctors of osteopathy. S. 444 was approved April 14, 1949. It provides that, to promote prevention, recognition and treatment of mental diseases, mental defect, epilepsy and inebriety, the Department of Welfare is empowered to establish, extend, operate, maintain and provide out-patient services in conjunction with mental institutions owned or operated by the commonwealth and separate psychiatric clinical services.

Tennessee

Bill Enacted.—H. J. Res. 24 was approved April 15, 1949. It provides for the appointment of a commission to make a thorough study of the needs for qualified physicians in various areas of the state and the facilities of the University of Tennessee Medical College to the end that the facilities of said Medical College may be enlarged and adequately adjusted to train sufficient physicians each year to keep pace with the increasing population and the medical needs thereof, considering the number of physicians who retire from active service and to provide an increasing degree of opportunity for a greater number of students to secure training in the medical profession.

Texas

Bills Enacted.—H. 103 was approved April 28, 1949. It is a basic science law requiring any person desiring to take an examination for a license to practice any branch of the healing art to first pass an examination in the basic sciences of anatomy, physiology, chemistry, bacteriology, pathology, and hygiene and public health. It exempts from its provisions any chiropractor who is a graduate of a school which was regularly organized and conducted as a chiropractic school in the United States at

the time of such graduation and who has practiced chiropractic one year immediately preceding the effective date of this act and who resided in Texas for two years immediately preceding the effective date of this act and who has never had a license to practice any branch of the healing art cancelled by any American or Canadian state, province or territory. H. 721 was approved April 27, 1949. It provides for the creation of a Texas board of chiropractic examiners and provides that any person shall be regarded as practicing chiropractic who shall employ objective or subjective means without the use of drugs, surgery, x-ray therapy or radium therapy, for the purpose of ascertaining the alignment of the vertebrae of the human spine, and the practice of adjusting the vertebrae to correct any subluxation or misalignment thereof.

Wisconsin

Bill Introduced.—A. J. Res. 63 proposes that the university board of regents be requested to advise the legislature of the reasons for the lack of growth in the medical school, and the number of applicants yearly denied admission to the medical school and the reasons therefor.

Coming Medical Meetings

American Medical Association, Atlantic City, June 6-10. Dr. George F. Lull, 535 N. Dearborn St., Chicago 10, Secretary.

American Academy of Neurology, French Lick, Indiana, French Lick Springs Hotel, June 1-3. Dr. Joe R. Brown, 19 Millard Hall, University of Minnesota, Minneapolis 14, Secretary.

American Academy of Tuberculosis Physicians, Atlantic City, Hotel Dennis, June 4. Dr. Oscar S. Levin, P. O. Box 7011, Denver 6, Colo., Secretary.

American Association of Railway Surgeons, Chicago, Drake Hotel, June 30-July 2. Dr. Chester C. Guy, 5800 Stony Island Ave., Chicago 37, Secretary.

American Association of the History of Medicine, Lexington, Ky., Lafayette Hotel, May 23-24. Dr. Benjamin Spector, 416 Huntington Ave., Boston 15, Secretary.

American College of Chest Physicians, Atlantic City, Ambassador Hotel, June 2-5. Mr. Murray Kornfield, 500 N. Dearborn St., Chicago 10, Executive Secretary.

American College of Radiology, Atlantic City, Chalfonte-Haddon Hall, June 5. Mr. William C. Stronach, 20 N. Wacker Drive, Chicago 6, Secretary.

American Dermatological Association, Hot Springs, Va., May 25-28. Dr. Louis A. Brunsting, 102 Second Ave. S.W., Rochester, Minn., Secretary.

American Gastro-Enterological Association, Atlantic City, Claridge Hotel, June 3-4. Dr. Dwight L. Wilbur, 655 Sutter Street, San Francisco 2, Secretary.

American Gastroscopic Society, Atlantic City, Claridge Hotel, June 3-4. Dr. J. Edward Berk, 255 S. 17th St., Philadelphia 3, Secretary.

American Goiter Association, Madison, Wis., Hotel Loraine, May 26-28. Dr. Thomas C. Davison, 478 Peachtree St., N.E., Atlanta 3, Ga., Secretary.

American Medical Women's Association, Atlantic City, June 4-5. Dr. Augusta Webster, 104 S. Michigan Ave., Chicago, Secretary.

American Neurological Association, Atlantic City, Chalfonte-Haddon Hall, June 13-15. Dr. H. Houston Merritt, 710 W. 168th St., New York 32, Secretary.

American Ophthalmological Society, Hot Springs, Va., The Homestead, June 2-4. Dr. Maynard C. Wheeler, 30 W. 59th St., New York, Secretary.

American Proctologic Society, Columbus, Ohio, May 31-June 4. Dr. W. Wendell Green, 1838 Parkwood Ave., Toledo 2, Ohio, Secretary.

American Psychiatric Association, Montreal, Canada, May 23-27. Dr. Leo H. Bartemeier, General Motors Bldg., Detroit 2, Secretary.

American Radium Society, Atlantic City, June 5. Dr. Hugh F. Hare, 605 Commonwealth Ave., Boston 15, Secretary.

American Therapeutic Society, Atlantic City, June 2-5. Dr. Oscar B. Hunter, 915 Nineteenth St. N.W., Washington, D. C., Secretary.

Association for the Study of Internal Secretions, Atlantic City, June 3-4. Dr. Henry H. Turner, 1200 N. Walker St., Oklahoma City 3, Secretary.

Idaho State Medical Association, Sun Valley, June 20-23. Dr. Alfred M. Popma, 220 N. First St., Boise, Secretary.

International Congress on Rheumatic Diseases, New York, Hotel Waldorf-Astoria, May 30-June 3. Dr. Philip S. Hench, Mayo Clinic, Rochester, Minn., Chairman, American Committee.

Maine Medical Association, Poland Spring, Poland Spring House, June 19-21. Dr. Frederick R. Carter, 142 High St., Portland 3, Secretary.

Massachusetts Medical Society, Worcester, May 24-27. Dr. H. Quimby Gallupe, 8 Fenway, Boston 15, Secretary.

New Hampshire Medical Society, Newcastle, Hotel Wentworth, June 14-15. Dr. Carleton R. Metcalf, 5 S. State St., Concord, Secretary.

Society for Investigative Dermatology, Atlantic City, Ritz Carlton Hotel, June 11-12. Dr. S. William Becker, 55 E. Washington St., Chicago 2, Secretary.

Society of Biological Psychiatry, Atlantic City, Chalfonte-Haddon Hall, June 12. Dr. George N. Thompson, 1136 W. Sixth St., Los Angeles, Secretary.

South Dakota State Medical Association, Yankton, May 22-24. Dr. Roland G. Mayer, 224 S. Main St., Aberdeen, Secretary.

Southeastern Surgical Congress, Biloxi, Miss., May 23-26. Dr. Benjamin T. Beasley, 45 Edgewood Ave. S.E., Atlanta 3, Ga., Secretary.

Western Branch of American Public Health Association, Los Angeles, Hotel Biltmore, May 30-June 1. Mr. Walter S. Mangold, University of California, Berkeley, Calif., Secretary.

GOVERNMENT SERVICES

SECRETARY OF DEFENSE

RESIDENCIES AVAILABLE

The University of Minnesota Medical School and its affiliated hospitals report that a number of residency vacancies have occurred as the result of the postponement of appointment dates of applicants who were tentatively selected for residencies to begin July 1, but whose appointments are being postponed so

that the men may be available to help meet the urgent need of the armed forces for medical officers. The vacancies are distributed over most of the medical and the surgical specialties. Substitutes for these appointments will be selected from the applicants who have had active military service as medical officers.

ARMY

MEETING OF MEDICAL CONSULTANTS

The Advisory Council, Society of U. S. Medical Consultants in World War II, met April 16 in the Pentagon, Washington, D. C. Dr. Henry M. Thomas Jr., of Johns Hopkins Hospital, Baltimore, opened the meeting. Col. Paul I. Robinson, Chief, Personnel Division, Surgeon General's Office, discussed the officer procurement program. Col. A. H. Schwichtenberg, Chief, Medical Plans and Operations, Surgeon General's Office, discussed recent policy decisions on basic operational problems. The various committees presented progress reports. Reporting for the consultants in the Zone of Interior Committee were Dr. Garfield G. Duncan, Philadelphia, and Lieut. Col. W. F. Bowers, Chief, Surgical Consultants Division, Office of the Surgeon General; for the Reserve Affairs Committee, Dr. Frank B. Berry, New York, and Col. Charles K. Holmes, Chief, Civilian Components Branch, Personnel Division, Surgeon General's Office, and for the Residency Training Program, Dr. Yale Kneeland, New York, and Lieut. Col. Fred J. Fielding, Chief, Career Guidance Section, Personnel Division, Surgeon General's Office. The meeting was then open to a general discussion.

CONSULTANT TEAM GOES TO GERMANY

Five medical consultants left April 18 for Germany to devote about thirty days to visiting hospitals where they will conduct teaching clinics and be available for consultation and care of patients. The team comprises Drs. Frank A. Stewart, Tulsa, Okla. (orthopedics); Shirley H. Baron, San Francisco (ear, nose and throat); Staige D. Blackford, Charlottesville, Va. (internal medicine); Elwin M. Williamson, Kalamazoo, Mich. (neuropsychiatry), and Col. Warner F. Bowers, Chief, Surgical Consultants Branch, Surgeon General's Office.

PROPOSED COURSE FOR RESERVE NUTRITION OFFICERS

Reserve and former nutrition officers met April 20 in Detroit in conjunction with the meeting of the Federation of American Societies for Experimental Biology. Plans are being formed for a two week refresher course for reserve nutrition officers to be held at the Medical Nutrition Laboratory in Chicago as part of the active duty training program. Establishment of the course will depend on the number of reserve officers willing to attend. Those interested should notify the Chief, Nutrition Branch, Medical Service Corps, Surgeon General's Office, Department of the Army, Washington, D. C., at once.

UNESCO BOOK COUPONS

The Army Medical Library has agreed to accept UNESCO book coupons in payment for its photoduplication services in "soft currency" countries. These coupons, which are redeemable by UNESCO, are currently offered for sale by UNESCO throughout the world. Doctors wishing microfilm may buy the coupons with their local currency. It is expected that this device will expand even further the Library's widespread photoduplication activities.

ADDITIONAL ADVANCED TRAINING OF MEDICAL OFFICERS

The following Medical Department officers have been accepted for advanced training by civilian schools and hospitals:

Name	Institution	Course
James A. V. Galvin, Major	University of Illinois, Chicago	Psychiatry
George M. Sabin, Jr., Major	Manhattan General Hospital, New York	Laryngoscopy and intubation
Marshall B. Atkinson, Major	Manhattan General Hospital, New York	Laryngoscopy and intubation
Albert K. Schoenbucher, First Lieutenant	Maryland General Hospital, Baltimore, Maryland	Obstetrics and gynecology
William Stone, Captain	University of Utah, Salt Lake City, Utah	Anesthesiology
Charles I. Bryans Jr., Captain	University Hospital, Augusta, Georgia	Obstetrics and gynecology
Grady W. Phillips, Captain	Chicago Lying-in Hospital, Chicago	Obstetrics and gynecology
Richard L. Kasper, First Lieutenant	Los Angeles County Hospital	Ophthalmology
Arnold J. Brody, First Lieutenant	Yale Medical School, New Haven, Conn.	Medicine
James L. McNeil, First Lieutenant		Pediatrics
Edwin J. Westfall, First Lieutenant	Graec Hospital, Detroit	Internal medicine
George C. Weinland, First Lieutenant	Indiana University, Indianapolis	Neuropsychiatry
Frank J. Cozzetto, First Lieutenant	Colorado General Hospital, Denver	Internal medicine

BEQUEST TO ARMY MEDICAL LIBRARY

The will of Mrs. Emma Wheat Gillmore, under which the Army Medical Library is a beneficiary, has been admitted to probate in New York City. After paying expenses incident to settlement of the estate, it is estimated that this bequest will amount to about \$23,000. Mrs. Emma Wheat Gillmore, herself a Doctor of Medicine, was the widow of Capt. Robert Tracy Gillmore, medical reserve corps, who died while serving at Fort Oglethorpe, Ga., in World War I.

PERSONALS

Major Jack P. Love, who has been appointed a White House aide, is the first M.S.C. officer to be so appointed. The Army, the Air Force and the Navy each has seven officers for detail as aides at the White House. Their duties are to assist in formal ceremonies and social functions. Major Love received a B.S. in Hospital Administration from Northwestern University in 1948, graduated from the officers' candidate school at Carlisle Barracks, Pa., in 1941, and served about four years during the War in the Southwest Pacific Theater.

Major Maxwell Dauer, M.S.C., who was recently certified in x-ray and radium physics by the American Board of Radiology, is the first Army Medical Department officer to be certified in this field. He is assigned to the Atomic Energy Commission. Major Dauer formerly was an instructor in roentgenology at the Army Medical School. He was radiologic monitor for the Bikini atom bomb tests and a member of the Atomic Energy Commission proving ground group for the Eniwetok atom bomb tests.

AIR FORCE

NEW REHABILITATION PROGRAM

A new rehabilitation program, designed to effect more rapid convalescence of hospitalized airmen, will be initiated by the U. S. Air Force base hospitals on July 1. The Air Force program, according to Major General Malcolm C. Grow, the Air Surgeon, will go a step further and provide part time work fitted to the stage of convalescence of the patient and his regular duty assignment. The program will require close cooperation between base surgeons and unit commanders. The surgeons will be responsible for determining when a patient is capable of working on a part time basis and for selecting the type of work to be assigned. Unit commanders will plan suitable schedules of work. During the convalescent period, the airmen will remain in the custody of the hospital with the exception of the work period. Rehabilitation needs will be determined by the surgeons on the basis of the nature of the

injury or illness of the airmen involved. Each airman will receive a daily check-up to determine the type of work which will best fit his needs.

CERTIFICATES FOR FORMER FLIGHT SURGEONS

Certificates are now ready for mailing to former medical officers who served during the war with the designation of flight surgeons. The certificates, which are suitable for framing, indicate that the officers concerned were graduated from the aviation medical examiner's course given at the U. S. Air Force School of Aviation Medicine, Randolph Air Force Base, Texas. Those eligible to receive the certificates may secure them by writing to The Air Surgeon, Headquarters, U. S. Air Force, Washington 25, D. C. Officers now on active duty are not eligible to receive the certificates.

NAVY

NEW NAVAL HOSPITAL

The new Naval Hospital at Beaufort, S. C., costing \$9,500,000, was commissioned April 29, replacing the present inadequate facilities at the Marine Recruit Depot at Parris Island, which will be decommissioned. The new hospital was designed to be a 500 bed hospital but was reduced to 300 beds because of a limitation of funds.

Among those speaking at the ceremonies were Representative L. Mendel Rivers, South Carolina; Senator Olin D. Johnston, South Carolina; Representative Harry R. Sheppard, California; Governor J. Strom Thurmond of South Carolina; Major General Alfred H. Noble, Commanding General, U. S. Marine Recruit Depot, Parris Island, S. C.; Rear Admiral C. A. Swanson, Chief of the Bureau of Medicine and Surgery, and Rear Admiral John J. Manning (C.E.C.), Chief, Bureau of Yards and Docks. Other prominent guests present were Representative Robert L. F. Sikes, Florida; Rear Admirals A. H. Dearing, J. B. Logue, B. Groesbeck and C. V. Rault and Captain Nellie J. Dewitt, Superintendent of the Navy Nurse Corps.

COURSE IN SPECIAL WEAPONS AND RADIOACTIVE ISOTOPES

About 300 Naval reserve officers and 6 Royal Canadian medical reserve officers attended the five day course in Medical Aspects of Special Weapons and Radioactive Isotopes which began April 25 at the Naval Medical School, Bethesda, Md. In addition to Naval officers and representatives of other government agencies, the following civilians were among the speakers: Dr. Shields Warren, Dr. Charles F. Geschickter, J. B. Trunnell, Dr. Yale Kneeland Jr., Herbert Friedman, Philip H. Abelson, Karl Z. Morgan, Dr. Howard Andrews and R. E. Lapp.

THE EDWARD RHODES STITT LIBRARY

The Medical Library at the U. S. Naval Medical School, Bethesda, Md., has been designated by the Surgeon General as the Edward Rhodes Stitt Library in honor of the late Rear Admiral Stitt, the Surgeon General of the Navy from 1920 to 1928. Mrs. Stitt presented a collection of the late Admiral's civilian scientific medals, fraternal and honorary keys to the library, where they will be placed on permanent display.

COURSE ON FITTING ARTIFICIAL LIMBS

A ten day course of instruction on the manufacture and use of artificial limbs was recently completed by representatives of governmental and civilian artificial limb shops at the Naval Hospital, Mare Island, Calif. The course included fitting of artificial limbs employing the new functional ankle and soft

socket for below knee amputees and the functional hinges and suction sockets for arm amputees. These devices were originated and introduced by the Naval Hospital, Mare Island.

The course was conducted by the staff of the artificial limb department of that hospital, under the direction of Capt. W. H. Perry, U.S.N., and Comdr. T. J. Canty, U.S.N., who heads the artificial limb department. Eleven amputees from the San Francisco Bay area were selected as working models. On completion of the course both the students and the patients were unanimous in their praise of the work and the finished limbs.

PERSONALS

Lieutenants (jg) Cyril J. Honsik of Oak Park, Ill., Gerald A. Martin of Maryland and William R. True of Bethany, Mo., have been appointed to the Regular Navy Medical Corps from an active reserve status.

Lieut. Comdr. Newell Nay, M.C.R., of Long Beach, Calif., has been nominated for recall to active duty and will report to the Naval Air Station, Quonset Point, R. I.

Lieut. Boyd K. Black and Lieut. (jg) Martin O. Greaney Jr. have been nominated for postgraduate instruction in neuropathology at Mayo Clinic and a residency in obstetrics and gynecology at the Columbia Hospital for Women, Washington, D. C., respectively.

Lieut. (jg) John R. Kimball, M.C.R., has been nominated for his first active duty as an intern at the Naval Hospital, San Diego, Calif.

Capt. Newton T. Saxl of New York City has been nominated for voluntary recall to active duty and will be stationed at the Naval Receiving Station, Brooklyn.

Comdr. Russell H. Blood, M.C.R., of Los Angeles, has been nominated for recall to active duty.

Lieut. Gustave T. Anderson of North Platte, Neb., has been appointed to the Regular Navy Medical Corps from an active reserve status.

Capt. Lyle A. Newton, M.C., and Comdr. John E. Gorman, M.C., have been certified by the American Board of Urology and the American Board of Internal Medicine, respectively.

Comdrs. Joseph M. Coppoletta, North Hackensack, N. J., and Walter C. Tilden, Weems, Va., have requested recall to active duty in the Medical Corps Reserve.

Lieut. (jg) John H. Schulte, who recently was appointed in the Regular Navy from the reserve corps, has been nominated for duty as a resident in internal medicine at the Naval Hospital, San Diego, Calif.

Lieut. Lester W. Fix, M.C., has been nominated for duty under instruction in anatomic pathology at the University of Illinois College of Medicine, Chicago.

PUBLIC HEALTH SERVICE

BCG VACCINATION FOR INDIAN CHILDREN

Plans have been completed for a program of BCG vaccination at several Indian reservations and units of the Indian Service. Cooperating in this program will be the Bureau of Indian Affairs and the Public Health Service with Dr. Arthur W. Dahlstrom, Tuberculosis Control Officer, Bureau of Indian Affairs, in charge.

The Bureau of Indian Affairs will be responsible for administration and promotion of the evaluation program and for the collection of all technical data during the tuberculin testing and BCG vaccination activities, and it will furnish the personnel and supplies required for these activities.

The Division of Tuberculosis will provide technical guidance in developing the evaluation study and will train professional personnel assigned to the project by the Bureau of Indian Affairs. The Division also will be responsible for the research aspects of the project and will analyze the results when the testing and vaccination activities have been completed.

Dr. Albert P. Knight of the Immunization Evaluation Section, Division of Tuberculosis, Public Health Service, will serve as Public Health Service consultant to the joint evaluation program. Dr. Knight also is in charge of the training program which began on March 21, in Albuquerque, N. M.

The mass tuberculin testing and vaccination activities under the study will continue until June of this year at reservations and units of the Indian Service located in Arizona, Colorado, Idaho, Montana, New Mexico, North Dakota, South Dakota, Utah and Wyoming. About 18,000 children attending Indian Service schools in these areas will be tuberculin tested, and non-reactors will be offered BCG vaccination.

ESTABLISH INSTITUTE OF MENTAL HEALTH

A National Institute of Mental Health, authorized by the Seventy-Ninth Congress, has been created in the National Institutes of Health. The new institute will continue to program formerly carried out by the Division of Mental Hygiene of the U. S. Public Health Service. This program is directed toward gaining more knowledge of the cause, prevention and control of mental illness and the training of personnel and developing of community mental health facilities. The director of the National Institute of Mental Health will be Dr. Robert H. Felix, who has been Chief of the Division of Mental Hygiene since 1944. Dr. Felix will serve under the general supervision of Dr. R. E. Dyer, Director of the National Institutes of Health. Dr. Felix is a specialist certified by the American Board of Psychiatry and Neurology. The Advisory Mental Health Council, consisting of six civilian authorities in this field, will assist in formulating policies for the new institute. Temporarily, headquarters of the National Institute of Mental Health will be located in the Federal Security Building, Washington, D. C. Transfer will be made to the National Institutes of Health in Bethesda as soon as new buildings now under construction are completed.

TESTS CONDUCTED AT DONORA

At the request of the city of Donora, the Pennsylvania State Health Department and the C.I.O. Steelworkers, the Public Health Service conducted tests to determine the cause of last fall's disaster at Donora. Contrary to reports that many persons had been affected by the tests, Surgeon General Leonard A. Scheele stated that no evidence had been found of any person's suffering serious effects from the four day tests, which ended on April 21.

INFLUENZA STUDY PROGRAM

An exhibit showing the work of the Influenza Study Program of the World Health Organization, particularly as it operates in the United States, has been prepared by the Office of Scientific Reports, National Institutes of Health. The exhibit shows the locations of participating laboratories in the United

States and electron micrographs of various strains of influenza virus. Several of the micrographs were furnished by the World Influenza Centre, London. They show strains isolated in Europe during 1949, and some include the filamentous forms of virus reported by the World Influenza Centre. The exhibit was scheduled for showing before the Society of American Bacteriologists in Cincinnati, May 17-20, and at the Third Annual Meeting of the Marine Hospital Medical and Dental Association at Stapleton, Staten Island, N. Y., May 12-14.

PERSONNEL ON LOAN TO GREECE

A number of Public Health Service officers and technicians are on loan to the Economic Cooperation Administration Mission to Greece. Medical Director O. F. Hedley of the Public Health Service is head of the Public Health Division of the mission, which works in close cooperation with the Greek Government, the Greek Red Cross and other rehabilitation and reconstruction agencies there. The mission, the World Health Organization and other health agencies in Greece have been cooperating on malaria control, tuberculosis control and environmental sanitation. Senior Surgeon Leslie W. Knott, assistant director of the Public Health Division, is returning to the United States and will be replaced by Senior Surgeon Robert L. Cherry. Senior Surgeon Fred W. Love, who is in charge of tuberculosis work of the division, will also return and will be replaced by Senior Assistant Surgeon Gerald R. Clark.

ALL STATES EXCEPT NEVADA HAVE COMPLETED HOSPITAL SURVEYS

The Public Health Service reports that as of April 8 all of the fifty-three states and territories, with the exception of Nevada, have completed surveys of their hospital facilities and passed legislation to enable them to participate in the federal hospital construction program. A total of 643 applications with an estimated total cost of \$366,000,000 had received initial approval by January 1. The federal contribution to these projects is estimated at \$107,000,000.

CANCER RESEARCH GRANTS

Following recommendation by the National Advisory Cancer Council, the Surgeon General has approved research grants totaling \$671,200 to finance research in cancer. Among the grants was \$18,306 to Yale Medical School to determine whether cell-destroying viruses may show the properties of cancer-inducing agents. Another grant for \$12,312 to Washington University School of Medicine, St. Louis, is for an investigation of weight loss in persons with advanced cancer.

PERSONALS

Lawrence B. Hall, sanitary engineer, Public Health Service, has left for Iran to help in that country's fight against malaria. Mr. Hall's services were requested by the Iranian Embassy in Washington under terms of the Smith-Mundt Act, an educational program in which the United States gives technical assistance on a reciprocal basis with other nations. The Iranian Government will pay Mr. Hall's foreign allowance, travel and living expenses.

Dr. Moises Polak of Buenos Aires has arrived at the National Cancer Institute, Bethesda, Md., for a three month special fellowship during which he will apply silver impregnation technics to the study of experimental cancer in animals. These technics have been used routinely in Dr. Polak's laboratory, but they have been little used in the United States.

On March 17 Dr. Robert H. Huebner of the National Institutes of Health, Bethesda, Md., was presented with the 1948 award of the Washington, D. C., Academy of Sciences "in recognition of his contributions to our knowledge of the transmission of certain rickettsial diseases," especially rickettsialpox and Q fever.

Medical News

(Physicians will confer a favor by sending for this department items of news of general interest: such as relate to society activities, new hospitals, education and public health. Programs should be received at least two weeks before the date of meeting.)

CONNECTICUT

Bicentenary of Edward Jenner.—An exhibition commemorating the two hundredth anniversary of the birth of Edward Jenner on May 17 is on display this month in the Medical Library of Yale University School of Medicine, New Haven. From Yale's Harvey Cushing Collection are shown copies of all the early editions of "An Inquiry into the Cause and Effects of the Variolae Vaccinae," which contained Jenner's most important conclusion: "that the cowpox protects the human constitution from the infection of smallpox." Subsequent writings are shown, including "Further Observances" and "Continuations," that Jenner published in answer to criticisms that arose concerning his discovery and to record further cases. Among them are several translations of his works in Latin, German, French, Dutch and Russian. Special attention is given to the part played by Thomas Thacher of Boston, whose "Brief Rule" was the earliest medical document printed in the colonies. It also illustrates the roles of Cotton Mather, Zabdiel Boylston and Benjamin Waterhouse, early advocates of inoculation. Also shown is Benjamin Franklin's famous communication on the subject, issued in 1759. An original pastel drawing of Jenner by John Raphael Smith, original Jenner letters, caricatures inspired by the vaccination controversy and other related materials are on exhibit.

DISTRICT OF COLUMBIA

Personal.—Dr. Warren Andrew, chairman, department of anatomy, George Washington University School of Medicine, Washington, D. C., who has been visiting professor of anatomy at Washington University School of Medicine in St. Louis, returned to the university March 15, and will be in charge of the histology class for the remainder of the course.

Noyes Foundation Aids Students.—The Jessie Smith Noyes Foundation has rendered financial assistance to fifteen Negro medical students during the current academic year. The awards ranged from a loan of \$300 to a grant of \$1,400. Nine students at Howard, one at Meharry and five at other institutions received the awards. The Noyes Foundation has assisted thirty-nine students in all categories since it was established in July 1947 by Mr. Charles F. Noyes, New York realtor, in memory of his wife.

ILLINOIS

Dr. Jerome J. Sievers Resigns.—Dr. Jerome J. Sievers, Springfield, chief of the Division of Communicable Diseases, has resigned from the Illinois State Department of Public Health, effective May 30, to enter private practice in California. Dr. Leonard M. Schuman, Springfield, chief of the Division of Venereal Diseases, will head the Division of the Communicable Diseases temporarily in addition to his regular duties. This resignation leaves vacancies in fourteen posts requiring doctors in the department of public health.

Chicago

Presbyterian Interne-Resident Reunion Dinner.—This dinner will be held in the Casino Room of the Congress Hotel, June 14, at 6:30 p. m. Reservations should be made through the medical director's office of the hospital. Clinics and tours through the hospital are being arranged for the day.

Ernest E. Irons Lecture.—Dr. Sidney Farber, Children's Medical Center, Boston, will give the 1949 Ernest E. Irons Lecture for Kappa chapter of Nu Sigma Nu, University of Chicago at 8 p. m., May 26 in Pathology 117, Albert Merritt Billings Hospital. His subject will be "Experimental Chemotherapy of Cancer with Particular Reference to Folic Acid Antagonists."

Graduate Courses.—The Cook County Graduate School of Medicine has arranged two courses for the summer months. A two weeks' intensive personal course in the Diagnosis and Treatment of Congenital Malformations of the Heart will be presented by Dr. Benjamin M. Gasul beginning June 13. Another two weeks' course in Cerebral Palsy will be presented by Dr. Meyer A. Perlstein beginning August 1.

Loyal Davis Named to Grunow Chair in Surgery.—Dr. Loyal Davis, professor of surgery and chairman of the department in the Northwestern University Medical School, and chief of staff of Passavant Memorial Hospital, has been appointed the first Grunow Professor of Surgery at the university. The chair in surgery was established last February with a gift from the Lois Grunow Memorial Clinic, Inc., of Phoenix, Ariz. (THE JOURNAL, February 19, p. 536). Dr. Davis has been a member of the faculty since 1925 and chairman of the department of surgery since 1932. The professorship was named in memory of Lois Grunow, who died at the age of 7. Her father, William C. Grunow, of Lake Geneva, Wis., chairman of the memorial clinic's board of directors, founded the clinic in 1930. His support of both the Phoenix institution and research in surgery at Northwestern is the result of his desire to improve surgical technics and to make good surgical care available to children.

KENTUCKY

The Gross Lecture.—The annual lecture in honor of Dr. Samuel D. Gross, former professor of anatomy and surgery at the University of Louisville School of Medicine, was given by Dr. Warren E. Cole, Chicago, April 28, on "Diseases of the Gall Bladder." Phi Chapter of Phi Delta Epsilon sponsored the lecture.

Dentists Oppose Political Medicine.—At the annual convention of the Kentucky State Dental Association in Louisville April 5 a resolution was adopted criticizing political medicine and dentistry and calling on Congressmen to vote against pending bills which would set up a socialistic system of medical and dental care.

Poliomyelitis Planning Conference.—A coordinated program to combat possible poliomyelitis epidemics in the state was discussed at the state's first Poliomyelitis Planning Conference in Louisville April 26. Hospital facilities, nursing care, medical aid and trained personnel available were studied. Refresher courses for doctors, nurses and nurses aids on treatment of poliomyelitis are already being conducted or plans proposed.

LOUISIANA

Alpha Omega Alpha.—The "Beta of Louisiana" chapter of Alpha Omega Alpha was installed at the Louisiana State University School of Medicine, New Orleans, on April 28. It is the fifty-second chapter in medical schools of the United States and Canada. Guests of honor included Dr. William W. Frye, associate dean of the Tulane University School of Medicine and dean-elect of Louisiana State University School of Medicine, who gave the installation address. The charter was conferred by Dr. Walter L. Bierring, national president of Alpha Omega Alpha, and accepted by Dr. Edgar Hull, acting dean of the medical school. Dr. Josiah J. Moore, national secretary of Alpha Omega, presented the certificates and keys to the initiates.

MARYLAND

Public Health Anniversary.—The Maryland State Department of Health on May 6 celebrated the seventy-fifth anniversary of its founding in the Baltimore office of Dr. Nathan R. Smith. Maryland was the sixth state to organize a board of health. The work began with the prevention and control of epidemics, improvement of sanitary conditions and reporting of deaths. In 1922 it entered the field of personal hygiene with the provision of educational and preventive services for expectant mothers. The dental program, school health work and concern for industrial health problems followed. Curative services were included in 1945 along with the medical care program.

MASSACHUSETTS

Dr. Berry Appointed Dean at Harvard.—Dr. George P. Berry, professor of bacteriology and associate dean of the University of Rochester (N. Y.) School of Medicine and Dentistry, has been appointed dean of the Harvard Medical School, Boston, effective July 1, to succeed Dr. C. Sidney Burwell, who has resigned to devote his full time to teaching and research. Dr. Berry will also hold an appointment as professor of bacteriology. A graduate of Johns Hopkins University School of Medicine, 1925, he has served in Johns Hopkins Hospital in Baltimore and in the Hospital of the Rockefeller Institute for Medical Research in New York, as well as in the Rockefeller Institute itself. He has held administrative posts in the University of Rochester School of Medicine and Dentistry since 1932, when he became assistant dean, and was promoted to associate dean in 1947. A lieutenant commander in the Medical Corps, U. S. Naval Reserve, since 1941, Dr. Berry

participated in the atomic bomb tests at Bikini atoll in 1946. He is associate editor of the *Journal of Immunology* and of *Bacteriological Reviews* and a member of the editorial board of the *Journal of Bacteriology*. He has conducted research on psittacosis, yellow fever and encephalitis and is especially interested in the mechanisms of virus infections. A specialist certified by the American Board of Internal Medicine, Dr. Berry is a former president of the American Association of Immunologists, has served as vice president of the association of American Medical Colleges and is a member of numerous scientific societies. He is a director of the Josiah Macy Jr. Foundation and a member of the Division of Medical Sciences, National Research Council.

State Medical Meeting.—The Massachusetts Medical Society will hold its annual meeting in the Memorial Auditorium in Worcester May 24-26 under the presidency of Dr. Daniel B. Reardon, Quincy. The scientific sessions will open with the Annual Oration by Dr. C. Sidney Burwell, dean of Harvard Medical School, on "Responsibilities of Medical Education." Out-of-state speakers include:

George Crile Jr., Cleveland, The Management of Thyroid Disease.
H. Houston Merritt, New York, Diagnosis and Management of Chronic Recurrent Headache.
William B. Snow, New York, Mechanical and Clinical Considerations in the Medical Care of Patients with Low Back Pain.
Granville A. Bennett, Chicago, Interpretation and Management of Chondromatous Tumors in Bone.
Robert D. Dripps, Philadelphia, Pitfalls in Anesthesiology.
F. Bayard Carter, Durham, N. C., Indications for Total Hysterectomy.
Penry L. B. Ebbett, Houlton, Me., Obstetrical Problems in Rural Districts.

The Shattuck Lecture will be delivered by Dr. Paul D. White, Boston, on "La Médecine du Cœur." At the dinner meeting Wednesday evening the guest speaker will be Roscoe Pound, LL.D., Boston, whose subject will be "The Professions in the Society of Today." The Woman's Auxiliary will meet in Worcester May 24-25.

NEW YORK

Dr. Kolb Retires.—Dr. Edwin P. Kolb, Holtsville, L. I., on April 30 retired after thirty-three years as superintendent of the Suffolk Sanatorium. Under his administration the hospital grew from a 44 bed institution to one with a potential capacity of over 200. Dr. Cecil L. Schultz, superintendent of the Estelle and Walter C. Odell Memorial Sanatorium, Newburgh, will succeed Dr. Kolb.

Grant to University of Buffalo.—A grant of \$2,150 for this year has been made to the University of Buffalo School of Medicine for special work in promoting "doctor-patient relationships." The grant was made by the Lamb Foundation, which was established by Dr. Robert B. Lamb, a retired psychiatrist of Harmon-on-Hudson. Most of the sum will be used for full support to a fellow in psychosomatic medicine at the Edward J. Meyer Memorial Hospital and partial support to a Meyer hospital resident in medicine who has had psychiatric training.

Spotted Fever Vaccine Distribution Discontinued.—The U. S. Public Health Service is discontinuing the preparation of Rocky Mountain spotted fever vaccine for the state health department, since the material is now available from commercial manufacturers. The state department will purchase vaccine for distribution in known endemic areas in the state, Long Island counties of Suffolk and Nassau. In 1948 only 20 cases and 1 death were reported, all from Suffolk County. Health officers or other physicians who wish to continue to use the vaccine for immunization will need to arrange for its purchase.

New York City

Report of Red Cross Blood Program.—The first anniversary of the Red Cross Blood Program of the Greater New York Chapter was observed May 4. The chapter reports that 5,700 patients and 202 voluntary and municipal hospitals received blood in the first year of operations of the collection program. Brigadier General Charles M. Watson, administrator, estimated that 500,000 patients were aided in municipal hospitals and through a system of individual and group credits that made blood available to 312 participating business, religious and fraternal organizations. In April 35 mobile units were sent out, and 40 are scheduled in May with visits planned to 120 business organizations.

Psychiatric Clinic to Assist Courts.—In an attempt to find basic causes of antisocial behavior in young persons brought before the city's magistrates' courts, a psychiatric clinic was opened May 2 in the Criminal Courts Building, 100 Centre Street. The clinic will be operated on a year-round basis and will be devoted exclusively to persons between the ages of 16 and 21. It is sponsored by the New York City Youth

Board, which is bearing the entire cost. Referrals will be made by magistrates and probation officers. The clinic is partly an outcome of a two month demonstration project conducted by the Youth Board jointly with the Magistrates' Courts in 1948. The board is composed of representatives of several city departments.

Teaching and Research Programs Expanded.—Dr. S. Bernard Wortis, professor of psychiatry and chairman of the department in New York University College of Medicine, has been given the additional title of professor of psychiatry and neurology in the university's new postgraduate school of medicine. He has relinquished administrative responsibility as director of the Bellevue Psychiatric Division, and on January 1 became consultant in psychiatry and neurology to the division. Dr. Lewis I. Sharp, associate professor of clinical psychiatry at New York University, has become director of the Bellevue Psychiatric Division. In addition, Dr. Morris Herrman, associate professor of psychiatry, has relinquished his position as assistant director of the Bellevue Psychiatric Division in order to do full time psychiatric teaching and research in the postgraduate and undergraduate colleges of medicine. He will be visiting psychiatrist and neurologist to the Bellevue Psychiatric Division.

NORTH CAROLINA

Tumor Clinic Opened.—Mercy Hospital in Charlotte opened a tumor clinic for charity patients February 28 with Dr. Roy B. McKnight as director. The tumor clinic is the second in Charlotte, one having been opened in the Charlotte Memorial Hospital four years ago. Doctors with patients who have tumors needing further investigation and who are unable to pay for these services may refer their patients to the clinic, which is held from 8:30 until 9:30 each Monday morning.

Dr. Lowenbach's European Assignment.—Dr. Hans Lowenbach, associate professor of neuropsychiatry, Duke University School of Medicine, Durham, has been called to active duty in the U. S. Army Medical Department as a neuropsychiatric consultant in the European Theater for one year beginning June 30. He will, among his other duties, contribute to the army's new teaching program for young army doctors abroad. Dr. Lowenbach was in Germany for seven months in 1946 as special emissary of the government.

Course in Medical Mycology.—Duke University School of Medicine and Hospital offer a month's course in medical mycology under the direction of Norman F. Conant, Ph.D., during July. The course is designed to insure a working knowledge of the human pathogenic fungi. Work with patients, cultures and laboratory animals will serve as a basis for this course. An opportunity to study gross and microscopic pathologic material will be given. Applications will be considered in the order in which they are received. An attempt will be made, however, to select students on the basis of their previous training and their stated need for this type of work. A fee of \$50 will be charged for this course, on the completion of which a suitable certificate will be awarded. Direct inquiries to Dr. Norman F. Conant, Duke University School of Medicine, Durham, N. C.

OREGON

Second Course in Nuclear Science.—The second six month course in nuclear science offered by Reed College, Portland, Ore., under sponsorship of the Atomic Energy Commission will begin July 5. The program is designed to meet the needs of postdoctoral fellows studying under the Division of Biology and Medicine of the Atomic Energy Commission, although other qualified persons may enroll. Reed is one of fourteen institutions comprising four centers in the country set up by the Atomic Energy Commission in 1948 to provide advanced training and research experience in fields relating to atomic energy. Reed, the University of Oregon at Eugene, the University of Oregon Medical School, Portland, and Oregon State College at Corvallis make up the Oregon center. Information may be obtained by writing the Atomic Energy Commission Training Program, Reed College, Portland 2, Ore.

PENNSYLVANIA

Fifty Year Practitioners Honored.—Nineteen district physicians who began practice before the turn of the century were honored by their conferees at the annual meeting of the Tenth Councilor District of the Medical Society of the State of Pennsylvania at Beaver Falls May 12. Dr. E. Roger Samuel, Mount Carmel, president-elect of the state society, presented each with a fifty year testimonial plaque. Speakers at the morning meeting included Drs. Lewis K. Sweet, Thomas

M. Leonard and Jed W. Pearson Jr., all of Washington, D. C. Dr. Chauncey L. Palmer, Pittsburgh, and Mr. Leo E. Brown, Harrisburg, spoke on what is expected of the individual physician in the American Medical Association's educational campaign aimed to defeat proposed government compulsory health insurance.

Philadelphia

Annual Lecture.—The annual lecture sponsored by the Alpha Beta Chapter of the Phi Lambda Kappa fraternity was delivered by Dr. Owen H. Wangenstein, Minneapolis, May 20 at Hahnemann Medical College. He spoke on "Studies in the Etiology of Peptic Ulcer, with Special Reference to Surgical Management."

Vaccinate Infants Against Tuberculosis.—At the request of parents, children born in the Philadelphia General Hospital are now being vaccinated against tuberculosis by means of BCG vaccine. The practice was instituted at the hospital in November 1948 and has now become an accepted procedure. Approximately 200 babies have been vaccinated. The Henry Phipps Institute of the University of Pennsylvania is cooperating with the Tuberculosis Division, Philadelphia Department of Health, in preparing the vaccine.

Pittsburgh

Pittsburgh Health Program Survey.—The U. S. Public Health Service recently made a report on a survey of the Pittsburgh Public Health Department conducted at the request of the Mayor. A team of seventeen persons headed by Dr. Erval R. Coffey, director of the Public Health Service, District 1, made the following recommendations: 1. Coordinate health programs in the communities with that of the City Department of Health. 2. Establish office of personnel and business administration and a vital records office. 3. Establish an office of public health nursing, a health education office, a nutrition office, a bureau of sanitary engineering, a dental health division and a maternal and child health division to replace the bureau of child welfare. 4. Set up a permanent tuberculosis division to expand case finding program and enlarge diagnostic follow-up clinic in the City-County Building to provide greater service to downtown residential areas. 5. Maintain a central case registry. 6. Coordinate and supervise a tuberculosis social service program and put a complete rehabilitation program in effect at Leech Farm. The survey proposed formation of the present organization into a four bureau department: administration and special services, medical services, sanitary engineering services and smoke prevention. A consultant has been assigned by the U. S. Public Health Service to help carry out the recommendations, some of which have already been put into effect.

SOUTH DAKOTA

State Medical Meeting.—The annual meeting of the South Dakota State Medical Association will be held in the Civic Auditorium, Yankton, May 22-24, under the presidency of Dr. John L. Calene, Aberdeen. Guest speakers include:

Gilbert H. Marquardt, Chicago, Diagnosis and Care of Cardiac Neurosis.
William H. Northway, San Francisco, Convalescent Care of Poliomyelitis Patients.
Edgar V. Allen, Rochester, Minn., Diagnosis and Management of Acute Peripheral Vascular Occlusions.
Frederick E. Mohs, Madison, Wis., Chemosurgical Treatment of External Cancer: A Microscopically Controlled Method of Excision.
William L. Valk, Kansas City, The Renogram, A Comprehensive Study of Renal Function.
Carl A. Moyer, Dallas, Texas, Pathologic Development Associated with Intestinal Obstructions, and Pathologic Development in Congenital Heart Disease.
James W. DuShane, Rochester, Minn., Pathologic Development in Congenital Heart Disease.
Howard B. Hunt, Omaha, Carcinoma of the Cervix.
Walter G. Maddock, Chicago, Surgery of the Biliary Tract.
Charles Crownhart, LL.D., Madison, Wis., The Cooperative Movement in Medicine.

The annual banquet will be Monday at 7 p.m. The Woman's Auxiliary to the association will meet at the Charles Gurney Hotel May 22-24.

WEST VIRGINIA

Cancer Society Gives Fund to State Department.—The West Virginia Cancer Society has appropriated \$15,000 for the treatment and care of cancer patients during the remainder of the fiscal year, to be made available to the Division of Cancer Control of the State Health Department. The society acted after failure of the State Legislature to pass a deficiency appropriation to cover the period of the last quarter of the current fiscal year. At the annual meeting of the board of directors of the West Virginia Cancer Society in March Dr. Russell B. Bailey, Wheeling, was elected chairman, Mr. Charles Lively, Charleston, secretary, and Mr. Homer Gebhardt, Huntington, treasurer.

GENERAL

Duke Alumni Dinner.—The Duke University Medical Alumni Dinner will be held at Chalfonte-Haddon Hall, Atlantic City, June 9 at 6:30 p. m. Those desiring reservations should write to Dr. Karl C. Jonas, 3401 N. Broad Street, Philadelphia 40, Pa.

Meetings in Atlantic City.—The Blood Irradiation Society will hold its annual meeting at Chalfonte-Haddon Hall June 4-5 under the presidency of Dr. Robert C. Olney, Lincoln, Neb. The American Medical Women's Association's annual meeting will be held at the Hotel Dennis, Atlantic City, June 4-5 under the presidency of Dr. Elise S. L'Esperance, New York.

Diabetes Association Meeting.—The American Diabetes Association will hold its annual meeting at the Chalfonte-Haddon Hall, Atlantic City, N. J., June 4-5. Saturday's program will be a joint session with the American Society for the Study of Internal Secretions. At the banquet Saturday evening Dr. Herbert M. Evans, Berkeley, Calif., will give the Banting Memorial Address.

O'Reilly General Hospital Reunion Dinner.—Former members of the command of O'Reilly General Hospital, Springfield, Mo., will hold a reunion dinner in the Blue Room of the Chalfonte-Haddon Hall Hotel, Atlantic City, N. J., June 8 at 7 p. m. All former members who served with Brigadier General George B. Foster Jr. at the hospital during the war are invited to be present.

Northwestern University Alumni Luncheon.—Northwestern University Medical School Alumni will meet for luncheon in the Garden Lounge of the Hotel Dennis, Atlantic City, June 8 at 12 noon. Reservations may be obtained at \$3.50 per plate either through the Medical Alumni Office, 303 E. Chicago Ave., Chicago 11, or at the booth in the alumni registration area at the convention.

Lord Horder to Give Lecture.—The annual dinner and William W. Root Address of Alpha Omega Alpha Honor Medical Society will be given on June 9 at 6:30 p. m. at the Traymore Hotel in Atlantic City, N. J. The speaker will be Lord Horder of England, founder and president of the new organization, Fellowship for Freedom in Medicine, who will speak on "Medicine and the State." Members of the medical profession and their guests are invited.

Ophthalmological Society Meeting.—The American Ophthalmological Society's annual meeting will be held at the Homestead, Hot Springs, W. Va., June 2-4, under the presidency of Dr. Bernard Samuels, New York. Among the subjects under discussion will be Simultaneous Bilateral Malignant Ocular Melanoma, Temporal Arteritis (The Horton-Magath-Brown Syndrome) as a Cause of Blindness, How Can We Best Study Primary Glaucoma? and Experimental and Clinical Use of Aureomycin in Herpes Simplex.

Inter-American Congress of Radiology.—All radiologists and those interested in radiology are invited to attend the Third Inter-American Congress of Radiology in Santiago, Chile, November 11-17. This is the first Inter-American Congress of Radiology since one convened in Havana, Cuba, in 1946. The first one took place in Buenos Aires in 1943. Those interested in attending this congress should communicate with James T. Case, M.D., Regional Secretary for the United States, 55 East Washington Street, Chicago 2, Illinois.

Nutrition Foundation Grants.—The Nutrition Foundation on May 5 authorized new grants for research totaling \$156,900. Largest of these was \$9,000 annually for three years to Dr. Frederick J. Stare, Harvard School of Public Health, Boston, for basic research on nutrition and health with special reference to hypertension. According to Mr. George A. Sloan, president, the food industry has contributed a total of \$3,400,000 in support of the foundation's work. Most of the grants made to university graduate and medical schools are in support of basic research without regard to immediate applications.

Dr. Salter Receives Award.—Dr. William T. Salter, professor of pharmacology at Yale University, New Haven, Conn., on April 27 received the first Iodine Educational Bureau Award at a meeting of the American Pharmaceutical Association. Dr. Salter was cited for his research on the relation of iodine in the blood to the thyroid gland. He was an assistant professor of medicine at Harvard, a research fellow of the Harvard Cancer Commission and associate physician at the Huntington Memorial Hospital in Boston. He has served as chairman of the Yale department of pharmacology since 1941.

Mr. Homer Sanger Dies.—Mr. Homer F. Sanger, Westmont, Ill., who was in charge of the hospital work of the Council on Medical Education and Hospitals of the American Medical Association for nearly twenty-five years, died May 6,

aged 68, after a short illness. Mr. Sanger began his work with the Council in 1919 and served until his retirement in 1943 with the exception of a short period in 1921 when he was superintendent of the Central Free Dispensary of Chicago. During his service Mr. Sanger developed the list of hospitals registered by the American Medical Association.

Kappa Delta Award in Orthopaedic Surgery.—The National Council of the Kappa Delta Sorority has inaugurated a prize of \$1,000 to be given annually by the American Academy of Orthopaedic Surgeons for the best research in orthopedic surgery performed during the year by an individual in the United States. The first award will be announced at the seventeenth annual convention of the academy in New York, Feb. 11, 1950. Those wishing to compete for this prize can secure further information from Dr. Walter Stuck, 1426 Nix Professional Building, San Antonio, Texas, chairman of the Award Committee for 1949.

Special Society Elections.—The American College of Physicians at its recent annual meeting installed Dr. Reginald Fitz, Boston, as president and chose Drs. William S. Middleton, Madison, Wis., president elect; George M. Piersol, Philadelphia, secretary-general, and William D. Stroud, Philadelphia, treasurer.—Dr. Julian G. Price of Dyersburg, Tenn., was chosen president elect of the Mid-South Post Graduate Medical Assembly at its recent meeting. Dr. Hoyt R. Allen, Little Rock, Ark., is president for 1949. Dr. Henry B. Gotten, Memphis, Tenn., who has served as secretary-treasurer for a number of years, will resign July 1, and his successor will be appointed.

W H O Given Anticholera Medal.—Sir Aly Shousha, Pasha, on behalf of the Egyptian Government presented the Egyptian Anti-Cholera Memorial Medal to the World Health Organization in recognition of the work accomplished during the late epidemic in that country. Dr. G. Brock Chisholm, New York City, director general, accepted the medal on behalf of the World Health Organization. He pointed out that, owing to the collaboration of all countries that were in a position to render assistance and to the energy of the Egyptian health authorities, the World Health Organization was able to help. Results, he said, had shown what could be accomplished by a national public health service when it was well organized and seconded by international goodwill.

Dr. Martha Eliot Resigns from Children's Bureau.—Dr. Martha M. Eliot, associate chief of the Children's Bureau, with which she has been associated for twenty-five years, has resigned to become assistant director general of the United Nations World Health Organization, effective June 1. Dr. Eliot will be responsible for the work of the Department of Operations, which includes the furnishings of experts, demonstration teams, and fellowships in the worldwide campaigns against malaria, tuberculosis and venereal disease control as well as furthering maternal and child health nutrition and environmental sanitation. Dr. Eliot, who is a graduate of Johns Hopkins University School of Medicine, Baltimore, 1918, served as United States delegate to the World Health Organization in 1948.

American Therapeutic Society.—This society will hold its annual meeting at the Chalfonte-Haddon Hall, Atlantic City, June 2-5 under the presidency of Dr. Hal McCluney Davison, Atlanta, Ga. Physicians presenting papers by invitation include:

Arnold J. Lehman, Washington, D. C., Pharmacological Evaluation of Insecticides.

Perrin H. Long, Baltimore, Impact of Sulfonamide and Antibiotic Agents on the Prognosis of Infectious Diseases.

Louis A. M. Krause, Baltimore, Biblical and Classical References to Disease.

Alfred Blalock, Baltimore, Surgical Treatment of Congenital Heart Disease.

Edwin M. Robertson, Kingston, Ontario, Canada, Treatment of Dysmenorrhoea.

Leandro M. Tocantins, Philadelphia, Physiology of Blood Coagulation.

A symposium on Factors in Blood Coagulation and Clinical Use of Anticoagulants will be held Saturday afternoon.

Survey of Allergy-Producing Molds.—An international survey this year of allergy-producing molds is being conducted by the research council of the American Academy of Allergy to determine in which areas hay fever-producing molds are most concentrated and where least prevalent. The extensive study will involve the cooperation of about fifty allergists and bacteriologists in communities in forty states, Canada and Mexico. Dr. Samuel M. Feinberg, head of the Allergy Research Laboratory of Northwestern University Medical School, Chicago, is chairman of the academy's committee on molds, which instituted the study. Scientists participating in the survey will trap air-borne molds on slides in their localities and submit the results to the central collecting agency directed by Dr. Leonard H. Harris of Northwestern University.

Dr. Dublin Named Director of Health Council.—Dr. Thomas D. Dublin, New York, has been appointed executive director of the National Health Council. The Rockefeller Foundation has made a grant of \$225,000 to the council to be used over a three year period. Under Dr. Dublin's direction the council will seek to stimulate the provision of adequate public health service of high quality. A graduate of the Harvard Medical School, Boston, and Johns Hopkins University School of Hygiene and Public Health, Baltimore, Dr. Dublin has been a member of the staff of the New York State Department of Health, and during the past six years has been professor of preventive medicine and community health at the Long Island College of Medicine, Brooklyn. He had previously taught at Johns Hopkins University Medical School and at the Albany Medical College in New York.

Dr. Avery to Receive Passano Award.—The Passano Foundation will present its \$5,000 award for 1949 to Dr. Oswald T. Avery, New York, emeritus member of the Rockefeller Institute for Medical Research, at the annual award dinner to be held at the Marlborough-Blenheim Hotel, Atlantic City, June 8. Dr. Ernest E. Irons, Chicago, President-Elect of the American Medical Association, will make one of the principal addresses. The award goes to Dr. Avery for his extensive investigations of the pneumococci, their classification, analysis, and immunologic relationships. The Passano Foundation, established by the Williams and Wilkins Company, medical publishers, Baltimore, to aid advancement of medical research, has made four previous awards. These have gone to Edwin J. Cohn, Ph.D., Harvard University, Boston, for his work on fractionation of blood; Dr. Ernest W. Goodpasture, Vanderbilt University School of Medicine, Nashville, Tenn., for virus culture by the chick embryo method; Selman A. Waksman, Ph.D., of Rutgers University, New Brunswick, N. J., for discovery of streptomycin; and last year a joint award to Drs. Helen B. Taussig and Alfred Blalock, both of Johns Hopkins University School of Medicine, Baltimore, who developed a surgical procedure for certain forms of congenital heart disease.

LATIN AMERICA

Argentine Congress of Radiology.—The newly organized Asociación Argentina de Radiología will hold its first annual meeting in July, 1949 in Santiago del Estero, Argentina. President of the association is Dr. Sabino di Rienzo, Cordoba, whose work on "Radiological Aspects of Bronchial Dynamism" was awarded first prize at the meeting of the Radiological Society of North America in San Francisco last December.

CORRECTION

Statement on the Toxicity of DDT.—In the first paragraph of the item by this title in THE JOURNAL, April 30, page 1285, the Department of the Army was inadvertently omitted from the list of agencies which took part in the conference. The Army had the principal role in the development of DDT and the representative of the Army was extremely helpful in the discussions which were summarized in the statement.

Marriages

JOHN LITCHFIELD AYER, Syracuse, N. Y., to Miss Mary-Elizabeth Lent of East Paterson, N. J., in Montclair, N. J., April 23.

HERBERT AUGUSTUS CODINGTON JR., Wilmington, N. C., to Miss Mary Littlepage Lancaster in Sumter, S. C., April 8.

ELIZABETH ANN JOLLY, San Francisco, to Mr. Thomas William Sibary of Miami, Fla., in Belmont, Calif., April 8.

CHARLES WILLIAM WILSON, Staunton, Va., to Miss Charlien Marie Simms of Dothan, Ala., March 26.

HARRY J. MANNING, Milwaukee, to Miss Joan Barbara Weinstock of Newark, N. J., March 27.

THOMAS NEUTON STERN, Memphis, Tenn., to Miss Harriet Louise Cohn of Dayton, Ohio, April 9.

HENRY CHESLEY DECKER, Richmond, Va., to Miss Margaret Reider Fisher of Baltimore, April 23.

ALAN LOUIS FRANKEL, Columbus, Ohio, to Miss Carolyn Katz in Columbia, S. C., April 12.

GERHARD ARTHUR MEYER, Flushing, N. Y., to Miss Felicitas E. Keel of New York, April 23.

Deaths

John Green * St. Louis; born in Templeton, Mass., Aug. 2, 1873; Washington University School of Medicine, St. Louis, 1898; professor of ophthalmology at St. Louis University School of Medicine; instructor in ophthalmology at his alma mater from 1909 to 1919; for many years secretary-treasurer and later chairman of the American Board of Ophthalmology; member of the House of Delegates of the American Medical Association in 1907 and chairman of the Section on Ophthalmology in 1935 and 1936; past president of the American Ophthalmological Society; vice president of the American Academy of Ophthalmology and Otolaryngology, 1917-1918 and the St. Louis Medical Society in 1927; member of the Association for Research in Ophthalmology; fellow of the American College of Surgeons; formerly member of the board of health; from 1910 to 1920 member of the board of education in University City, Mo.; on the staffs of St. Louis County Hospital in Clayton, De Paul, Firmin Desloge, St. Louis City, St. Luke's and St. Mary's hospitals; for many years associated with Barnes and St. Louis Children's hospitals; formerly secretary of the city's Joint Medical Council; director of the St. Louis Mutual Life Insurance Company; at one time secretary and president of the Medical Society of City Hospital Alumni; died April 7, aged 75.

Hampton Pharr Cushman * Detroit; born in Milton, La., July 16, 1894; Vanderbilt University School of Medicine, Nashville, Tenn., 1915; associate professor of clinical gynecology and obstetrics at the Wayne University College of Medicine; extramural lecturer in gynecology at the graduate school of medicine at the University of Michigan, Ann Arbor; specialist certified by the American Board of Obstetrics and Gynecology; member of the Central Association of Obstetricians and Gynecologists; fellow of the American College of Surgeons; served in France during World War I; during World War II a member of the procurement and assignment board of physicians; on the staffs of the City of Detroit Receiving Hospital, Florence Crittenden Hospital and Harper Hospital, where he died February 13, aged 54, of myocardial infarction.

Charles Ogilvy * New York; born in Montreal, Sept. 1, 1874; McGill University Faculty of Medicine, Montreal, Canada, 1898; formerly on the faculty of the New York Post-Graduate Medical School and Hospital; certified by the American Board of Orthopaedic Surgery; member of the American Academy of Orthopaedic Surgeons; fellow of the American College of Surgeons; served during World War I; on the staffs of the New Rochelle (N. Y.) Hospital, White Plains (N. Y.) Hospital, United Hospital in Port Chester, Nassau Hospital in Mineola, Professional Hospital in Yonkers and Grasslands Hospital in Valhalla; died February 18, aged 74.

Wilford Anderson Hall Councill * Baltimore; born in Mathews, Va., Jan. 30, 1891; University of Maryland School of Medicine, Baltimore, 1914; specialist certified by the American Board of Urology, Inc.; member of the American Urological Association; fellow of the American College of Surgeons; served during World War I; associate in genitourinary surgery at his alma mater; instructor in urology at the Johns Hopkins University School of Medicine; affiliated with University, Johns Hopkins, Maryland General and Franklin Square hospitals; died in Palm Beach, Fla., March 26, aged 58.

David Alexander, Chicago; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1907; at one time on the faculty of his alma mater; died January 13, aged 84, of chronic myocarditis.

Eugene Argo, Goodwater, Ala.; University of Nashville (Tenn.) Medical Department, 1891; Vanderbilt University School of Medicine, Nashville, Tenn., 1891; member of the American Medical Association; died February 16, aged 80, of heart disease.

Bion Arnold, Belleville, Mich.; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1889; died February 2, aged 88, of cerebral hemorrhage, hypostatic pneumonia and arteriosclerosis.

Walter Carter Ayles, Auburn, Wash.; Vanderbilt University School of Medicine, Nashville, Tenn., 1915; member of the American Medical Association; formerly associated with the Indian Service; served as health officer; died February 24, aged 58, of heart disease.

Albert J. Bennett, Chicago; National Medical University, Chicago, 1902; died February 16, aged 71.

Marietta Helen Bewley, Los Angeles; University of Southern California School of Medicine, Los Angeles, 1900; member of the American Medical Association; formerly examining physician in Juvenile Court and on the lunacy commission of Los Angeles County General Hospital; affiliated with the Hollywood, California and Queen of Angels hospitals; died February 14 aged 75, of melanotic sarcoma.

Robert Gray Bond, Harrisburg, Ill.; St. Louis College of Physicians and Surgeons, 1909; member of the American Medical Association; died in San Diego, Calif., February 27, aged 70, of carcinoma of the stomach.

Charles Haskell Bowers, Baltimore; Johns Hopkins University School of Medicine, Baltimore, 1945; served during World War II; resident in the department of pathology at the Johns Hopkins Hospital; certified by the National Board of Medical Examiners; died in the Johns Hopkins Hospital February 21, aged 28, of homologous serum jaundice with acute yellow atrophy.

Sidney Leonard Brown, San Francisco; Indiana University School of Medicine, Indianapolis, 1948; intern at San Francisco Hospital; died February 4, aged 24, of pneumonia.

Edgar Clough Buck, Newport, Ky.; Pulte Medical College, Homeopathic, Cincinnati, 1891; died in Speer's Memorial Hospital, Dayton, February 12, aged 79, of lobar pneumonia.

Raymond Alfred Butler * Beech Grove, Ind.; Indiana University School of Medicine, Indianapolis, 1908; served overseas during World War I; formerly on the staff of St. Francis Hospital, where he died February 25, aged 64, of nephrosclerosis.

P. B. Carrigan, Hope, Ark.; Missouri Medical College, St. Louis, 1899; died February 22, aged 76.

Joseph Gibson Clemons, Mount Orab, Ohio; Starling Medical College, Columbus, 1892; died in Christ Hospital, Cincinnati, February 22, aged 81, of a fracture of the right femur and myocardial failure.

Herman Harrison Cole * Springfield, Ill.; University of Michigan Medical School, Ann Arbor, 1917; past president of the Sangamon County Medical Society and past vice president of the Illinois State Medical Society; served as president of the Central Illinois District Medical Society; served during World War I; on the staffs of Memorial Hospital and St. John's Hospital, where he died February 16, aged 55, of coronary occlusion.

Thomas Francis Cook * Richmond, Mo.; St. Louis University School of Medicine, 1918; for many years secretary-treasurer of the Ray County Medical Society; member of the school board; for six terms county physician; served during World War I; member of the staff of the Research Hospital in Kansas City; examiner for draftees of World War II; died February 6, aged 56, of coronary occlusion.

Charles Spencer Crandall, Utica, N. Y.; University of the City of New York Medical Department, New York, 1882; died February 18, aged 90, of arteriosclerosis.

Ernst Ostergaard Dahl, Brookline, Mass.; Københavns Universitet Laegevidenskabelige Fakultet, Denmark, 1921; died in Tucson, Ariz., February 8, aged 53, of peptic ulcer with hemorrhage.

Edward Maze Dance, Lowell, Ark.; Vanderbilt University School of Medicine, Nashville, 1880; died in City Hospital, Fayetteville, January 28, aged 91, of carcinoma of the prostate with metastases.

Murray Sayle Du Mont * Mount Morris, Ill.; University of Illinois College of Medicine, Chicago, 1933; affiliated with Rockford (Ill.) Memorial Hospital; died February 28, aged 42, of carcinoma of the pancreas.

John Joseph Egan, Waterbury, Conn.; University of Maryland School of Medicine, Baltimore, 1907; member of the American Medical Association; served during World War II; formerly affiliated with the Veterans Administration; served as police and fire surgeon; on the staffs of Waterbury and St. Mary's hospitals; died in Veterans Administration Hospital, Newington, February 1, aged 65, of pulmonary tuberculosis.

Walter Ernest Fine * Ambler, Pa.; Hahnemann Medical College and Hospital of Philadelphia, 1904; died February 28, aged 70, of coronary disease.

Harley Bruce Fisk, Miami, Fla.; Ohio-Miami Medical College of the University of Cincinnati, 1915; chief medical officer for the regional office of the Veterans Administration; died in Coral Gables (Fla.) Hospital, February 11, aged 58, of coronary occlusion and pulmonary embolism.

Eldred Eadie Fraser ☉ Detroit; Detroit College of Medicine and Surgery, 1930; for many years on the staff of the Grace Hospital; died February 26, aged 45, of coronary thrombosis.

Homer Elmer Fraser ☉ New Lebanon, N. Y.; Bellevue Hospital Medical College, New York, 1891; an Affiliate Fellow of the American Medical Association; fellow of the American College of Surgeons; formerly on the faculty of the Long Island College of Medicine in Brooklyn, where he was on the staffs of the Kings County Hospital, Brooklyn Hospital and Caledonian Hospital; died in the House of Mercy Hospital, Pittsfield, Mass., February 17, aged 88, of coronary occlusion.

Claude Wesley Freeman, Los Angeles; University of Toronto Faculty of Medicine, Toronto, Canada, 1903; died February 6, aged 75, of acute myocardial failure.

Arthur Alfred Fuhlbrigg, Des Plaines, Ill.; University of Nebraska College of Medicine, Omaha, 1931; member of the American Medical Association; on the staff of the Lutheran Deaconess Home and Hospital in Chicago; died February 21, aged 48, of coronary thrombosis and arteriosclerosis.

William F. Goetze, St. Joseph, Mo.; Medical College of Ohio, Cincinnati, 1890; member of the American Medical Association; died January 30, aged 87.

Sidgel Fred Gregory, Bradfordsville, Ky.; Kansas City (Mo.) University of Physicians and Surgeons, 1929; served overseas during World War I; died in St. Joseph's Hospital, Louisville, February 4, aged 55, of bilateral infarcts of the kidney, multiple abscesses of the pancreas and bronchopneumonia.

Theodore Everett Hardy, Waterville, Me.; Harvard Medical School, Boston, 1932; member of the American Medical Association and the New England Obstetrical and Gynecological Society; served during World War II; Colby College physician and athletic physician; on the staff of the Thayer Hospital; died February 11, aged 43.

Don Villette Hargrave, Eaton Rapids, Mich.; Detroit College of Medicine, 1913; health officer; died in Lansing, February 24, aged 62, of Landry-Guillian-Barré disease.

Walter Handy Janney, Alexandria, Va.; University College of Medicine, Richmond, 1900; affiliated with Alexandria Hospital, where he died January 3, aged 74, of retroperitoneal hemorrhage and arteriosclerosis.

John Alexander MacKenzie, Milwaukee; Manitoba Medical College, Winnipeg, Manitoba, Canada, 1916; associate clinical professor of ophthalmology at Marquette University School of Medicine; died February 27, aged 57, of acute coronary occlusion.

John Willis Meachen ☉ Boston; Harvard Medical School, Boston, 1922; member of the New England Roentgen Ray Society; specialist certified by the American Board of Radiology; affiliated with Emerson Hospital in Concord and Massachusetts Womens Hospital; died February 24, aged 56, of arteriolar nephrosclerosis, hypertension, pericarditis and diabetes mellitus.

Eugene Lawrence Morgan, Phillipsburg, Kan.; University Medical College of Kansas City, Mo., 1906; formerly mayor; at one time represented Phillip County in the state legislature; died in Concordia, recently, aged 68, of pulmonary embolism, following an injury received in a fall.

Luther A. Mott, Elwood, Ind.; Pulte Medical College, Homeopathic, Cincinnati, 1900; on the staff of Mercy Hospital; died February 7, aged 77, of cerebral hemorrhage.

Winfield Scott Nay ☉ Underhill, Vt.; University of Vermont College of Medicine, Burlington, 1873; an Associate Fellow of the American Medical Association; for many years secretary of the Vermont State Board of Medical Registration; died in Mary Fletcher Hospital, Burlington, January 16, aged 98.

Milton Oscar Nyberg, Wichita, Kan.; Georgia College of Eclectic Medicine and Surgery, Atlanta, 1913; formerly secretary of the state board of health; at one time health officer of Ashland; served during World War I; died in Wesley Hospital February 4, aged 61, of coronary thrombosis.

Sherman Elmer Grant Pedigo, Athens, Ohio; Starling Medical College, Columbus, 1895; served during World War I; on the staff of Sheltering Arms Hospital; died January 21, aged 78, of strangulated femoral hernia.

W. N. Pierce, Little Rock, Ark. (licensed in Arkansas in 1903); died February 25, aged 83, of a fractured right femur and cardiorenal disease.

Samuel Madden Pierre, Washington, D. C.; Howard University College of Medicine, Washington, D. C., 1893; died in Emergency Hospital February 19, aged 76, of carcinoma of the prostate and coronary thrombosis.

Robert Earl Pound ☉ New York; University of Virginia Department of Medicine, Charlottesville, 1916; specialist certified by the American Board of Radiology, Inc.; member of the American Roentgen Ray Society and of the American College of Radiology; served as secretary and as trustee of the New York Academy of Medicine; an officer in France during World War I; affiliated with Lawrence Hospital in Bronxville; died in the New York Hospital February 6, aged 55.

Leon E. Reynolds, St. Petersburg, Fla.; University of Pennsylvania Department of Medicine, Philadelphia, 1886; for many years practiced in Belgrade, Me.; died February 16, aged 84, of angina pectoris.

Joseph Walker Roberts, Philadelphia; Howard University College of Medicine, Washington, D. C., 1907; died February 10, aged 69, of lobar pneumonia.

Grant Emerson Royce, Sparland, Ill.; Northwestern University Medical School, Chicago, 1927; died February 3, aged 45.

James G. Sandidge, Mulberry, Kan.; Missouri Medical College, St. Louis, 1893; member of the American Medical Association; for many years affiliated with Mount Carmel Hospital; died February 6, aged 78, of arteriosclerosis.

Thomas M. Sanford, Lansing, Mich.; Barnes Medical College, St. Louis, 1894; died January 30, aged 84, of coronary sclerosis.

Eugene Joel Schachter ☉ Pittsburgh; Indiana University School of Medicine, Indianapolis, 1926; school physician; served on the staffs of the Braddock (Pa.) General Hospital and Montefiore Hospital; died February 3, aged 47, of acute heart disease.

Laurence Roland Serrurier ☉ Portland, Ore.; University of Oregon Medical School, Portland, 1927; specialist certified by the American Board of Internal Medicine; member of the American Psychiatric Association, Oregon Neuro-psychiatric Society and the North Pacific Society of Neurology and Psychiatry; medical director of Morningside Hospital, where he died January 31, aged 49, of coronary thrombosis.

Marvin Smith, Lebanon, Ill.; University of the City of New York Medical Department, New York, 1883; member of the American Medical Association and the Connecticut State Medical Society; died in St. Elizabeth's Hospital, Belleville, January 30, aged 88, of cerebral arteriosclerosis.

Roscoe Franklin Snyder, Kalamazoo, Mich.; College of Medicine and Surgery (Physio-Medical) Chicago, 1901; member of the American Medical Association and the Kalamazoo Academy of Medicine; on the staff of Borgess Hospital; died February 2, aged 74, of hypertensive cardiovascular disease.

Frank Roy Steelsmith ☉ Des Moines; Drake University Medical Department, Des Moines, 1901; died February 5, aged 74, of coronary thrombosis and prostatic carcinoma.

Edwin Luther Stevens ☉ Penny Farms, Fla.; Northwestern University Medical School, Chicago, 1892; member of the Illinois State Medical Society; at one time professor of diseases of children at the Drake University College of Medicine, Des Moines; served on the staffs of St. Joseph's and Sherman hospitals in Elgin, Ill.; died in Jacksonville, January 16, aged 79, of lung abscesses.

Thomas Boyd Turner, Stigler, Okla.; University of Nashville (Tenn.) Medical Department, 1898; for many years county health officer; died February 19, aged 81, of cerebral thrombosis and arteriosclerosis.

Marshall W. Weir ☉ Oklahoma City; Washington University School of Medicine, St. Louis, 1906; affiliated with Wesley Hospital, where he died February 4, aged 75, of myocardial infarction.

Herbert Elmer Woelfel ☉ Bellevue, Pa.; University of Pennsylvania Department of Medicine, Philadelphia, 1908; on the staff of Suburban General Hospital; died February 13, aged 66, of coronary thrombosis.

Alexander Graham Wooldridge, Butler, Mo.; Washington University School of Medicine, St. Louis, 1932; member of the American Medical Association; president of the Bates County Medical Society; formerly county coroner; served during World War II; on the staff of Butler Memorial Hospital; died January 26, aged 42, of coronary occlusion.

Foreign Letters

BELGIUM

(From Our Regular Correspondent)

LIÈGE, April 18, 1949.

Pathology of the Pancreas

The second Belgian Congress of Surgery held an extraordinary session with the Belgian Society of Gastroenterology and discussed the important question of the pathology of the pancreas. E. Van Campenhout and M. Duperroy presented data concerning the pathologic anatomy of the pancreas. J. La Barre and P. Houssa devoted their report to the physiologic basis of the pathologic changes in the endocrine and exocrine functions of the pancreas. A. Froehlich and R. Crismer reported on biochemical concepts of pancreatic disorders. J. Jeanmart has made a thorough study of the radiology of the pancreas, and concluded that disorders of the pancreas still find the radiologist almost completely unprepared. Nevertheless, the radiomanometry practiced by Mallet-Guy and by Caroli seems to justify great hopes. J. De Witte discussed the etiopathogenesis, the diagnosis and the medical treatment of acute disorders of the pancreas. The treatment must be medical in the acute phase. However, in case of doubtful diagnosis and in case of evident involvement of the biliary passages or in case the medical treatment is ineffective surgical exploration is indicated. Two mechanisms apparently may lead to the production of pseudocysts of the pancreas: necrosis and hemorrhage. G. de Busscher spoke on the symptoms and the medical treatment of chronic disorders of the pancreas.

J. Cahen devoted his report to surgery. He took up the acute forms of pancreatitis, pseudocysts of the pancreas, chronic pancreatitis, pancreatic lithiasis, contusions of the pancreas and the surgery of cancer of the pancreas and of the ampulla of Vater. The author indicated that local exeresis of the ampulla has a surgical mortality of 30 to 35 per cent. It results in a certain number of prolonged survivals, rarely beyond three years; the percentage of these is so small that it can hardly be determined. Since 1935, it has been replaced by pancreatoduodenectomy, which responds better to the concept of the surgical treatment of cancer. This serious intervention has a surgical mortality of about 30 per cent. It does not appear possible as yet to establish the percentage of prolonged survival. In these conditions the author does not feel that it is possible to decide definitely in favor of the one or the other of these two operations on the ampulla of Vater. René Goffin discussed the question of hyperinsulinism.

Summarizing, the chairman, Dr. George De Busscher, drew conclusions from this important discussion. The regulation of the sugar metabolism is disturbed in the course of diabetes of Langerhans, of alloxan diabetes, of the diabetes of Young (by injection of increasing doses of extract of the entire anterior lobe of the hypophysis) and of diabetes by disturbance in the mechanism of the nervous regulation of the sugar metabolism. There is a certain degree of dependence between the external and internal functions of the pancreas. Aspiration of the pancreatic juice is made best by the double tube of Agren-Lagerlof, before and after the intravenous injection of purified secretin alone or associated with acetyl-beta-methylcholine. Acute pancreatitis can be inflammatory without causing necrosis or hemorrhage by inducing edema; it develops in the course of an infectious process and its treatment is anti-infectious. Acute necrotic pancreatitis is characterized by necrosis of the parenchyma, edema, hemorrhage and steatonecrosis, or by one or several of these lesions. The pathogenic elements are the following: biliary factors (cholecystitis, cholelithiasis, dyskinesia of the biliary passages), neurovascular or anaphylactic factors.

The etiopathogenesis of chronic pancreatitis is not clarified: Fibrosis of the pancreas seems to be a result of the extravasation of pancreatic juice without corrosion of the blood vessels. Chronic recurrent pancreatitis constitutes a succession of sublethal attacks of acute interstitial pancreatitis or of hemorrhagic pancreatitis or perhaps a combination.

Preoperative roentgenologic exploration of the biliary passages constitutes a great advance in the radiologic field in recent years. If the diagnosis of pancreatitis is established, medical treatment will be instituted. It may eventually be followed by surgical intervention, but every case requires individualization. If the diagnosis is not sure, a laparotomy is indicated. The pseudocysts will be treated by marsupialization or by cystoanastomosis, if possible. In the course of pancreatic lithiasis removal of the calculus, biliary drainage, hemipancreatectomy on the left side, total pancreatectomy and cephalic duodenopancreatectomy find their special indications.

Surgery of diabetes must be reserved for the cases of grave insulin-resistant disease with fatal prognosis, for cases aggravated by a complication in other organs such as exophthalmic goiter, adrenal or hypophysial tumors and in which interventions on these organs are likely to improve the complex sugar regulation.

Medical Service in the Belgian Congo

The report on the health conditions in the Belgian Congo during the year 1946 has been published. The Governmental Medical Service at the end of 1946 comprised 211 physicians, 4 pharmacists and 223 health agents. It is necessary to add to this 99 physicians of industrial organizations, 40 physicians of missions and philanthropic organizations, 18 private physicians, 13 dentists, 12 pharmacists and numerous health agents (more than 100). There are between 300 and 400 nurses (religious and others) and numerous native personnel. The budget of the Governmental Medical Service for 1946 exceeds 227,000,000 francs; the expenditures are not known as yet (the budget for 1936 was around 75,000,000 francs).

Concerning the health of the natives, we learn that in 1946, in all the government agencies, 1,500,000 natives were treated, with 7,800 deaths. Besides these, in mobile units and missions and philanthropic organizations 18,000 cases of trypanosomiasis were treated, 215,000 cases of yaws, 56,000 of leprosy, 55,000 of syphilis and 2,500 of tuberculosis.

In an interview published in the *Cape Times* M. J. G. Garinus, Governor of the Province of the Cape of Good Hope, said, "The Government of the Belgian Congo considers the health of the natives as one of the very first responsibilities which it has to face." He then described all the efforts made in the construction of health establishments and concluded: "South Africa can certainly learn from the initiative of the Belgian Congo, without losing sight of the fact that the problem of the medical service of the natives cannot be considered completely identical in the two countries." Regarding congenital malaria and on the basis of an intensive study by the Belgian Society of Tropical Medicine, a committee has been created to condense the results of the study. The committee has confirmed the absence or at least the extreme rarity of congenital malaria in natives in the endemic regions of Central Africa.

Congress of Sickness and Accident Insurance

The first International Congress of Medical Insurance organized by the Belgian Medical Society for the study of sickness and accident insurance was held in Brussels and in Spa. The history of sickness and accident insurance was presented by Dr. Casman, who outlined the role of the physician counselor. The task of this counselor is immense; he must make an exact diagnosis in complicated cases. To fulfil this task he has at his disposal all modern technics, and he can ask the opinions

of the most eminent specialists. The physician counselor must also be interested in the social conditions of the patient and look after his material well-being. He must, in certain cases, advise the patient to take up a new occupation. To do this, he must give occupational aptitude tests and assign the patient for reorientation and new training. This difficult task can be carried out only in close cooperation with the attending physician, and it is he who must do more and more in this respect.

University Sanatorium

After the war, when the conditions of hospitalization were clearly insufficient in Belgium, numerous Belgian students who had tuberculosis were evacuated to Leysin in Switzerland. Soon the idea was conceived of grouping all these students together in Belgium, and the University Sanatorium of Eupen was established. On Oct. 9, 1947, the first students were hospitalized there. At this time, 71 patients are under treatment, of whom 48 are students and 23 are intellectuals. A medical director, an assistant physician, 6 nurses and numerous other personnel maintain the service. The ceremony of inauguration was held in the presence of her Majesty the Queen and other important persons. In the course of this ceremony President DeVleeshouwer indicated that all Belgian students should unite to participate in the realization of the project so that the sanatorium can fulfil all the hopes held for it.

Quinine in the Belgian Congo

Bruxelles-médical gives an account of a study which M. E. H. J. Stoffels has published on the subject of quinine. In Kivu planted stocks in normal conditions no longer exist. Stoffels is of the opinion that a plantation of 1 hectare with 12,345 trees can produce the following quantities of quinine, expressed in kilograms of sulfate of quinine: third year (prunings) 28.2 Kg.; fourth year, 43.4 Kg.; fifth year, 48 Kg.; sixth year, 81 Kg.; seventh year, 72 Kg.; eighth year, 80 Kg.; ninth year, 120 Kg.; tenth year, 160 Kg.; eleventh year, 200 Kg., and twelfth year, 320 Kg., a total of 1,152.6 Kg. of sulfate of quinine extracted from 14,450 Kg. of bark; that is, an average content of 8 per cent.

TURKEY

(From Our Regular Correspondent)

ANKARA, Feb. 22, 1949.

Tenth National Medical Congress

Under the auspices of Ismet İnönü, President of Turkey, and with Hasan Saka the Prime Minister as honorary president, the tenth medical congress was held at Ankara October 4-7; it was attended by more than six hundred members from all parts of the country. As usual the congress was accompanied with an exhibition of domestic and foreign pharmaceutical preparations and public health propaganda. Dr. Kemali Bayizit, the Minister of Health and Social Assistance, opened the congress. The two main themes were industrial hygiene and thyroid diseases in Turkey. Until 1929 the Ministry of Health and Social Assistance was responsible for maintaining the health of workers. With the enactment of the labor law in 1936 all matters pertaining to workers and the application of the labor law became the responsibility of the Ministry of Economics. The rapidly increasing number of workers brought about by the industrialization of the country resulted in the establishment of the Ministry of Labor in 1946. The main divisions are the division of health, the division of workers in industry and the division of workers' insurance. Laws and regulations pertaining to working hours and compensation have been enforced; workers' syndicates and workers' infirmaries and hospitals have been established, and accident and disablement compensation and matters pertaining to maternal and child health have been

fixed. Establishments employing more than 50 workers must have an infirmary and a physician; those employing more than 500 must have a hospital, a surgeon and a medical specialist. At present there are almost 400,000 skilled workers in different industries. A motion was carried that industrial hygiene be added to the list of medical specialties, of which there are now twenty-four: internal medicine, tuberculosis, general surgery, neurosurgery, obstetrics and gynecology, bacteriology and infectious diseases, parasitology, ophthalmology, otorhinolaryngology, pediatrics, dermatology and venereal diseases, psychiatry and neurology, radiology and radiotherapy, urology, orthopedics, stomatology and stomatology plastics, biochemistry, pharmacodynamics, pathology, legal medicine, hygiene and preventive medicine, physical culture and school hygiene, public health, and hydrology and physical therapy.

On the second day of the congress diseases of the thyroid were discussed. The principal localities where goiter is endemic in Turkey are Isparta, Bolu, Kastamonu, Adapazar and the Bozkir and Ermanak districts of the Konya province. The town of Isparta is well known for its many young girls and women afflicted with goiter. In the Kastamonu Ilgaz mountain region the goiter incidence is noticeably higher. According to veterinaries goiter is also encountered in animals grazing in that region. In Afyon, Amasya, Erzurum, Geyve and Duzce goiter is occasionally seen. In Denizli, a province of more than 300,000 inhabitants, only in 1 woman has colloid goiter been encountered in three years, and among the 13,000 patients examined in the hospital of Hatay there were only 2 cases of toxic diffuse goiter and 2 cases of struma. Among the 2,200 patients admitted during the last six years to the Diyarbakir Model Hospital surgical department there were only 15 cases of goiter and 2 of toxic diffuse goiter. But in the mountainous Zonguldak Black Sea region 12 adenomatous toxic, 23 cystic, 25 nodulous, 62 parenchymatous and 3 cancerous strumae have been encountered; 2.3 per cent were toxic diffuse goiters, and 91 per cent of the patients with goiter were women. For the last three years the inhabitants of the goiter regions have been supplied with iodized salt, and goiter posters and pamphlets have been distributed. Generally speaking, the goiter situation in Turkey is not serious.

Dr. Ziver Mestci of the Trabzon Model Hospital submitted a report on the 248 patients with struma admitted to his department for operation. Of the 248 patients, 164 were women and 84 were men; of 95 patients with toxic diffuse goiter, 66 were women and 29 were men. Age groups were as follows:

Struma		Toxic Diffuse Goiter	
Age, Years	Percentage	Age, Years	Percentage
10-19	15.3	10-19	7.4
20-29	21.3	20-29	32.5
30-39	26.6	30-39	44.3
40-49	26.1	40-50	12.8
50-60	10.7		

Three of the 248 patients with struma and likewise 3 of the 95 patients with toxic diffuse goiter did not recover after operation; on admission they were weak and anemic and the disease was far advanced.

The eleventh medical congress is to be held in 1950 at Ankara. The topics will be tuberculosis in Turkey and tuberculosis control, the surgical treatment of tuberculosis and bone and joint tuberculosis. On the occasion of the national medical congress the fifth surgical, the third gynecologic and second microbiologic congresses were also held in Ankara. At the tenth medical congress almost one hundred papers were submitted; at the gynecologic congress 57 were presented.

Council on Medical Education and Hospitals

ANNUAL CONGRESS ON MEDICAL EDUCATION AND LICENSURE

Forty-Fifth Annual Meeting, Held in Chicago Feb. 6, 7 and 8, 1949

FEBRUARY 7—MORNING

DR. HERMAN G. WEISKOTTEN, Syracuse, N. Y., Presiding
New Medical Schools

DR. HERMAN G. WEISKOTTEN, Syracuse, N. Y.: This paper was published in *THE JOURNAL*, May 7, page 8.

Medical Education in Programs of the Public Health Service

DR. LEONARD A. SCHEELE, Washington, D. C.: This paper was published in *THE JOURNAL*, May 7, page 5.

The World Medical Association and Medical Education

DR. LOUIS H. BAUER and MARGARET L. NATWICK, A. M., New York: The World Medical Association was organized in Paris in September 1947. At present thirty-nine countries are members and applications are pending from several others. The objects of the association are to effect better liaison among the doctors of the world, to organize a medium of exchange, to study and report on the problems confronting the medical profession, to represent world medical opinion before international bodies, to assist all peoples of the world to attain the highest level of health and to promote world peace. Not all nations have a truly representative medical association, which is why some countries are not represented. It seems to be a definite fact that where there is no strong national medical association, medical care and medical education are on a distinctly lower plane. In the second General Assembly, held last September at Geneva, among the many momentous decisions made were:

1. Appointment of a committee to draft an International Code of Ethics.

2. Adoption of a report on "The Status of the Medical Profession in 23 Countries." This report covers medical man power, registration of physicians, professional organizations, the environment of medical practice, the trend of medical practice and the status of the doctor in all these countries.

3. Adoption of a report on Social Security and Health Insurance, including twelve principles, wherever medical care is provided as a part of social security.

4. Preliminary consideration of methods of coordinating the medical press of the world. Decision to publish a quarterly *Bulletin* on the activities of the association.

Other matters considered at the Assembly, and which are now engaging the activities of the Secretariat are:

1. The Advertisement and Sale of Secret Remedies and Appliances.

2. "Unqualified Medical Practice." The report covers the regulations governing cult practice, whether or not such practices are growing, and the nature of schools of training, if any. It is a matter of regret that the United States is one of a very few countries where there are schools or programs of training for unqualified practitioners.

3. Postgraduate Training and the Training of Specialists.

For some time now the Association has been engaged in the Study of Undergraduate Medical Education, and the study is now nearly complete. It covers information as to the medical schools of twenty-six countries. It is hoped to keep this study up to date. Such a study has never been done before. It is believed that the World Medical Association, by publishing such a report and through its member associations can be of great assistance in bringing about a uniform high standard of medical education throughout the world.

Very few of the activities of the World Medical Association would be possible without the assistance of the United States Committee. The United States Committee was incorporated as a nonprofit organization to give financial support to the World Medical Association. The Committee agreed that, if the headquarters of the Association were established in North America, it would guarantee the financial support up to a certain limit of the Secretariat, publication of the *Bulletin* and

the cost of the traveling expenses of members of the Council in attending official meetings, as otherwise some of them would not be able to attend. The headquarters have been established in New York City. Membership in the Committee is open to all organizations and individuals. Medical associations, organizations allied to medicine, semiprofessional organizations and many individuals are contributing financial support to the promotion of world medicine, world health and world peace. We hope that at least 5,000 doctors become members of the committee.

The potentialities of the association are boundless, if we succeed in obtaining the proper financial assistance. All doctors should assist in the work of raising and unifying the standards of public health, medical education and medical care throughout the world. Doctors of the world have a common meeting ground, and through them and their influence a better understanding among nations can be obtained.

DISCUSSION

DR. DONALD G. ANDERSON, Chicago: During the past two or three years particularly there has been a great need for knowledge in this country of medical education programs abroad. Many physicians who have received their training in foreign countries are eager to come to the United States and to enter practice. The state licensing boards, therefore, need accurate information about the institutions in which these men received their training. A small group, which will probably grow larger, of American citizens who wish to go abroad to receive medical training and then return to this country to practice also need information. There is also the possibility that the exchange of students between medical schools and possibly even an exchange of instructors may develop as we come to know more about the facilities and institutions in other countries. During these past two or three years, while this need has been becoming evident, a number of groups have been trying to gather some of this information. It seems likely that with this entrance of the World Medical Association into this field we may be able to get the information which is now being sought from many quarters in this country.

Utilization of Regional Hospitals for Medical Education

DR. CHARLES F. WILKINSON JR., Battle Creek, Mich.: In the past several years many schools have adopted an attitude that the justification for their existence is dependent not only on their turning out well equipped physicians, but also on their ability to keep the physicians in their realm of influence informed as to recent developments in diagnosis and treatment. This brings to mind an entirely different institution from that commonly envisaged when the term medical school is used. This trend is seen not only in tax-supported schools, for many advances in continuation technic and much of this philosophy of regional obligation have developed in privately endowed medical schools.

A hospital functions effectively in discharging its obligation largely in proportion to its activities in the field of medical education. During the past several years many attempts have been made to integrate the local hospital as an educational institution with the medical school as the center of regional medical education. For a time I was intimately involved in the program at the University of Michigan that attempted to do this. The need of hospitals for many of the things to be found only at a university center was equalled by the need of the university for the hospital's space and staff in the training of interns and residents. As a result a program was developed which it was hoped would not only give good intern and resident training in hospitals distant from the medical school, but would also serve as a daily stimulation to the continuing education of physicians practicing in areas served by those hospitals. Certain broad principles served to set the course of this program and they are believed to hold true in the continuous education of any physician: 1. Medical schools can no longer hope to prepare a person for the practice of medicine for more than four or five years after graduation. 2. A physician can continue his own education, but this is not likely to be the most efficient method by which his skill can be maintained. 3. A medical school's primary obligation is to the undergraduate, but scarcely less important is its obligation of educating residents and practicing physicians. 4. This is especially true of tax-supported institutions

in their relation to the practicing physician. 5. A medical school's influence should, wherever possible, be carried to the physician, as well as offering more formal training on the campus. 6. Short courses are valuable but do not obviate the need for planned day by day stimulation. 7. The best place for this day by day stimulation is in the hospital where the physician practices. 8. Ideally, the practice of medicine should be made up of three components: (a) the care of the sick; (b) teaching of undergraduates, residents or other physicians, and (c) some type of investigative work.

The foregoing definition for the ideal practice of medicine is open to some criticism. Certainly the physician of today should be acutely aware of preventive medicine, and I agree with my critics that the care of the sick should be broadened to include the prevention of disease.

A hospital that desired to affiliate approached the university and was visited by the coordinator of the decentralized program. They were acquainted with the basic teaching requirements of the program which were: 1. Teaching ward rounds conducted daily. 2. Roentgenologic conferences in each affiliated service weekly. 3. Clinical-pathologic conferences which may alternate between medical and surgical cases weekly. 4. Clinical conferences by the medical service, and clinical and necropsy review conferences by the surgical services. 5. Responsibility during the surgical resident's fourth year for a fifteen to twenty bed ward or its equivalent. 6. Each chief of service was either a certified specialist or a fellow of his respective board or college. When this requirement could not be fulfilled, a member of the staff with these requirements could be selected from the service to act as preceptor. In addition the university sent members of the senior faculty to the affiliated hospitals to participate in ward rounds and conferences once each month in medicine and surgery. During the third year out of medical school, or the second year in specialty training, the resident came from the affiliated hospital to the University of Michigan to spend either a year or nine months in the study of the basic sciences closely correlated with clinical application. During this period, approximately two fifths of the resident's time was spent in clinical application, while the remainder was spent in the basic science departments.

There were a number of difficulties that were unique to the programs at the University of Michigan, or at least, appeared to be. All of the schools engaged in such programs have their troubles. I know of no such program that is as good as it was planned to be. These inherent faults are important, but they are not as significant as are the advantages. Intern and resident training has become too complex to be considered merely as a work experience. It is part of the physician's education, and should be under the supervision of medical schools. The medical school alone cannot assume the responsibility for training all residents within its walls. It can, however, through affiliation with regional hospitals, expand the number of residents for whose education it is responsible and at the same time participate in a truly regional medical educational program.

DISCUSSION

DR. CURRIER McEWEN, New York: Like the one described, our program at New York University has been made possible by the support of the W. K. Kellogg Foundation. Ours started in September 1947, and the leading spirit in setting it up has been Dr. Clarence de la Chapelle. When, during this last year, the new Postgraduate Medical School was established as a part of the New York University-Bellevue Medical Center, this regional hospital program carried over into the program of the Postgraduate School, and we now look on it as one of the most interesting experimental projects of that school. We have ten participating hospitals as compared with fifteen in Michigan. During the shorter period that ours has been in progress, we have had twenty-three residents enrolled as compared with their seventy-five. Our hospitals rank in size from one hundred to eight hundred beds and they are in communities of 2,000 to 58,000 population. They are in an area within 100 miles of New York City. We believe that this type of program offers the unique opportunity for community service, and at the same time one for expansion of graduate and postgraduate teaching through the participation in the training of the residents and the attending staffs also in these outlying hospitals. We

hope also that eventually, on an elective basis, undergraduate students will take part in the program, that they at least will go out and work in these hospitals and in this way widen their experience through a type of service in suburban and rural areas, which of course is so different from that experience they now receive in the city. Eventually, too, we would like to see this program extend over to a cooperative training in nursing education. A very important aspect of the plan is the selection of the right man to act as coordinator in the individual hospitals. In two of our hospitals which did not appoint such coordinators, because the proper men were not found, the program did not go very well. We have not been conscious of some of the difficulties which Dr. Wilkinson mentioned. Our faculty has been enthusiastic about it and there has been no trouble in having senior faculty members go out to make these visits. In part that may be due to the fact that they all received an honorarium for each visit, but in all events they have done it with enthusiasm. The hospitals have not shown any feeling that the University was "moving in on them." Some of the attendants at the hospital found that under this new plan they had to devote more time to ward service in the hospitals and to intern residency training, and that irked a bit; they of course were the first to admit that was what they should be doing, and it was one of the good features of the plan, and now they do it. The cost is an important feature. We made perfectly clear to every hospital that came into this program with us that we could not carry it out of the University budget. When the funds which we now receive come to an end, either funds will have to be provided from some other sources or, by that time, it should be sufficiently interesting and important to the hospitals so they will take over the cost. I estimate that the program costs about \$3,000 to \$4,000 in each of these hospitals, depending on how much one pays as a stipend to the coordinator of the hospital and whether or not one included in it the lack of funds lost through the fact that we waive a tuition for the residents who come to the college during that part of their training. This figure of \$3,000 to \$4,000 does not include the overhead of operating the whole plan.

QUESTION: What is the smallest hospital in size desirable for such an affiliation? Do they have any trouble getting interns? Does this program help them get interns?

DR. WILKINSON: The size of the hospital varied with whether we were trying to train specialists or general practitioners. It was felt that a hospital of one hundred beds could offer enough to give a man for the six months that he is there but not enough to give a man proper training in the specialty field. In those hospitals they would average one hundred and fifty beds or larger. The hospitals have had some difficulty in getting interns, but a decreasing difficulty in getting interns each year. We have a joint certificate with the University of Michigan Medical School and affiliated hospital to the effect that such and such a hospital is affiliated with the University of Michigan, and both the dean of the school and the chief of the service at the local hospital sign the certificate to the amount of training they have had as interns and residents. The prospectus of the hospitals that goes out to medical schools usually includes a statement to the effect that they are affiliated with the University of Michigan and that a nine months' period of basic science continuation study is offered at the University of Michigan during the resident training period. The general practice interns apply directly to the University of Michigan, and the University of Michigan makes appointments there. In the specialty programs the local hospitals make the appointments.

Economics of the Hospital System

ELI GINZBERG, PH.D., New York: The New York State Hospital Survey and Planning Commission entered into a contract with Columbia University six months ago, to have a study made of the entire hospital facilities within the State of New York. The commission is responsible for the channeling of the Hill-Burton moneys, among its other duties, for the erection of new hospitals. The commission awakened to the fact that it would be dubious to try to build new hospitals unless one had a clear picture of the financial underpinnings and general strength of the existing hospital plan. It was to have a broad social-economic study undertaken that the commission went to Columbia and entered into this contract. We have

been under way about six months with this study, and a host of complicated problems come to the fore. I am going to consider those problems which bear more particularly on the interest of a group like this. I need some help.

I start with the presupposition that no matter how much or how little money is spent for hospital service or any other health activity, one ought to try to do two things; that is, to get the best that money can buy and the most that money can buy. The total expenditures for hospital care within the United States represent still a relatively small proportion of the total bill for medical care—something like \$2,000,000,000 out of an annual budget of over \$8,000,000,000. The hospital plan of the United States grew up in an era of free competition when individuals or groups decided to build hospitals. They built hospitals more or less without regard for or any detailed consideration of other hospital facilities near or far. As modern medicine has developed we have become more aware of the fact that one cannot really look at the adequacy of the isolated hospital, but ought to think in terms of a hospital system or an integration among a group of hospital units. If you do not do that, the likelihood is that on one hand you will run into duplication and wasteful facilities, and on the other hand to an imbalance of facilities. If you have too many, or the wrong proportion of facilities, you are going to run into serious waste.

Looking at a hospital from the outside, as an economist, it seems as if a good hospital has to have a larger amount of expensive equipment and highly specialized personnel. They need expensive laboratories, x-ray machines, apparatus, and so on. They need skilled personnel to make efficient use of the equipment. The full utilization of that expensive equipment and skilled personnel cannot be carried by the inpatients alone. You do not at any time have a sufficient number of inpatients who require the full utilization of all these overhead facilities. Since somebody (broadly, the community) is paying for those facilities, it seems unwarranted to have them utilized far below their reasonable load factor. This means that one ought to start thinking of how to make effective use of these overhead facilities for an increasing number of patients who are not in the hospital but who can be treated on an ambulatory basis either for diagnostic or for therapeutic purposes. There ought to be some way of building a bridge between the people on the outside and the existing facilities on the inside so that we can get these expensive facilities down in cost in order that more people can use them. The community cannot do everything it would like to do with respect to health; therefore I think it behooves all of us to figure out how it can at least make the most use of what it has.

When one encounters a shortage problem, perhaps the present planning in the utilization of skilled personnel is not at a maximum. I should like to raise the question whether it would be possible, protecting the basic doctor-patient relationship, still to work out more effective designs for the treatment of inpatients and also ambulatory patients who use a hospital facility, just because of the fact that the hospital makes it somewhat easier to go over to a team approach. In our calculations on the nursing picture, the committee arrived at an estimate that 70 per cent of the entire nursing functions of the country could be efficiently performed by nurses who had had only nine to twelve months of training, subject to the one proviso that about 30 per cent of them would be team leaders and really well trained professional nurses. In the Army experience, of which I can talk with some five years of background, we never could have met the obligations of the last war had we not trained some half-million medical technicians. We trained them within three to six months, and then had them learn much more on the job, with the consequence that one could get a tremendous additional volume of work load performed without pushing against the scarcest categories of personnel—the physicians and nurses—all the time. The hospital seems to be a logical area for intelligent experimentation with respect to new team approaches. So far I have found little experimentation outside of governmental hospitals, and not enough inside of them.

I believe we have become too hospital conscious in the country as a whole. That has been strengthened by virtue of the fact that Blue Cross, for all of its other advantages, is inpatient. I think that serious as it is not to have hospitals

where they are needed, it is equally preposterous to try ever to utilize them, because from an economic point of view the most expensive thing about hospital care is feeding patients and giving them service which ordinarily they get at home. The matter becomes of tremendous importance if one projects the present trends as to the needs for hospitalization for the chronic patients and for the neuropsychiatric patients. One of the New York psychiatrists said that if present trends continue, one will have only a choice between euthanasia and bankruptcy. It means that we must work out a series of approaches which will not lead to an absolutely indefinite expansion of more hospital beds, more patients in beds.

In summary, long overdue is the working out on a regional basis of a much more explicit form of integrating small outlying hospitals, intermediate hospitals and large teaching hospitals, and the insuring that areas are covered not necessarily by building hospitals everywhere, but by being sure that people can get hospital care and where they need it—and this includes moving a patient to the hospital as well as the hospital to the patient. Secondly, we ought to worry much more about the effective and full utilization of the expensive equipment and specialized personnel currently required by hospitals in order to handle the essential parts of hospital care for inpatients, and figure out how to spread that apparatus and that skilled personnel so that it can treat a much larger number of patients. Thirdly, I would like to see more experimentation with the general field of a team approach, as to how one can use less skilled and less expensively trained persons under the supervision of senior, well trained persons, so as to cut out fantastic requirements that we have just projected.

There is no point in worrying about economics unless one can insure certain minimum standards of quality and preferably expanding standards. I have been impressed with the gap between the point of view of the good medical teaching schools, with their tremendous emphasis on group practice, and what goes on outside, where the private practice of medicine is still heavily weighted in terms of individual practice. There has grown up a kind of compromise on the outside, in which the individual practitioner works by himself part of the time and if he has a hospital affiliation, works as a member of a team the rest of the time. That is probably a good compromise. There has been a too nonchalant attitude toward the fact that by concentrating on quality within the hospital there has been a serious neglect about the hospital's contribution to quality outside the hospital. It would be highly desirable to figure out how to do a better job than one has done in having the hospital serve as a continuing training ground for physicians in private practice. It seems to be desirable to have the medical profession, and in particular perhaps the medical schools, feel that there is this kind of responsibility that they have not only to train a few very good persons at the top, but that they have to figure out how they can make a continuing contribution to raising at least the minimum standards of hospital care in the community.

That problem becomes particularly acute if the medical profession does not take action, for this reason: The welfare commissioners, who are becoming important purchasers of hospital care, cannot understand why they should receive a bill from one hospital 100 and frequently 200 per cent higher than for the identical procedure at another hospital. If it is left to the welfare commissioners, they will apply the logic of the economic market and will conclude that the best care is the cheapest care. If you would like them to use a more meaningful set of criteria, then a set of practical criteria which can be applied administratively to all hospitals within the state or some subdivision thereof should be established.

Another point on the question of quality: I am disturbed, when looking at the analysis of the total medical budget, to see not only the relatively small amounts being devoted to research, but, more subtly, the present way in which atmosphere and incentives are working to deflect so many potentially good persons from research areas into the clinical fields. The medical schools must be somehow responsible not only for producing good clinicians, but for trying to work toward a shifting of the total incentive picture. Perhaps one of the ways to do it would be to broaden the area in which the medical schools operate, and, perhaps, on a part time affiliation basis with a

larger number of hospitals, work out some partial practice and partial research time. Good research means using most of a man's time; but in medicine, unlike some other fields, one must continue to deal with patients in order to do good research. I see the danger to be particularly acute because of the national interest in improving service all the time. In this matter of broadening the service to the patient of today we are apt to sacrifice the patient of tomorrow. Aggressive leadership is long overdue on the part of medical schools in figuring out how to better staff and get more persons into research.

The hospital is not making as much use of its natural allies in the community as it might. There is not nearly the integration of the hospital and the practicing physician in the community that there ought to be. The hospital seems to cut the patient off at one stage of his illness, treat him and throw him out again. If this doctor-patient relationship is as important as you all think it is, then I should think it becomes doubly important to get the hospital into a much more intimate relationship with the practitioner on the one hand and the health department on the other, so that you gain some strength through allies. Although there is a whole area of hospital direction which is the logical and sole province of the medical profession, there are other legitimately interested parties as far as hospital policies are concerned. There is simply the ordinary citizen who is the taxpayer. Secondly, there is Blue Cross and other prepayment schemes, that have acquired a large amount of converts with respect to certain aspects of hospital operations. Thirdly, there are the welfare and health commissioners of the respective communities who also are interested parties.

The hospital would become a more efficient total operation within the broad scheme of medical and health care if more attention were paid to working out the administrative and planning structure of the hospital. Here, the medical schools have a particular contribution to make; they ought to try to divert some persons with predilections for administration into the field of broad hospital planning and administration. Not all of our hospital administrators need be medical people, but at least the leadership ought to come from a man with a good medical education who also has some imagination about broad problems.

DISCUSSION

DR. A. C. BACHMEYER, Chicago: I find it difficult to discuss this address because many of the problems outlined have no ready answers. I can only offer opinions on the points enumerated. We have the beginning, at least, of a mechanism for assessing the community need for hospital service. The appraisal and planning mechanism suggested is the formation of local groups or committees representative of those that are interested in the problem—the medical profession, the various health agencies, the community at large—to study the entire situation. Dr. Ginzberg pointed out the need for coordinating hospitals. We have had several examples across the country, developed in recent years, which indicate that by such coordination better medical care can be provided for the public. I refer to the Bingham Associates in Maine; the Salem Hospital in Massachusetts having a somewhat similar organization; the County Regional Plan at Rochester, N. Y., and in Michigan, under the W. K. Kellogg Foundation, a different type of organization. The University of Colorado is developing another plan but along similar lines. There is a challenge here to American enterprise, to the voluntary system, to develop similar endeavors without such "outside" support. I believe it can be done, but it requires leadership at the local, at the district and at the state levels. The organization of regional coordination ought to be not only on the service and educational levels, but also on the policy and administrative levels. I understand that at the Salem Hospital the development brings members of the Boards of Trustees of these smaller hospitals to the meetings of the Board of Trustees of the Salem Hospital. There is similar coordination at the professional level among the medical staffs, and at the administrative level as well. Through such regional development we may develop, on a voluntary basis, a system of hospitals throughout the country. We have no system of hospitals at present; each hospital is an independent, isolated unit, each planning and developing without regard to other hospitals in the area or the general need of the community.

Where institutions have developed in this haphazard manner, there is bound to be wastage of resources. As medical science advances it becomes necessary to purchase expensive equipment, establish laboratories and utilize the services of skilled technical personnel. Duplication and wastage of resources have been avoided in many instances through the development of arrangements between the individual and the hospital whereby the service is centralized and concentrated at the institution. Local health and hospital councils probably can assist in this area. The point which Dr. Ginzberg made about the use of less skilled personnel is realistic. We need at least as many better educated professional nurses as we have at present, and perhaps more, but we need many more trained attendants or vocational nurses to render a large bulk of the services that patients require. We need a group of professional nurses who know why services are being rendered, why observations of a particular type are necessary for the physician's understanding and care of the patient, and we need a large number of persons who know how to help. They can do the job under supervision. Our nursing schools today do not teach their students how to supervise and how to work with these less skilled persons in the service. Dr. Ginzberg's report on the function of nursing points out that perhaps we will eliminate what we call the staff nurse (the diploma nurse) and have a more highly skilled person who is capable of supervising two, three or four of these practical nurses or nurse assistants. That problem is acute. Probably the suggestion is not acceptable to the nursing profession and to many hospitals that are carrying on what are called nursing schools. The control of the admission and discharge of patients from the hospital is in the hands of the medical profession, and I hope these conditions will prevail. The cooperation of the physicians with Blue Cross plans has been notable in a number of areas. The average stay of Blue Cross patients in hospitals is less than seven days in Chicago. That is a rather short stay, and it means that there is cooperation; it indicates not only that the physician hesitates to admit a patient merely for diagnostic procedures that can be carried on with the patient at home, in his office or in a clinic, but also that he gets the patient out of the hospital when the need for inbed care is no longer present.

It is true that medical schools are teaching young men in an atmosphere of group practice. If you agree that the quality of medical care is of the highest in our teaching hospitals, then group practice offers promise of improvement in general standards. The decline in the number of graduates who go into solo practice today is evidence of the fact that they appreciate the value of having consultants and associates about them; it is also one factor in the difficulties which we are encountering through the maldistribution of medical practitioners. Elevation of the quality of medical care in hospitals is entirely a problem for the medical staff. It is a question of self policing. Members of the profession know how difficult that is, how hazardous it is to find fault with a colleague who may have made a mistake, knowing full well that we may encounter the same situation later. The maintenance of a high quality of service requires frank, unbiased audit of professional work, an alert, active auditing committee, and a professional review committee on all medical staffs. Skilful, competent, diplomatic, frank and courageous pathologists and radiologists are key persons. At present we have no mechanisms that permit us to compare the quality of professional service in one hospital with that in another. The staff committee and the staff of a hospital, their conception of good quality care and the audit of the professional service are the only criteria available at present. With reference to research, we must recognize that basically there are two types. Fundamental research requires training of skilful personnel, space and money, and should be restricted to those institutions in which qualified personnel and funds are available. The cost should not be added to the patient's bill for service. The conduct of research in our medical schools, its inclusion in our curriculums in such a manner that the undergraduate student is at least exposed to it and has an opportunity to participate in investigative studies, is an essential part of the medical student's education. The second type of research might be designated applied research or clinical investigation. Such studies require careful planning and competence on the part of the investigator, but they are costly only in time and effort.

Thousands of medical records every year find their way into filing cases and never see the light of day again. These records contain great amounts of valuable information and should be subject to review and study in every hospital. These records, properly made, readily form the basis for much clinical study, and there should be much more of it carried on. The sharp lines between curative and preventive medicine are fast disappearing. The public health services in many areas are undertaking case finding activities. Our outpatient services should be far better developed. Through the outpatient department and the diagnostic clinic that can be established in all hospitals, much duplication of effort and expense can be eliminated and the services of hospitals and health departments can be better integrated. There seems to be little sense in having a hospital laboratory doing the same type of work as is being done downtown in a public health department laboratory. Better relations between governing boards, the administration of the hospital and the medical staff, of course, are essential. Active liaison committees between the staff and the board and the administration have been the best mechanism for developing proper relationships. These relationships must be properly established if our hospitals are to be conducted in the best interests of the patient.

DR. CARROLL B. ANDREWS, San Francisco: It may be well to consider some of the basic principles relating to over-all medical care originating from the standpoint of a physician in private practice. As Dr. Ginzberg's address pointed out a number of critical questions, I too find several questions arising in my mind. The inefficient use of equipment in doctors' offices and in hospitals is admitted. Nevertheless, I should like to point out that the great development in the United States was brought about by the inefficient use in relation to the time used, first, of the long rifle of the scout and pioneer. He needed it only for a few minutes but he needed it definitely in those few minutes to protect and provide for himself and the public. The farmer used his plow only a short time during the season but the plow, the scythe, the mowing machine and the reaper had their definite uses. So the country physician often needs an x-ray unit and other expensive laboratory equipment immediately after his history taking and physical examination. The lack of availability of these essential instruments may have a deterrent effect on the broad programs of cancer, tuberculosis, gastrointestinal disease and cardiac disease case finding, diagnosis and treatment. These and many others are problems that originate in the doctor's office, the first point of contact where segregation of cases is now accomplished. How efficiently is scientific research carried on in institutions of higher learning? The tremendous costs should not deter us from scientific investigation! We should not be too greatly concerned about the use of expensive equipment in the individual doctor's office. There are problems which arise in a small community through so-called group practice. These may be corrected in some measure by a loose integration by the physicians' practicing as a group, pooling equipment and a common building. This mode of practice may come about slowly through the use of the small hospitals that are being constructed in the rural areas. This is the type of practice being developed in my own community. The development on a voluntary basis of our own twenty-three bed hospital has proved to be an excellent practical research laboratory in the medicoeconomic problems which are facing physicians, provides a common ground for frequent casual contacts, consultations and staff meetings. Coincidentally there has been an increasing tendency to share office space and equipment.

DR. GINZBERG: Concerning Dr. Andrew's statement, I should like to say that my emphasis is not only on the economical use but on the effective use also. There is a range of conditions, of skills and of apparatus that fits together, and that is for the private practitioner, working on his own or in loose affiliation. There are also types of equipment which require types of skill and that is what I should like to emphasize. It is impossible to conceive of each individual doctor's having a requisite amount of that skill. It was my conception that it was the second group, the highly specialized resources, which ought to be utilized efficiently, because they are so expensive and because they require such a high level of skill.

FEBRUARY 7—AFTERNOON

DR. HERMAN G. WEISKOTTEN, Syracuse, N. Y., Presiding

Classification Policies of the Selective Service System

COLONEL RICHARD H. EANES, Medical Corps, United States Army: Congress in the Selective Service Act of 1948 placed the responsibility for classification of registrants on the local boards which are established throughout the local communities of the nation. Thus a registrant is classified by his neighbors who are duly appointed for that purpose. Their judgment and decision in classifying is final but, in keeping with our democratic principles, is subject to appeal.

A physician developing a private practice who is liable under the Act must present sufficient evidence to his local board that he is actually engaged in his profession, that he cannot be replaced because of a shortage of personnel with his qualifications or skill and that his removal would cause material loss. If a physician is really busy, it would seem that it would not be difficult to present such evidence to the local board. Interns and residents present a similar problem.

We are aware of the shortage of doctors in the armed forces, and we have informed the local boards that commissions are available for young men who have the professional qualifications and are physically fit. We have not advised the local board that these men should be commissioned before consideration is given to them for occupational classification. Such a thing is prohibited in the Act, but we do feel that the acceptance of a commission by one of these young doctors would be further evidence that he may present to his local board to show his intent to serve the nation in its need. When we are asked, we are advising both the hospitals and the physicians to that effect. We have further stated, unofficially, that in our opinion a hospital should not enter into a residency contract with a young doctor until he has rendered enough active military service to relieve himself of liability under the Selective Service Act.

Identifying those students who have been accepted, or are pursuing full time courses in the study of the healing arts, has presented no serious problem. A more complex portion of this problem is the identifying of undergraduate students who are to be given occupational classifications in order to insure an adequate supply of qualified material to the professional schools in the years to come. It would be difficult to estimate how many men are actually taking so-called premedical courses in undergraduate schools. The number is far greater than the number of men who can be admitted to professional schools each year. It is obvious that not all men pursuing a premedical course can be granted blanket occupational classification. I may assure you that when a program is put into effect it is reasonable to expect that it will result in a pool of baccalaureate graduates sufficiently large to afford medicine its choice in selecting the 6,000 odd students needed each year. In fact, the adoption of this program may relieve medicine of some of the more routine elimination of applicants who are without proper qualifications and will make unnecessary the provisional admittance of pre-professional students two and three years before the anticipated commencement of a full time course in medicine. It behooves the serious student of medicine and the medical educators to have the local boards of the Selective Service System fully informed concerning the occupation of medical student registrants. I urge those who are vitally interested in this problem to continue to follow Local Board Memorandum No. 7 as it pertains to your professional students; that you likewise file SSS Forms No. 103 for those men approaching the end of their preprofessional course who are being actually admitted to your 1949 classes, and that you plan, on or about July 15, to prepare SSS Forms No. 103 for all students then actually admitted to the professional classes commencing in 1949.

DISCUSSION

QUESTION: Would a boy 18 years of age, eligible for college, be given an opportunity to study medicine?

COLONEL EANES: He must register at his local board or at some local board immediately after he turns 18. He is not eligible for service until he becomes 19 years of age. Before any future inductions, I am confident that a broad student deferment policy will be adopted and that there will be certain things required of this young man, whether he is going to study medicine or anything else, if he is going to remain in college. He will consult his school at the time he becomes 19 and he will be required to do certain things. If he does those things successfully, the school will certify him to his local board and will request occupational deferment for him. If his nineteenth birthday catches him in the middle of the year and he receives an order for induction, he will present to the local board that he is a college student, and under the law his induction must be postponed. This will not be of much benefit to him unless he is certified by his college.

QUESTION: If a man meets his state requirements of internship, completing the same as of July 1, 1949, and he has aspirations for a residency in a specialty board, it is my understanding that on completion of his internship that man automatically reverts to 1-A.

COLONEL EANES: Local Board Memorandum No. 7 does not apply to any registrant who is a graduate in medicine. It applies only to those who are studying medicine. Any registrant, no matter who he is, may ask his local board for occupational deferment. The person referred to has been occupationally deferred while he is serving his internship. He has the right to ask his local board to continue his deferment until his twenty-sixth birthday while he does a residency. I stated that unofficially we are advising the hospitals that in our opinion, because of the great need in the military forces for doctors, they should not consider a new residency contract except with men who have satisfied their liability under the Selective Service Act. That does not mean that a local board cannot defer this man. The local board can defer him, and the only way we could stop the local board from deferring him would be to appeal and have either the appeal board or the Presidential Appeal Board disagree and reverse the local board. I do not believe that we will in any unaggravated case ever appeal such a classification from a local board; that is, from national headquarters. The registrant can ask for a continued deferment while he is doing a residency. We simply feel that he should not. If the local board gives it to him, it is his. The final decision is the local board's, subject to appeal.

DR. W. B. PARKER, St. Louis: I have been asked by several medical students to file Form 103 for them before they have a Selective Service number. Should I do this or wait until they have that number from the board?

COLONEL EANES: The number does not keep you from filing. My idea, which I think is consistent with the workings of the local board, is that it should arrive at the local board, if this man is just turning 19, at about the same time his questionnaire gets back to the local board. In other words, to try to get him his occupational classification before any other classification can be given. So time it with him that you get the Form 103 through national headquarters and through the state headquarters, to arrive at the local board at about the same time that the questionnaire arrives. The local board will continue classification of all men between the ages of 19 and 26.

A question has been asked me whether, if a man is under orders or is classified 1-A and arrives at his twenty-sixth birthday and has not yet been inducted, the order for induction or the classification 1-A extends beyond the twenty-sixth birthday. The answer is that he has no liability for service from the day he reaches his twenty-sixth birthday. The law does place on him the obligation of keeping his local board informed as to any change in status, change in address, marital status, and the like, but he has no liability for service and he may not be presented for induction.

DR. HARVEY B. STONE, Baltimore: As elaborate as the initial program for the deferment of premedical students seems to be, it is such a tremendous safeguard and such an advance over the condition that prevailed in the last war that it is a great reassurance to those interested in the continuing supply of medical students.

Program of the United States Public Health Service. for the Improvement of Teaching in Cancer

DR. SAMUEL C. HARVEY, New Haven, Conn.: Something over a year has gone by since the first grants were made to schools of medicine by the United States Public Health Service for improvement of the teaching of cancer. This action was the result of a conference organized by the National Advisory Cancer Council. How these funds were to be used was wisely left to each school concerned. I have the impression that the situation which gave rise to this effort to improve the teaching in "cancer" was referable to the methods of teaching in the schools of medicine rather than the objectives, which have in general been of the highest order. Inadequate diagnosis and treatment is not peculiar to the field of cancer, though it may, in many instances, be more obvious there. This should not be held an indictment against the profession as a whole, for adequate knowledge has been, and still is to a great degree, lacking. Also, the awareness of the increasing importance of the so-called chronic diseases, in which cancer may be included by reason of chronology if for no other, is a matter of relatively recent development. In spite of these handicaps, a considerable number of physicians have kept pace with the changing picture and do not rely on what they were taught in schools of medicine, but rather on a continuing self enlightenment by acquaintance with current literature and with practice according to the experience of others. Knowing the degree to which a physician has done this, one can make, off hand, a favorable prognosis as regards the quality of his work. A primary problem at the present and so far as one can see into the future is that of obtaining teaching personnel in the field of "cancer" who are informed about and participating in research and at the same time familiar with the natural history of neoplasia not only in the experimental animal but also in man.

Pediatrics in the Medical Curriculum and the Intern Year

DR. JOHN MCK. MITCHELL, Philadelphia: The Study of Child Health Services of the American Academy of Pediatrics in 1947 conducted a survey of pediatric education in medical schools and in the hospitals approved for residency training in that field by the Council on Medical Education and Hospitals of the American Medical Association and the American Board of Pediatrics. This paper presents an appraisal of the pediatric training provided during the undergraduate course and in the intern year in the above hospitals.

It is obvious that a brief recapitulation of a study of this sort will lay considerable emphasis on deficiencies which were discovered. Pediatric education has shown a vast improvement in quantity and quality since the time of the Third White House Conference on Child Health and Protection in 1930 and even since the survey of medical education in the United States conducted under the auspices of the American Medical Association between 1934 and 1939.

Those pediatric departments which fail to give adequate training in such important categories as care of newborn infants and contagious disease should take steps to rectify these deficiencies. In some instances the fault lies in the lack of available clinical material. In many cases the major defects could be overcome by administrative reorganization. In some schools there are an insufficient number of hours allotted to pediatrics. In others the hours are offered but are poorly distributed. In other schools there should be a careful review of the area of responsibility of different departments. This is especially necessary with regard to the proper integration of training in the care of the newborn infant between obstetrics and pediatrics.

Not infrequently increase in the size of the pediatric staff would be necessary before it could undertake an appreciable increase in the teaching load. In some instances this would necessitate more teachers on a full time or near full time basis, which would of course entail a larger budget. Many times, however, the necessary increase in staff could be obtained by proper cultivation of well trained local practicing pediatricians. In other cases it could be accomplished by stimulating recent graduates to practice in the community by offering teaching appointments. A strong resident staff can carry a major share

of small group instruction. With the present great demand for pediatric residency appointments, a number of hospitals could readily augment this group with great benefit to the undergraduate and intern teaching program.

Orphanages and other homes for the custodial care of children offer fertile soil for the milder contagious diseases and other epidemics. Through affiliation with such institutions both house staff and students can obtain valuable experience in this field, which is so often curtailed.

It should be the aim of medical education to produce physicians at graduation who have had a thorough preparation in the basic medical sciences and an opportunity to observe and participate in the application of this knowledge in the various fields of medical practice. These ends have been achieved in full measure by many medical schools. With proper support and planning, they can, in the near future, be attained by all.

DISCUSSION

DR. WILBURT C. DAVISON, Durham, N. C.: Dr. Mitchell's paper emphasizes that pediatricians should spend more time in training for general practice. After all, the majority of child care in this country is carried on by general practitioners. Pediatric departments should stress the training which the general practitioner should have, rather than to spend, as many pediatric departments do, most of their time in the training of pediatricians. That training of pediatricians should be merely a by-product. In North Carolina 3 per cent of our physicians are pediatricians, and yet the survey of the American Academy of Pediatrics showed that only 7 per cent of the children were taken care of by pediatricians.

It has been difficult, as Dr. Mitchell pointed out, to decide whether it is safer to allow a number of students in the nursery or let them go out and practice without knowing anything about care of newborn infants. That problem has been solved in many medical schools, including our own, by abolishing the nursery. Right after delivery the children are placed in the bassinet along side the mother's bed or in an open ward if there are three or four mothers; not only does it avoid nursery infections but it allows the pediatric or obstetric student to become thoroughly familiar with problems of the newborn infant, and, also, it enables the mother to learn something about the care of her child. European hospitals do not have nurseries. Dr. Hess, one of the oldest pediatricians I know, said that when he started practicing there were no nurseries in the country. In order to keep this relationship with care of the newborn infant before the house staff, whenever delivery is scheduled a pediatric intern is there, and if the mother is known to be an Rh-negative possibility we have agglutinin ready, and the blood bank team is ready for replacement transfusions. One point which Dr. Mitchell did not bring out is that there should be much closer correlation between pediatrics and psychiatry. This was an unintentional omission, because he knows that a knowledge of child behavior problems by faculty and students is of great help. Our students participate as interns, under supervision, for a three month period in their senior year. They take active part in nursing problems, dietetic problems, changing diapers, and they learn how to give bottles. To carry on this program, the pediatric time should be as late as possible in the senior year, preferably in a block of two or three months, because the later one can place it the more training the students will have had in medicine, surgery, psychiatry and so on, and it allows pediatrics to correlate this previous training. We have gone one step further. Through the cooperation of three excellent general practitioners in North Carolina, we arranged an elective by which students go with these men for one or two weeks. Invariably they come back with a far better training than they would have had in the corresponding time in a pediatric hospital. Another way in which we have improved pediatric training is by giving members staff appointments. One has pediatrics under biochemistry, another one pediatrics in allergy, with the idea of bringing together an integration of these various fields in the pediatric problem. Hospital training in pediatrics, as Dr. Mitchell pointed out, is defective. In the two years of a mixed or rotating internship, with a half-year each of pediatrics and obstetrics, the six weeks or less which graduates get in intern years is of little use. The residents in charge encourage the men to stay

on and become trained as specialists rather than go through this rotation. If the specialty boards would require a two year mixed service as a prerequisite for specialty training, we could get more men into general practice. I should like to speak of refresher training in pediatrics. Of the many refresher courses given throughout the country, perhaps one of the best was started in 1914 when half a dozen pediatricians who liked to spend the summer in the town of Saluda invited the general practitioners from the surrounding states to come to a small children's summer hospital there, and they took turns giving lectures. The real benefit that the general practitioners had was that they sat around for ten days and had a chance to talk and think pediatrics. Last summer about two hundred physicians from North and South Carolina, Tennessee and Georgia came up there. As a result of that program there is a far higher standard of pediatric care among general practitioners in that area than there is in many other parts of the United States.

DR. CHARLES F. MCKHANN, Cleveland: That 75 per cent of medical care in children in this country is rendered by men who have had only inadequate training in medical schools, and who have acquired further information by brief internships, presents a serious problem. Three possible solutions arise. One is to improve the undergraduate training in this field. It seems to me more feasible to do this than to attempt to control the quality of the internships. Filling internships, however, soon is going to present a serious problem to hospitals, and if twice as many places exist as there are candidates to fill those places the students who have come to their deans must be advised to select the better places. This means that the poorer places must improve their services or do without interns. This already is happening, not only in internships but in residencies, and I think it will soon happen in the field of pediatric residencies. The better pediatric institutions, at present closed to interns, should make some arrangements to have intern training. The point that Dr. Davison made, that most of the men who come into an accredited pediatric service as part of a rotation stay on to become pediatricians, is a real problem. We try to save two places each year on our service for men who are aiming toward general practice. This is not many, about six men a year having training, because we have these men for four months each. The problem comes at the end of their year of rotation, to keep them from becoming specialists.

The other situation is the establishment of a satellite hospital system. As a member of the American Board of Pediatrics I look at it from this angle. Sending men out from accredited services to satellite hospitals for any considerable period results in a dilution of the service in the accredited hospital. In my opinion it is better to bring the men from the satellite hospitals to rotate through the center. Lastly, everybody underestimates the impact of medical investigation in the field of pediatrics. The two largest groups of causes of deaths in infants and children are being brought rapidly under control; namely, gastrointestinal disease and pulmonary disease. In 1935 and 1936 the hospital I was associated with admitted 600 children with pneumococcus pneumonia. Today we do not admit enough of these patients to show 1 case to students. Scarlet fever is rapidly getting into the same situation. Every hospital should have an isolation setup so that it can handle the types of patients who will remain from this rapidly disappearing group of communicable diseases. Although pediatricians or general practitioners have had this rather short service in the field, they can do things more effectively than could a pediatrician, regardless of how adequate or how thorough was his training, ten or twelve years ago. Our school is one of those that do not have any of these lacks that Dr. Mitchell spoke about. We had one at the time the survey was made, but it has since been remedied. We are one of the schools which give among the largest number of hours to the training of students in pediatrics. If the next ten years shows as much progress in the prevention and treatment of disease in children as have the last ten years, perhaps we will give up about a third of our time rather than seek more training for our medical students in pediatrics.

Psychiatry in Undergraduate Medical Education

DR. WILLIAM MALAMUD, Boston: This paper was published in THE JOURNAL, May 7, page 1.

DISCUSSION OF DR. MALAMUD'S PAPER

DR. WILLIAM S. MIDDLETON, Madison, Wis.: If we followed carefully the thesis as given to us, it is apparent that Dr. Malamud has put his finger on a sensitive point in regard to the preparation of the student for medicine. With the pressure of the sciences of chemistry, biology and physics, not only have the humanities been 'blotted out, but with a changing social complexion we have likewise given no heed to sociology, to economics or psychology. If we are to read the lesson from this text, it is well that we should go back to the sources and attempt to remedy these deficiencies. In the development of this topic, there is a strong emphasis on sequence through the four years of medicine. The strongest, I think, is the development of the interview technic. If, in the second year of medicine, in the course of history taking, the student is advanced one step further to the interview method of psychiatry history, we will have indeed contributed to his clinical development. Turning to the opposite side of the picture, if I admit as a clinician that 85 per cent of all patients who come to see me have some psychologic problem, I will grant there is need for great stress in this area of medical education. Furthermore, the general practitioner will take care of 85 per cent of these 85 per cent of human ills with psychologic problems. I would challenge Dr. Malamud's statement that the general practitioner would merely lance an abscess or amputate a part without having in mind the family that he is treating, the individual psychology, the economic impact of that particular event. Eventually he will integrate into his total picture a true psychologic approach to the patient's problem. In other words, in the general practitioner, the family counselor of today, we have integrated by experience rather than by exact discipline such a manner of approach as he would have for the product of his particular system. In medical education we are interested in evolving technics, methods, disciplines. Principles alone can last, and to this particular program we must give due weight concerning the principles which are involved. One may take the several years and the steps and stages that have been evolved by Dr. Malamud and apply them in the concrete example of the student's time. However, we must settle once and for all what we expect to turn out at the other end of the mill. I would question whether we would expect to turn out a man who was even incompletely trained in the psychoses. Too much of the error of psychiatric training in the past has resided in this jargon, in this mystic realm of psychiatric nomenclature. I believe there is definite movement away from that in the thinking of such a program as Dr. Malamud outlined, but we must be ever mindful that the theme is the rediscovered man as a whole. I have been teaching for thirty-six years and I thought I had always taught man as a whole. Last year, in San Francisco, one of my old students, Carl Menninger, rediscovered "man as a whole." They are simply playing with words. As general practitioners, as internists, through all of this past generation we have been dealing with the person as a whole; we have not lost sight of the impact of society on his problems, but in the newer concept of psychiatry, coming in by a circuitous path, we have a better approach in a finer discipline. I would not belittle the program that has been outlined, because it promises to the medical student a distinctly improved discipline of approach. However, I have a suggestion that perhaps of necessity we have used as an expedient at Wisconsin. Our first year students are taught medical psychology; in the second year they are taught psychologic pathology, and then, in addition to their routine exposure in psychiatry in the third and fourth year in medicine, and eventually in the several other subjects, we hope to have persons especially trained in psychiatry who are primarily internists, surgeons, obstetricians, and so on. In this fine outline of a program for psychiatric training of undergraduate medical students Dr. Malamud has sounded the advance. I believe it is a substantial improvement over anything we have generally throughout the country, and is distinctly better than that which we have in Wisconsin.

DR. W. B. HENDERSON, Oelwein, Ia.: I should like to reemphasize the importance of psychiatry and pediatrics. I make a practice of addressing every prospective mother by her first name. Certainly no one knows the patient better or more intimately than the obstetrician. I wonder whether or

not the original method of teaching the medical student by having him accompany the practitioner is not a good idea. Why cannot the sophomore and junior medical student during the summer come to the smaller communities and be in the hospital there? If there is a way that these smaller hospitals could be utilized in teaching the medical student it would be ideal.

DR. MALAMUD: I tried to stress in my paper that what we want to give these students is exactly what the general practitioner has developed by bitter experience after he has graduated from medical school. Certainly they were the ones who taught us psychiatrists what this type of psychiatry that I tried to present in my paper should be like. I did not stress giving students a great deal on psychoses or some of the intriguing morsels about psychoneuroses, but what I wanted them to learn is exactly what the general practitioner has learned during years of practice. It has been systematized by experimental work which has been done during the last twenty-five years. I agree with Dr. Middleton, that in the third and fourth year an attempt should be made to use as much as possible the internist, the surgeon and the pediatrician in teaching psychiatry to the medical students. For the time being we have to do it, but the time will come when enough of the surgeons, internists and pediatricians will have learned psychiatry from us psychiatrists, and then we will be able to teach psychiatry in a proper manner.

FEDERATION OF STATE MEDICAL BOARDS
OF THE UNITED STATES

FEBRUARY 7—EVENING

Observations of Medical Conditions in Europe

DR. R. L. SENSENICH, South Bend, Ind.: The medical situation in Europe has deteriorated tremendously. In Germany, even before the recent war, conditions had deteriorated. Part of this was a result of Hitler's preparation for war and the fact that young men were admitted to medical school without the training which had been required in preparation for the medical course. At present there are a sizeable number of physicians in Germany fully licensed to practice, whose preparation is not equal to a high school education and whose medical training was equally deficient. They were licensed to provide a larger number of physicians to be in readiness for the war. These men are a problem at this time. Men are not selected for medicine. There is no examination on admission. Anyone who desires to be a physician must be admitted to school provided there is an opening and an opportunity for that training. At the end of the second year an examination is given. The student then finishes the rest of his training and at its conclusion is privileged to practice without examination. I had an opportunity to talk to the doctors in each of the medical centers.

A person is licensed to practice in a given community. This *Niederlassung* is unfortunately tintured by political controls. Without examination of any kind the person applies and is given permission to practice in a particular location.

Two agencies have to do with the conduct of professional activity. One is the *Arzte Kammer*. It is not scientific; it is a union of the profession to protect itself against government encroachment. Then there is the regional licensing board, and between the two is the governmental agency from which physicians receive their pay for the things which are done under the *Krankenkasse*. This is true also in Austria.

The individual is dependent for about 60 per cent of his income on insurance. At the conclusion of a service he bills this intermediate organization, and they in turn collect from the government to pay him.

The representatives of the many nations in the World Medical Association were agreed on certain principles. and they were enthusiastic about the principles with the exception of two, one of which was that any social security or insurance plan must be open to the participation of any licensed physician. This they felt would destroy them. To that the suggestion was made, Why do you not cancel out all existing licenses, and begin over by examining each individual, not by an extensive medical

of small group instruction. With the present great demand for pediatric residency appointments, a number of hospitals could readily augment this group with great benefit to the undergraduate and intern teaching program.

Orphanages and other homes for the custodial care of children offer fertile soil for the milder contagious diseases and other epidemics. Through affiliation with such institutions both house staff and students can obtain valuable experience in this field, which is so often curtailed.

It should be the aim of medical education to produce physicians at graduation who have had a thorough preparation in the basic medical sciences and an opportunity to observe and participate in the application of this knowledge in the various fields of medical practice. These ends have been achieved in full measure by many medical schools. With proper support and planning, they can, in the near future, be attained by all.

DISCUSSION

DR. WILBURT C. DAVISON, Durham, N. C.: Dr. Mitchell's paper emphasizes that pediatricians should spend more time in training for general practice. After all, the majority of child care in this country is carried on by general practitioners. Pediatric departments should stress the training which the general practitioner should have, rather than to spend, as many pediatric departments do, most of their time in the training of pediatricians. That training of pediatricians should be merely a by-product. In North Carolina 3 per cent of our physicians are pediatricians, and yet the survey of the American Academy of Pediatrics showed that only 7 per cent of the children were taken care of by pediatricians.

It has been difficult, as Dr. Mitchell pointed out, to decide whether it is safer to allow a number of students in the nursery or let them go out and practice without knowing anything about care of newborn infants. That problem has been solved in many medical schools, including our own, by abolishing the nursery. Right after delivery the children are placed in the bassinet along side the mother's bed or in an open ward if there are three or four mothers; not only does it avoid nursery infections but it allows the pediatric or obstetric student to become thoroughly familiar with problems of the newborn infant, and, also, it enables the mother to learn something about the care of her child. European hospitals do not have nurseries. Dr. Hess, one of the oldest pediatricians I know, said that when he started practicing there were no nurseries in the country. In order to keep this relationship with care of the newborn infant before the house staff, whenever delivery is scheduled a pediatric intern is there, and if the mother is known to be an Rh-negative possibility we have agglutinin ready, and the blood bank team is ready for replacement transfusions. One point which Dr. Mitchell did not bring out is that there should be much closer correlation between pediatrics and psychiatry. This was an unintentional omission, because he knows that a knowledge of child behavior problems by faculty and students is of great help. Our students participate as interns, under supervision, for a three month period in their senior year. They take active part in nursing problems, dietetic problems, changing diapers, and they learn how to give bottles. To carry on this program, the pediatric time should be as late as possible in the senior year, preferably in a block of two or three months, because the later one can place it the more training the students will have had in medicine, surgery, psychiatry and so on, and it allows pediatrics to correlate this previous training. We have gone one step further. Through the cooperation of three excellent general practitioners in North Carolina, we arranged an elective by which students go with these men for one or two weeks. Invariably they come back with a far better training than they would have had in the corresponding time in a pediatric hospital. Another way in which we have improved pediatric training is by giving members staff appointments. One has pediatrics under biochemistry, another one pediatrics in allergy, with the idea of bringing together an integration of these various fields in the pediatric problem. Hospital training in pediatrics, as Dr. Mitchell pointed out, is defective. In the two years of a mixed or rotating internship, with a half-year each of pediatrics and obstetrics, the six weeks or less which graduates get in intern years is of little use. The residents in charge encourage the men to stay

on and become trained as specialists rather than go through this rotation. If the specialty boards would require a two year mixed service as a prerequisite for specialty training, we could get more men into general practice. I should like to speak of refresher training in pediatrics. Of the many refresher courses given throughout the country, perhaps one of the best was started in 1914 when half a dozen pediatricians who liked to spend the summer in the town of Saluda invited the general practitioners from the surrounding states to come to a small children's summer hospital there, and they took turns giving lectures. The real benefit that the general practitioners had was that they sat around for ten days and had a chance to talk and think pediatrics. Last summer about two hundred physicians from North and South Carolina, Tennessee and Georgia came up there. As a result of that program there is a far higher standard of pediatric care among general practitioners in that area than there is in many other parts of the United States.

DR. CHARLES F. MCKHANN, Cleveland: That 75 per cent of medical care in children in this country is rendered by men who have had only inadequate training in medical schools, and who have acquired further information by brief internships, presents a serious problem. Three possible solutions arise. One is to improve the undergraduate training in this field. It seems to me more feasible to do this than to attempt to control the quality of the internships. Filling internships, however, soon is going to present a serious problem to hospitals, and if twice as many places exist as there are candidates to fill those places the students who have come to their deans must be advised to select the better places. This means that the poorer places must improve their services or do without interns. This already is happening, not only in internships but in residencies, and I think it will soon happen in the field of pediatric residencies. The better pediatric institutions, at present closed to interns, should make some arrangements to have intern training. The point that Dr. Davison made, that most of the men who come into an accredited pediatric service as part of a rotation stay on to become pediatricians, is a real problem. We try to save two places each year on our service for men who are aiming toward general practice. This is not many, about six men a year having training, because we have these men for four months each. The problem comes at the end of their year of rotation, to keep them from becoming specialists.

The other situation is the establishment of a satellite hospital system. As a member of the American Board of Pediatrics I look at it from this angle. Sending men out from accredited services to satellite hospitals for any considerable period results in a dilution of the service in the accredited hospital. In my opinion it is better to bring the men from the satellite hospitals to rotate through the center. Lastly, everybody underestimates the impact of medical investigation in the field of pediatrics. The two largest groups of causes of deaths in infants and children are being brought rapidly under control; namely, gastrointestinal disease and pulmonary disease. In 1935 and 1936 the hospital I was associated with admitted 600 children with pneumococcus pneumonia. Today we do not admit enough of these patients to show 1 case to students. Scarlet fever is rapidly getting into the same situation. Every hospital should have an isolation setup so that it can handle the types of patients who will remain from this rapidly disappearing group of communicable diseases. Although pediatricians or general practitioners have had this rather short service in the field, they can do things more effectively than could a pediatrician, regardless of how adequate or how thorough was his training, ten or twelve years ago. Our school is one of those that do not have any of these lacks that Dr. Mitchell spoke about. We had one at the time the survey was made, but it has since been remedied. We are one of the schools which give among the largest number of hours to the training of students in pediatrics. If the next ten years shows as much progress in the prevention and treatment of disease in children as have the last ten years, perhaps we will give up about a third of our time rather than seek more training for our medical students in pediatrics.

Psychiatry in Undergraduate Medical Education

DR. WILLIAM MALAMUD, Boston: This paper was published in THE JOURNAL, May 7, page 1.

DISCUSSION OF DR. MALAMUD'S PAPER

DR. WILLIAM S. MIDDLETON, Madison, Wis.: If we followed carefully the thesis as given to us, it is apparent that Dr. Malamud has put his finger on a sensitive point in regard to the preparation of the student for medicine. With the pressure of the sciences of chemistry, biology and physics, not only have the humanities been 'blotted out, but with a changing social complexion we have likewise given no heed to sociology, to economics or psychology. If we are to read the lesson from this text, it is well that we should go back to the sources and attempt to remedy these deficiencies. In the development of this topic, there is a strong emphasis on sequence through the four years of medicine. The strongest, I think, is the development of the interview technic. If, in the second year of medicine, in the course of history taking, the student is advanced one step further to the interview method of psychiatry history, we will have indeed contributed to his clinical development. Turning to the opposite side of the picture, if I admit as a clinician that 85 per cent of all patients who come to see me have some psychologic problem, I will grant there is need for great stress in this area of medical education. Furthermore, the general practitioner will take care of 85 per cent of these 85 per cent of human ills with psychologic problems. I would challenge Dr. Malamud's statement that the general practitioner would merely lance an abscess or amputate a part without having in mind the family that he is treating, the individual psychology, the economic impact of that particular event. Eventually he will integrate into his total picture a true psychologic approach to the patient's problem. In other words, in the general practitioner, the family counselor of today, we have integrated by experience rather than by exact discipline such a manner of approach as he would have for the product of his particular system. In medical education we are interested in evolving technics, methods, disciplines. Principles alone can last, and to this particular program we must give due weight concerning the principles which are involved. One may take the several years and the steps and stages that have been evolved by Dr. Malamud and apply them in the concrete example of the student's time. However, we must settle once and for all what we expect to turn out at the other end of the mill. I would question whether we would expect to turn out a man who was even incompletely trained in the psychoses. Too much of the error of psychiatric training in the past has resided in this jargon, in this mystic realm of psychiatric nomenclature. I believe there is definite movement away from that in the thinking of such a program as Dr. Malamud outlined, but we must be ever mindful that the theme is the rediscovered man as a whole. I have been teaching for thirty-six years and I thought I had always taught man as a whole. Last year, in San Francisco, one of my old students, Carl Menninger, rediscovered "man as a whole." They are simply playing with words. As general practitioners, as internists, through all of this past generation we have been dealing with the person as a whole; we have not lost sight of the impact of society on his problems, but in the newer concept of psychiatry, coming in by a circuitous path, we have a better approach in a finer discipline. I would not belittle the program that has been outlined, because it promises to the medical student a distinctly improved discipline of approach. However, I have a suggestion that perhaps of necessity we have used as an expedient at Wisconsin. Our first year students are taught medical psychology; in the second year they are taught psychologic pathology, and then, in addition to their routine exposure in psychiatry in the third and fourth year in medicine, and eventually in the several other subjects, we hope to have persons especially trained in psychiatry who are primarily internists, surgeons, obstetricians, and so on. In this fine outline of a program for psychiatric training of undergraduate medical students Dr. Malamud has sounded the advance. I believe it is a substantial improvement over anything we have generally throughout the country, and is distinctly better than that which we have in Wisconsin.

DR. W. B. HENDERSON, Oelwein, Ia.: I should like to reemphasize the importance of psychiatry and pediatrics. I make a practice of addressing every prospective mother by her first name. Certainly no one knows the patient better or more intimately than the obstetrician. I wonder whether or

not the original method of teaching the medical student by having him accompany the practitioner is not a good idea. Why cannot the sophomore and junior medical student during the summer come to the smaller communities and be in the hospital there? If there is a way that these smaller hospitals could be utilized in teaching the medical student it would be ideal.

DR. MALAMUD: I tried to stress in my paper that what we want to give these students is exactly what the general practitioner has developed by bitter experience after he has graduated from medical school. Certainly they were the ones who taught us psychiatrists what this type of psychiatry that I tried to present in my paper should be like. I did not stress giving students a great deal on psychoses or some of the intriguing morsels about psychoneuroses, but what I wanted them to learn is exactly what the general practitioner has learned during years of practice. It has been systematized by experimental work which has been done during the last twenty-five years. I agree with Dr. Middleton, that in the third and fourth year an attempt should be made to use as much as possible the internist, the surgeon and the pediatrician in teaching psychiatry to the medical students. For the time being we have to do it, but the time will come when enough of the surgeons, internists and pediatricians will have learned psychiatry from us psychiatrists, and then we will be able to teach psychiatry in a proper manner.

FEDERATION OF STATE MEDICAL BOARDS
OF THE UNITED STATES

FEBRUARY 7—EVENING

Observations of Medical Conditions in Europe

DR. R. L. SENSENICH, South Bend, Ind.: The medical situation in Europe has deteriorated tremendously. In Germany, even before the recent war, conditions had deteriorated. Part of this was a result of Hitler's preparation for war and the fact that young men were admitted to medical school without the training which had been required in preparation for the medical course. At present there are a sizeable number of physicians in Germany fully licensed to practice, whose preparation is not equal to a high school education and whose medical training was equally deficient. They were licensed to provide a larger number of physicians to be in readiness for the war. These men are a problem at this time. Men are not selected for medicine. There is no examination on admission. Anyone who desires to be a physician must be admitted to school provided there is an opening and an opportunity for that training. At the end of the second year an examination is given. The student then finishes the rest of his training and at its conclusion is privileged to practice without examination. I had an opportunity to talk to the doctors in each of the medical centers.

A person is licensed to practice in a given community. This *Niederlassung* is unfortunately tintured by political controls. Without examination of any kind the person applies and is given permission to practice in a particular location.

Two agencies have to do with the conduct of professional activity. One is the *Arzte Kammer*. It is not scientific; it is a union of the profession to protect itself against government encroachment. Then there is the regional licensing board, and between the two is the governmental agency from which physicians receive their pay for the things which are done under the *Krankenkasse*. This is true also in Austria.

The individual is dependent for about 60 per cent of his income on insurance. At the conclusion of a service he bills this intermediate organization, and they in turn collect from the government to pay him.

The representatives of the many nations in the World Medical Association were agreed on certain principles, and they were enthusiastic about the principles with the exception of two, one of which was that any social security or insurance plan must be open to the participation of any licensed physician. This they felt would destroy them. To that the suggestion was made, Why do you not cancel out all existing licenses, and begin over by examining each individual, not by an extensive medical

examination but by an investigation of their training background and experience, and then determine that the men of experience and training should be licensed, and require that those not sufficiently trained do additional training so they will be qualified and maintain medical standards?

There are constantly entering into the British and the American zones men who escape from the Russian area who have had proper training and experience and who are as well qualified to practice as are those there now but who, permitted to practice, will increase the number of physicians so greatly under the Niederlassung that they say, "We can't possibly have that." That is the situation confronting them on a licensure basis.

At that time the individual physicians were receiving about eight reichmarks per month per individual on the panel and they were permitted to have 1,500. As the physician was required to take care of the dependents of those family heads, he had a sizeable number who had to be taken care of within the yield of this panel. We found that the best physicians, under ordinary circumstances, had about \$300 to \$400 a month for a three month period with which to take care of all these families and their dependents. They received the equivalent of about 40 cents per house call. For obstetrics they received 30 marks, or about \$3; for an appendectomy 30 marks; for setting a fracture 30 marks; for an extensive chest operation 50 to 60 marks; in addition to this, the surgeon might accept from a patient 100 marks at 10 cents per mark, or an equivalent of \$10, purely as a voluntary offering on the part of the patient.

What can be done for these people? We informed them we were not there to encourage or to press for any changes in their local governments as they wished them. We were there to encourage them to come to higher levels and to bring medicine above the political structure and above the economic distress in which it presently is found, and to try to get them to think of the best possible medical service, and then to try to establish that kind of program which would make it possible of attainment. We met with the outstanding doctors in the area and were much encouraged to find them beginning to think a little above their present distress level.

FEBRUARY 8—MORNING

DR. EARLE G. JOHNSON, Grand Island, Neb., Presiding

Address of the President

DR. EARLE G. JOHNSON, Grand Island, Neb.—Dr. Johnson pointed out that the medical examining boards comprise the only group that safeguard the respective states in the licensing of properly qualified applicants to practice the healing art. He suggested an American Board of Preventive Medicine and Public Health equal in rank to the other American boards as the qualification essential to those laboring in this field of medicine. He recommended the enactment of a resolution by the federation against state or socialized medicine; also that the federation take action to support a step to make more attractive to young physicians the military services of the United States and to encourage volunteers for such service in greater numbers. Dr. Johnson discussed the plight of the displaced physicians who have recently come to this country from abroad, pointing out that many of them are older graduates of foreign schools at a time when training in those schools compared favorably with our own of the same date; he advised a further study of this problem and some immediate recommendations for alleviation of it. He pointed out that all of the basic science boards except those of Florida, Michigan, South Dakota and Washington have discretionary power to issue a certificate in the basic sciences without an examination to those presenting satisfactory evidence of having passed an examination in the basic sciences before a board authorized to issue licenses to practice in any state or territory of the United States, and that if such discretionary power could prevail it would facilitate the interchange of physicians from one state to another and relieve much of the delay and conflict in medical licensure that now exists. Dr. Johnson also recommended that the federation support the efforts of the American Medical Association and other organizations to complete a worldwide evaluation and classification of medical colleges.

Medical Education in Denmark, Norway and Sweden

DR. ALBERT B. SABIN, Cincinnati: In 1947 I went to Denmark to attend the International Microbiological Congress and attempted to obtain information pertaining to medical education.

Denmark, with a population of 4,000,000, has one medical school in Copenhagen and a partial school in Aarhus in which students can obtain most of their preclinical subjects and part of their clinical studies but must go to Copenhagen to complete their studies. In 1944 the total number of physicians licensed in Denmark was 165. The average age of students on admission is eighteen years. Duration of university studies is seven to eight years, and after the completion of these studies there is a compulsory internship of one year before a physician can be licensed for full practice. In Sweden, with a population of 6,800,000, there are three medical schools and an additional school is projected in Gothenburg. The duration of university studies is eight to nine years, which includes about one year's work which would correspond to one year's rotating internship, and the internship is thus included in the university studies. Norway, with about 3,100,000 population, has only one medical school, at Oslo, but there is one projected at Bergen. The university studies are shorter than in any of the other Scandinavian countries, six to seven years, and no internship is required.

In Denmark, the premedical part of the study is only one year, in Sweden only half a year and in Norway only one year. Their preclinical studies extend over a period of three years in Denmark, two and a half years in Sweden and two years in Norway. The strictly clinical years are three years in Denmark, which does not include the internship, five years in Sweden, which does not include the internship, and three years in Norway, where there is no internship.

In the clinical years, whereas American medical students spend two years, students in Denmark spend three years, students in Sweden spend four years and students in Norway spend three years covering the same subjects. These studies include for the most part practical work not only on the wards in medicine and surgery but all the specialties as well. Most of the teaching is bedside, and there are many lectures during this period, especially in Denmark, where education is regarded as free. A student can attend the lectures or not as he pleases. The same thing would appear to be true in the other countries.

The teaching is done in hospitals which, at least in one instance, are predominately under university control. In Denmark there is the Riggs Hospital, which has been in existence since 1910 and some of which is now outmoded, which constitutes the chief hospital for clinical teaching. However, they have a number of so-called extraordinary professorships, in which the chiefs of service in various other hospitals also have small groups of students who are taught particularly in the specialties. In Sweden, the hospitals are not only those of the Karl Institute, which is perhaps one of the finest teaching hospitals in the world, also new hospitals which the city of Stockholm has built and which compare favorably with some of the finest hospitals in the United States. The hospitals in Upsala also are of the highest order.

Regarding licensure, in Denmark when they finish the university studies they obtain a limited certificate. They receive the degree with which a person can assist the physician, can serve an internship, can substitute for a short time but cannot practice medicine. After he has spent an additional year, of which at least one month must be in obstetrics and the remainder in medicine and surgery, he can get a full certificate which permits him to practice medicine, but most doctors at that time feel the necessity of continuing further studies. There are no examinations by the state. When the hospital says that he has finished satisfactorily and when the university says that he has finished his studies satisfactorily, the National Health Service gives him his certificate. In Sweden, the university degree received by the student at the end of eight and one-half to nine years is licentiate in medicine, and this automatically confers on him a license. There are no further examinations. In Norway persons graduated from the university can practice immediately.

The M.D. degree is a special requirement which takes two to three years of additional studies and requires a thesis. It,

actually costs a student almost \$1,000 to \$2,000 to publish his thesis.

In Denmark it takes five years of special study before one can be recommended by the Board of Specialists. In Sweden it requires three to five years. In Denmark the first two years must be spent in subjects in which the student will not ultimately specialize and the last three years are spent in his specific field. When the Board of Specialists certifies a person the National Health Service automatically approves him. These countries are aware of the importance of refresher courses for general practitioners.

About one fourth of the medical students are women. The number of scholarships and donations is hopelessly inadequate, considering the number of worthy applicants, and the question of some form of student salary furnished by the state has been raised in some quarters. The students' timetable is full, so there is little chance of earning money and little opportunity to take part in general life.

Medical education in the Scandinavian countries is superior to that in any other country. However, it may look to the United States for certain aspects of education because of the possibilities for improvement. Is it wise to raise every doctor as if he were going to be a medical researcher rather than a general practitioner?

Medical Education in Poland and Finland

DR. EUGENE B. FERRIS JR., Cincinnati: The purpose of my trip to Poland and Finland was a teaching mission organized by the Unitarian Service Committee and the World Health Organization. It consisted of seven other American physicians and surgeons, in some phases of the trip, from Czechoslovakia, Switzerland, England and Sweden. We had an opportunity to live fairly close with these physicians and thereby get information about the situation in those countries.

We spent six weeks in Poland, where we were allowed freedom to see and do what we pleased. Poland, which is at the border of Eastern and Western culture, has been a battleground between the East and the West for centuries. Before the last war it was essentially a feudal state. Medicine was almost completely morphologic and aristocratic in its orientation. With the occupation of the Germans there was begun a systematic program of extermination, and some 4,000,000 Jewish Poles and a larger number of non-Jewish Poles were exterminated. The basic philosophy of the Germans was that the Jews and the Poles were inferior races, meant only for labor. Of 13,000 physicians, only 7,000 remained after the war; 2,500 of 3,700 dentists lost their lives, and 2,000 of 5,500 pharmacists. Partially or completely destroyed were 400 of 667 hospitals, 7 out of 9 nursing schools, 4 out of 5 schools for midwives, 29 out of 45 tuberculosis sanatoriums, and 24 out of 25 spas. Nearly all laboratory and x-ray equipment was moved out of the country. Public health suffered as a result. In a partial survey of Warsaw just after the war some 25 per cent of the people given roentgen examinations had open tuberculosis. Syphilis and gonorrhea were rampant, and typhus took some 100,000 persons in the Jewish Ghetto alone over a period of two and a half years during the occupation.

Poland is thus faced with the problem of training 7,000 physicians in addition to the usual quota of about 600 per year. The schools are greatly understaffed, but the professors and those teachers available are of high caliber. In July 1948 the medical faculties at five university centers had already been reconstituted and three medical academies were organized in areas outside university centers, giving them eight completed staffed medical schools. A great deal of teaching is of the didactic type, but this is compensated for somewhat by the fact that after five years of medical school each student must complete two additional years of supervised medical practice in hospitals or rural health centers before being licensed to practice.

The entire medical curriculum has been revised recently to meet present needs. Before the war each department was independent of other departments in teaching and practice methods. The deanship was rotated biyearly among the professors. The new organization calls for a full time dean with definite authority to coordinate and integrate the teaching.

Applicants to medical schools must meet certain basic intellectual requirements, but beyond this about 50 to 60 per cent must come specifically from various segments of society, such as the peasant group, the laboring group, government workers and professional men. About 50 per cent of the present students are women. In the new program less time is given to anatomy and more to the social sciences and to the social and preventive aspects of medicine. Medicine is almost entirely controlled by the government; yet a considerable amount of private practice still takes place. Salaries are so low that teachers and physicians must supplement them by either practicing on the side or holding two jobs.

The hospitals are operated by the Ministry of Health and the medical schools by the Ministry of Education. Thus the teaching hospitals are assigned twice the number of medical personnel as are the nonteaching hospitals, half being paid by the Ministry of Health and half by the Ministry of Education. Likewise, the Ministry of Education pays for and assigns to the preclinical departments and premedical departments the same relative amount of teaching personnel as it does to the clinical departments. This in effect will tend to strengthen the preclinical departments in the future.

At the moment public health and preventive and the social aspects of medicine seem to take precedence over individual patient attention. Already typhus and typhoid are under control. Both syphilis and gonorrhea have been brought under control by mass methods of case finding and chemotherapy. The sanatoriums are being rebuilt and constructed at a rapid pace. All newborn children are being given routine vaccinations with BCG, and a program of mass case finding by roentgen ray is well under way.

One came away from Poland thinking less about the medical curriculum and more about the superb spirit of the Polish people and the drive with which Polish medicine is rehabilitating itself despite the blows of the past and a subtle but all-pervading fear and uncertainty of what the future may bring.

Finnish medicine contrasted in many ways with what we experienced in Poland. The Finns within two and a half years practically assimilated some 300,000 Karelians, representing one tenth of the entire population, who moved over to Finland when Russia annexed the Karelian Isthmus.

The majority of the medical staff spoke English and had a general outlook not unlike our own. Until the end of the war there was only one medical school at the University of Helsinki which turned out eighty medical graduates per year. They plan to graduate an additional forty students per year for the next ten years and have already created another medical school at Turku, which will concentrate on the last three years of the five year course. The premedical curriculum is essentially the same as that of the other Scandinavian countries. Medicine in Finland is influenced at present by Scandinavian medicine.

The University of Helsinki is an excellent medical school with facilities which excel those existing in a number of American medical schools. Facilities for clinical teaching are unsurpassed. Like many European schools, the various departments tend to be isolated from one another and the curriculum suffers from an excess of didactic lectures and inadequate tutorial supervision. Although a great deal of clinical research is going on, it is in the main of the descriptive type with little basic or physiologic oriented research. Teaching is directed primarily to the training of general physicians. Specialization is not so highly developed. However, the Finnish graduates are doing an excellent job of medical practice and a great deal of this success is due to the healthy attitude of the physician to the patient as a human being. This attitude is reflected not only in medical teaching and practice but in the architectural and functional planning of the hospitals and in their administration.

Licensing of Foreign Medical Graduates in the United States

DR. CREIGHTON BARKER, New Haven, Conn.: This paper was published in *THE JOURNAL*, May 7, page 10.

The British National Health Act

DR. MORRIS FISHBEIN, Chicago: This paper was published in *THE JOURNAL*, March 5, page 639.

Medical Examinations and Licensure

COMING EXAMINATIONS AND MEETINGS

NATIONAL BOARD OF MEDICAL EXAMINERS

NATIONAL BOARD OF MEDICAL EXAMINERS: *Parts I and II*. Various Centers. June 20-22, Sept. 12-14. *Part III*. June, various centers. Exec. Sec., Mr. E. S. Elwood, 225 S. 15th St., Philadelphia 2.

EXAMINING BOARDS IN SPECIALTIES

AMERICAN BOARD OF ANESTHESIOLOGY, INC. *Written*. Various Centers. July 15. *Oral*. Oct. 16-20. Sec., Dr. Curtiss B. Hickcox, 745 Fifth Ave., New York 27.

AMERICAN BOARD OF INTERNAL MEDICINE: *Oral*. Philadelphia, June 1-3. *Written*. Oct. 17. Asst. Sec.-Treas. Dr. W. A. Werrell, 1 Main St., Madison 3, Wis.

AMERICAN BOARD OF NEUROLOGICAL SURGERY: *Oral*. Chicago, June 1949. Sec., Dr. W. J. German, 310 Cedar Street, New Haven, Conn.

AMERICAN BOARD OF OPHTHALMOLOGY: *Oral*. New York, June 11-15; St. Louis, Oct. 15-19; Boston, December. Sec., Dr. S. J. Beach, 56 Ivie Rd., Cape Cottage, Maine.

AMERICAN BOARD OF ORTHOPAEDIC SURGERY. *Part II*, New York City, Jan. 1950. Final date for filing application for Part II is Aug. 15. Address: Dr. Francis M. McKeever, 1136 W. 6th St., Los Angeles 14, Calif.

AMERICAN BOARD OF OTOLARYNGOLOGY: Chicago, Oct. 4-7. Sec., Dr. D. M. Lierle, University Hospital, Iowa City.

AMERICAN BOARD OF PEDIATRICS: *Written*. Under local monitors, June 24. *Oral*. Cleveland, Sept. 16-18; New York City, Oct. 21-23; Chicago, Dec. 9-11. Sec., Dr. John McK. Mitchell, 6 Cushman Road, Rosemont, Pa.

AMERICAN BOARD OF PHYSICAL MEDICINE. Philadelphia, June 4-5. Sec., Dr. R. L. Bennett, 30 N. Michigan Blvd., Chicago.

AMERICAN BOARD OF PLASTIC SURGERY: Examinations are given in June and November of each year in the home town of applicants. Sec. Treas., Dr. Louis T. Byars, 400 Metropolitan Bldg., St. Louis, Mo.

AMERICAN BOARD OF PSYCHIATRY AND NEUROLOGY, INC. *Special Examination*, October. Place to be announced. Final date for filing application is July 15. December, New York City. Sec. Dr. F. J. Braceland, 102-110 Second Ave., S.W., Rochester, Minn.

AMERICAN BOARD OF RADIOLOGY. Atlantic City, June 2-4. Sec., Dr. B. R. Kirklin, 102-110 Second Ave., S.W., Rochester, Minn.

AMERICAN BOARD OF SURGERY: *Written*. Various Centers, October 26. Final date for filing application is July 1. Sec., Dr. J. Stewart Rodman, 225 S. 15th St., Philadelphia.

AMERICAN BOARD OF UROLOGY: *Written*, December. *Oral and Clinical*. Chicago, Feb. 11-15. Final date for receipt of case histories is Sept. 1, 1949. Sec., Dr. Harry Culver, 7935 Sunnyside Road, Minneapolis 18, Minn.

BOARDS OF MEDICAL EXAMINERS

ALABAMA: *Examination*. Montgomery, June 28-30. Sec., Dr. D. G. Gill, 519 Dexter Ave., Montgomery.

ARKANSAS: * *Little Rock*, June 9-10. Sec., Dr. L. J. Kosminsky, Texarkana. *Eclectic*. Little Rock, June 9-10. Sec., Dr. C. H. Young, 1415 Main St., Little Rock.

CALIFORNIA: *Examination*. San Francisco, June 21-23. Sec., Dr. Frederick N. Scatena, 1020 N St., Sacramento.

COLORADO: * *Examination*. Denver, June 20-22. Sec., Dr. W. W. King, 831 Republic Bldg., Denver.

CONNECTICUT: * *Examination*. Hartford, July 1. Secretary to the Board, Dr. Creighton Barker, 258 Church Street, New Haven.

DELAWARE: Dover, July 12-14. Sec., Dr. J. S. McDaniel, 229 South State St., Dover.

FLORIDA: * *Examination*, Jacksonville, June 26-28. Sec., Dr. Frank D. Gray, 12 N. Rosalind Ave., Orlando.

GEORGIA: *Examination*. June 8-9, Atlanta and Augusta. *Reciprocity*. Atlanta, June. Sec., Mr. R. C. Coleman, 111 State Capitol, Atlanta.

GUAM: *Endorsement*. Agana, Last Friday of each month. Sec., Capt. C. K. Youngkin, Dept. of Public Health, Guam. % F.P.O., San Francisco, Calif.

HAWAII: * *Examination*. Honolulu, July 11-14. Sec., Dr. S. E. Doolittle, 881 S. Hotel St., Honolulu.

IDAHO: Boise, July 11-13. Sec., Miss Estella S. Mulliner, Bureau of Occupational Licenses, 355 State House, Boise.

ILLINOIS: Chicago, June 28-30. Superintendent of Registration, Mr. Fred W. Ruegg, Capitol Building, Springfield.

INDIANA: *Examination*. Indianapolis, June 21-23. Sec. Board of Medical Registration and Examination. Dr. Paul R. Tindall, 416 K. of P. Bldg., Indianapolis.

IOWA: * *Examination*. Iowa City, June 13-15. Sec., Dr. M. A. Royal, 506 Fleming Bldg., Des Moines.

KANSAS: Kansas City, June 1-2. Sec., J. F. Hassig, 905 North 7th St., Kansas City, Kans.

KENTUCKY: *Examination*. Louisville, June 15-17. Sec., Dr. Bruce Underwood, 620 S. 3rd St., Louisville 2.

LOUISIANA: New Orleans, June 6-8. Sec., Dr. Roy B. Harrison, 1507 Hibernia Bank Bldg., New Orleans.

MAINE: Augusta, July 5-6. Sec., Dr. Adam P. Leighton, 192 State St., Portland.

MARYLAND: *Examination*. Baltimore, June 21-24. Sec., Dr. Lewis P. Gundry, 1215 Cathedral St., Baltimore. *Homeopathic*. Baltimore, June 14-15. Sec., Dr. John A. Evans, 612 West 40th St., Baltimore.

MASSACHUSETTS: *Written*. Boston, July 12-15. Sec., Dr. George L. Schadt, 413 E. State House, Boston.

MICHIGAN: * *Written*. Detroit and Ann Arbor, June 13-15. Sec., Dr. J. Earl McIntyre, 203 Hollister Bldg., Lansing.

MINNESOTA: * Minneapolis, June 21-23. Sec., Dr. Julian F. DuBois, 230 Lowry Medical Arts Bldg., St. Paul 2.

MISSISSIPPI: Jackson, June 21-22. Asst. Sec., Dr. R. N. Whitfield, State Board of Health, Jackson.

MISSOURI: *Examination*. St. Louis, May 30-31 and June 8-10. Exec. Sec., Mr. John A. Hailey, Box 4, Jefferson City.

MONTANA: Helena, Oct. 3-5. Sec., Dr. Otto G. Klein, First National Bank Bldg., Helena.

NEBRASKA: * *Examination*. Omaha, June 6-8. Dir., Bureau of Examining Boards, Mr. Oscar F. Humble, 1009 State Capitol Building, Lincoln 9.

NEW HAMPSHIRE: Concord, Sept. 8-9. Sec., Dr. J. S. Wheeler, 107 State House, Concord.

NEW JERSEY: *Examination*. Trenton, June 21-24. Sec., Dr. E. H. Hallinger, 28 West State Street, Trenton 8.

NEW YORK: Albany, Buffalo, New York and Syracuse, June 28-July 1. Sec., Dr. Jacob L. Lochner, 23 South Pearl St., Albany.

NORTH CAROLINA: *Examination*. Raleigh, June 23-25. Sec., Dr. Ivan Proctor, 226 Hillsboro St., Raleigh.

NORTH DAKOTA: * *Written*, Grand Forks, July 5-7. *Reciprocity*, Grand Forks, July 8. Sec., Dr. C. J. Glaspel, Grafton.

OHIO: *Examination*. Columbus, June 15-18. *Endorsement*, Columbus, July 5. Sec., Dr. H. M. Platter, 21 W. Broad St., Columbus.

OKLAHOMA: * Oklahoma City, June 8-9. Sec., Dr. Clinton Gallaher, 813 Braniff Bldg., Oklahoma City.

PENNSYLVANIA: *Examination*. Philadelphia and Pittsburgh, July. Acting Sec., Mrs. B. G. Steiner, 351 Education Bldg., Harrisburg.

PUERTO RICO: San Juan, Sept. 6-10. Sec., Dr. Luis Cueto Coll, Box 3717, Santurce.

RHODE ISLAND: * *Examination*. Providence, July 7-8. Chief, Mr. Thomas B. Casey, 366 State Office Bldg., Providence.

SOUTH CAROLINA: *Examination*. Columbia, June 27-29. *Endorsement*. Columbia, June 27-28, Aug. 1, Sept. 5 and Oct. 3. Sec., Dr. N. B. Heyward, 1329 Blanding St., Columbia.

SOUTH DAKOTA: * *Examination*. Pierre, July 19. Sec., Dr. G. J. Van Heuvelen, Capitol Bldg., Pierre.

TEXAS: *Examination*. Austin, June 16-18. Sec., Dr. M. H. Crabb, 209 Medical Arts Bldg., Fort Worth 2.

UTAH: *Endorsement*. Salt Lake City, May 25. *Examination*, Salt Lake City, July 13-15. Sec., Dept. of Registration, Miss Rena B. Loomis, 324 State Capitol Bldg., Salt Lake City.

VERMONT: Burlington, June 21-23. Sec., Dr. F. J. Lawliss, Richford.

VIRGINIA: *Examination*. Richmond, June 17-18. *Reciprocity*. Richmond, June 16. Dr. K. D. Graves, 631 First St., S.W., Roanoke.

WASHINGTON: * Seattle, July. Sec., Mr. Edward C. Dohm, Department of Licenses, Olympia.

WISCONSIN: * *Examination*. Milwaukee, June 28-30. Sec., Dr. C. A. Dawson, Tremont Bldg., River Falls.

WYOMING: Cheyenne, June 20. Sec., Dr. Franklin D. Yoder, Capitol Bldg., Cheyenne.

* Basic Science Certificate required.

BOARDS OF EXAMINERS IN THE BASIC SCIENCES

ALASKA: Feb. 1950. Sec., Dr. C. Earl Albrecht, Box 1931, Juneau.

ARIZONA: Tucson, June 21. Sec., Mr. Francis A. Roy, Science Hall, University of Arizona, Tucson.

COLORADO: *Examination*. Denver, June 1-2. Sec., Dr. Esther B. Starks, 1459 Ogden St., Denver.

CONNECTICUT: New Haven, June 11. Exec. Asst., State Board of Healing Arts, Miss Mary G. Reynolds, 110 Whitney Ave., New Haven 10.

FLORIDA: *Examination*. Gainesville, June 11. Sec., Mr. M. W. Emmel, University of Florida, Gainesville.

MINNESOTA: Minneapolis, June 7-8. Sec., Dr. Raymond N. Bieter, 105 Millard Hall, University of Minnesota, Minneapolis.

OREGON: Portland, June 18, Sept. 3 and Dec. 3. Sec., Mr. Charles D. Byrne, State Board of Higher Education, Eugene.

SOUTH DAKOTA: Vermillion, June 3-4. Dr. G. M. Evans, 310 E. 15th St., Yankton.

TENNESSEE: Memphis, July 8-9. Sec., Dr. O. W. Hyman, 874 Union Ave., Memphis 3.

WISCONSIN: Milwaukee, June 4, Sept. 24 and Dec. 3. Sec., Prof. W. H. Barber, Ripon College, Ripon.

Bureau of Legal Medicine and Legislation

MEDICOLEGAL ABSTRACTS

Medical Practice Acts: Evidence and Procedure in Reviewing Board's Revocation Order.—The state department of health, on recommendation of the medical examining board, revoked the plaintiff's license to practice medicine in the state of Connecticut. The order of revocation was sustained by the superior court, so the plaintiff appealed to the Supreme Court of Errors of Connecticut.

The only question presented by this appeal, said the Supreme Court of Errors, is whether the state medical examining board acted properly in determining and recommending that the plaintiff's certificate of registration to practice medicine and surgery should be revoked, since such a recommendation was mandatory on the state department of health.

The original complaint against the plaintiff was made to the board by the commissioner of health and charged, on information and belief, that the plaintiff had treated Norman Dombriis "in a fraudulent, dishonorable, unprofessional and incompetent manner." Notice was given the plaintiff and he was summoned to appear before the board at a designated time for a hearing. Prior to the hearing, plaintiff's counsel wrote the counsel for the board, asking for a more specific statement of the charges and received a "Summary of Complaint." It stated that the plaintiff had operated on Dombriis for a fissure and had charged \$150, ultimately reduced to \$125, which Dombriis paid; that Dombriis said "his bowels did not move for four days," so he consulted another physician and surgeon and was told that he still had the fissure; that he was taken to a hospital where he was operated on, and that the charge made for that operation was \$50 with an additional \$12 for hospital visits. A hearing was subsequently held before the board, which voted to sustain the charge that the plaintiff treated Dombriis "in a fraudulent, dishonorable, unprofessional and incompetent manner," and to recommend to the state department of health that the plaintiff's certificate of registration be revoked. In the recommendation submitted to the department of health, the board incorporated a statement that its action "was based on certain subordinate facts adduced from the testimony at the hearing" and detailed its conclusions as to the conduct of the plaintiff in this way: "Fraudulent treatment" in that he informed or implied to Dombriis that he had corrected the diseased condition of the rectum when he had not done so; "dishonorable treatment" in that he had insisted on the payment of an exorbitant fee for services to be considered scarcely more than an office treatment; "unprofessional treatment" in that throughout the treatment he had behaved in a manner not compatible with the established standards of medical professional conduct in this state; and "incompetent" in that his background and training did not justify his claim and statement that he was a specialist in the treatment of diseases of the rectum, that he did not precede the treatment with an enema and neglected to sterilize a speculum used by him in the operation, and that he did not perform the relatively simple procedure which was indicated for the relief of the condition in question and which when later followed by a skillful and competent surgeon resulted in its eradication. The plaintiff objected when, on the trial of the appeal, the recommendation of the board containing these statements was offered in evidence.

The statute, said the Supreme Court of Errors, contains no requirement that the board shall make a finding of facts on the basis of which it acted. In similar cases of appeals from zoning boards, however, we have said that, while a finding of the facts on which the board acted was not required by the statutes, "a full and complete statement in the minutes of the board's action, made with such particularity as to enable the court on appeal to clearly understand what was done, is highly desirable." In this instance the board, instead of including in its minutes the grounds of its decision, incorporated them in the recommendation it made. The statement was properly before the court to enable it to understand the basis of the board's action.

The basic claim of the plaintiff was that the decision of the board involved certain conclusions which no evidence offered at the hearing supported but which the board reached on the basis of its own understanding of the obligations of the plaintiff as a medical practitioner.

The statutes, said the court, provide that the medical examining board shall consist of five members, that the Connecticut Medical Society shall each year file with the governor the name of one physician practicing in this state whom it recommends as competent to serve on the board and that the governor shall appoint the person so recommended for a term of five years. In providing this method of appointment the legislature undoubtedly intended that the membership of the board should consist of men fitted by training and experience to perform the duties and responsibilities imposed on it. We would presume, the court continued, even if we did not know, that the men composing the board were themselves qualified to decide whether certain conduct of a physician or surgeon so derogated from professional standards as unreasonably to jeopardize the interests of the public; and on that basis they were entitled to act. Where a court has been called on to determine the reasonable value of the services of an attorney, we have said: "Courts have a general knowledge of what would be reasonable compensation for services which are fairly stated and described. That knowledge they may apply in considering the testimony of experts on this subject. They will not be bound by the experts' estimate." The same principle applies to the medical examining board. Expert opinions of other physicians offered before it could have been disregarded by it, and from a practical standpoint would in all probability have had little, if any, effect in bringing it to a decision at variance with its own conclusion on the question whether or not the conduct of a practitioner had been compatible with professional standards or whether or not he was competent. With the facts of that conduct before it, the board was competent to determine such questions without hearing expert medical evidence. So in this case, as we must presume the members of the board to have been competent to determine the issues on the basis of their own knowledge and experience, we are confirmed in our conclusion that it was not necessary that expert evidence should be offered before the board.

This brings us to a consideration of the right of appeal from the board given by the statute, said the Supreme Court of Errors. The amicus curiae maintained that the court had plenary power to determine de novo whether the certificate should be revoked. On an appeal from an administrative board, we have repeatedly stated that the function of the court is to determine whether or not the board acted illegally. Under the division of powers between the branches of government provided in our constitution, administrative functions as such cannot be vested in the courts. The revocation of a certificate of registration granted to a physician and surgeon is just as much an administrative matter as is the original grant of it. Neither directly nor in the guise of an appeal can authority be vested in a court to determine on its independent judgment the question whether or not a certificate should be revoked; the court can act only in so far as judicial questions are involved, and it can review administrative action only so far as to determine whether any illegality has entered into it. Where on an appeal the court hears evidence, it is solely for the purpose of determining that question.

Under our procedure, one appealing from the action of an administrative board under a statute which does not otherwise provide may, if the record before the board does not sufficiently disclose the basis of its action, offer evidence before the court as to the facts and the court will act on the assumption that they were the basis on which the board reached its decision. On an appeal from the medical examining board, if no expert evidence was offered before it, the appellant may produce such evidence and the court would then test the decision of the board in the light of it.

For these, and other, reasons the Supreme Court of Errors concluded that no error existed in the trial court's finding and the judgment of revocation of the plaintiff's license was accordingly affirmed. *Jaffe v. State Department of Health, 64 A. (2d) 330 (Conn., 1949).*

Current Medical Literature

AMERICAN

The Association library lends periodicals to members of the Association and to individual subscribers in continental United States and Canada for a period of three days. Three journals may be borrowed at a time. Periodicals are available from 1938 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 18 cents if three periodicals are requested). Periodicals published by the American Medical Association are not available for lending but can be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

American Journal of Clinical Pathology, Baltimore

18:921-1000 (Dec.) 1948

Observations on Rare Genes R^x and r^x . A. S. Wiener and M. A. Hyman.—p. 921.

*Non-Erythroblastic Hydrops Fetalis: Recurring in Association with Toxemia of Pregnancy. Y. M. Bromberg and Z. Polishuk.—p. 927.

Differential Diagnosis of Rheumatoid Arthritis by Biopsy of Muscle. G. Steiner and J. L. Chason.—p. 931.

Cardiolipin Antigen in Kline Test for Syphilis. S. J. Klein, G. M. Leiby and M. Berke.—p. 940.

Juxtaglomerular Apparatus of Hypertensive Kidney. J. Des Prez Jr.—p. 953.

Nonerythroblastic Hydrops Fetalis.—Bromberg and Polishuk point out that it is generally accepted that hydrops fetalis represents one of the clinical forms of hemolytic disease of the newborn. In almost all cases of hydrops fetalis recently reported in the literature, incompatibility in the Rh factor between mother and fetus as well as signs of maternal immunization have been observed. Before the discovery of antigenic incompatibility between mother and fetus as the cause of erythroblastosis fetalis, hydrops fetalis was related to various causes, such as fetal malformation and toxemia of pregnancy. The authors present the case of a woman who delivered 2 hydropic infants in her first and fourth deliveries, while her other two pregnancies terminated in the delivery of normal children. Antigenic incompatibility between mother and fetus could be excluded. No maternal immunization or signs of fetal erythroblastosis were found. Both pregnancies which terminated in the delivery of hydropic infants were associated with a severe toxemia of pregnancy, while the other pregnancies had a normal course. The fact that hydrops fetalis occurred unassociated with erythroblastosis leads to the assumption that two forms of hydrops fetalis exist: an erythroblastic and a nonerythroblastic form. This case indicates that the nonerythroblastic hydrops fetalis may be related to toxemia of pregnancy.

American J. Digestive Diseases, Fort Wayne, Ind.

16:1-34 (Jan.) 1949

Critique on Vagotomy, Part II: Contemporary Use of Vagotomy. W. J. M. Scott and J. A. Schilling.—p. 1.

Comparative Study of Inhibitory Action of Chemical Agents on Peptic Activity. S. Alpert and G. J. Martin.—p. 10.

Vitamins and Hormones in Nutrition. V: Emotional Upset and Trauma. B. F. Sieve.—p. 14.

Archives of Ophthalmology, Chicago

39:707-854 (June) 1948

*Changes in Ocular Fundus Associated with Pheochromocytoma of Adrenal Gland: Report of Three Cases. G. M. Bruce.—p. 707.

Proptosis Due to Neuroblastoma of Adrenal Cortex (Hutchinson's Syndrome): Report of Case. R. A. Cox.—p. 731.

Infection of Human Eye with *Cryptococcus Neoformans* (*Torula Histolytica*; *Cryptococcus Hominis*): Clinical and Experimental Study with New Diagnostic Method. C. Weiss, Isabella H. Perry and Marian C. Shevsky.—p. 739.

*Controversial Points in Penicillin Therapy of Ocular Diseases. L. von Sallmann.—p. 752.

Cataract Extraction by Suction Method: Review of 75 Cases. C. I. Thomas.—p. 805.

Fundus Changes Associated with Pheochromocytoma.

Bruce reviews the literature on pheochromocytoma, giving particular attention to ocular changes. The dominant symptom in patients with this tumor is vascular hypertension, in the course of which pathologic changes may be found in the retina or in its blood vessels or in both. The findings cannot be differentiated ophthalmologically from those encountered with hyper-

tensive vascular disease ("essential hypertension"). Because the ocular symptoms may be the first or the only sign of the disease, the ophthalmologist will often be seen before the internist. The possibility of pheochromocytoma should be considered whenever he finds evidence of vascular disease. The 3 cases reported in detail concerned children with pheochromocytoma, all of whom had pathologic changes in the retina.

Penicillin in Ocular Diseases.—Von Sallmann presents a survey of the subject of ocular penicillin therapy. He reviews problems involved in the parenteral use of penicillin and its surface application by solutions and ointments and by iontophoretic introduction. Local injections of penicillin under the conjunctiva, into the anterior chamber, into the lens and into the vitreous are discussed.

Archives of Surgery, Chicago

57:291-442 (Sept.) 1948

*Treatment of Tetanus. H. M. Smathers and M. R. Weed.—p. 291.

Hemorrhagic Cyst of Mesentery of Ileum. H. A. Oberhelman and J. B. Condon.—p. 301.

Surgical Removal of Unsuspected Mediastinal Lymphoblastomas: Report of Four Cases and Review of Literature. B. H. Evans and C. Haight.—p. 307.

*Fat Embolism, A Diagnostic Enigma. F. R. Denman and L. Gragg.—p. 325.

Anatomic Study of Vagus Nerves with Technic of Transabdominal Selective Gastric Vagus Resection. R. G. Jackson.—p. 333.

*Results of Resection of Vagus Nerve for Chronic Peptic Ulcer. E. M. Miller and J. H. Olwin.—p. 353.

Evaluation of Conservative Resection with End to End Anastomosis for Carcinoma of Rectum and Lower Sigmoid Colon. Jessie Gray.—p. 361.

Sympathetic Dystrophy. W. D. Holden.—p. 373.

*Testosterone Propionate in Treatment of Recurrent Cancer of Breast. A. R. McGraw.—p. 385.

Esophageal Varices: Two Cases with Different Surgical Approach. H. H. Davis.—p. 391.

Reevaluation of Penicillin Dosage Schedules. W. A. Altemeier.—p. 396.

Mindlessness and Generalized Spastic Paralysis Following Cyclopropane Anesthesia: Sequelae in a Child with Acute Appendicitis. E. L. Strohl and F. E. Sarver.—p. 405.

Modern Surgical Treatment of Acute Subdural Abscess. E. S. Gurdjian and J. E. Webster.—p. 411.

Cystic Disease of Lung. E. J. McGrath and M. J. Magnusson.—p. 427.

Blood Determination and Estimation of Blood Loss During Surgical Operation. N. E. Lenahan, T. A. Spitz and D. W. Metcalf.—p. 435.

Treatment of Tetanus.—Smathers and Weed formulate a plan of treatment which is based on a study of 86 cases of tetanus. The patient on admission is given cutaneous conjunctival tests with tetanus antitoxin diluted 1:100. If sensitivity is present, desensitization is attempted or "despeciated" antitoxin is given. If a wound can be found, 50,000 units of antitoxin is given intravenously and 10,000 units locally around the wound. If no wound is found, the entire contents of three 20,000 unit vials is given intravenously. As soon as the sensitivity test is given, 1 cc. of d-tubocurarine in wax and oil is administered intramuscularly. For immediate control of convulsions, purified chondrodendron tomentosum extract (intocostrin®) may be given intravenously, but the authors prefer to remove the patient to the operating room for ether anesthesia. With the patient anesthetized, 20,000 units of tetanus antitoxin is injected intrathecally and the wound debrided. Oxygen, a laryngoscope, an endotracheal tube and aspirating apparatus are available at the bedside after the operation. Penicillin is given every three hours to prevent respiratory infection and for its action on infected wounds. Penicillin, has no apparent effect on the toxin of *Clostridium tetani* and no proved clinical effect in the treatment of generalized tetanus. Five thousand units of tetanus antitoxin is given daily for five days if the infected focus has been removed, longer if the focus cannot be found. D-tubocurarine in wax and oil is given intramuscularly daily according to the clinical response of the patient. Patients must be watched constantly by experienced personnel in order that possible curare toxicity may be coped with immediately.

Fat Embolism, a Diagnostic Enigma.—Denman and Gragg state that reports about the incidence of fat embolism vary greatly. In their series of 99 necropsies selected at random, there were 7 cases in which the condition was of sufficient severity to be considered the primary cause of death. In an additional 24 cases fat emboli were present but were not

judged sufficient to account for death. There is usually an association with trauma to adipose tissue, particularly that in the osseous system; in a number of cases the condition has been reported to follow injury to the subcutaneous tissue and fatty viscera. Fat embolism causes a slowing of blood flow through a capillary bed, while oil droplets become elongated and are slowly forced from the arterial to the venous side of the circulation to become lodged in the capillary bed of all the organs. Elimination of fat emboli may occur by escape from renal glomeruli into the urine; excretion by the liver into the bile; phagocytosis, and emulsification by the mechanical action of the blood current perhaps aided by the saponifying action of blood lipase. The onset of fat embolism may be sudden, but usually symptoms become manifest after the third or fourth day and in the cardiorespiratory type may consist of dyspnea, cough, frothy sputum with occasional hemoptysis, cyanosis, precordial pain, cardiac dilatation, elevation of temperature and often asthmatic or bronchopneumonic type rates. In the cerebral form symptoms are variable and include loss of memory, disorientation, restlessness, irritability and occasionally convulsions, which later give way to drowsiness, stupor and, finally, coma. The best treatment is prevention and consists of avoidance of rough handling of patients, immediate splinting, early reduction and fixation of fractures, the use of a tourniquet during operations on fatty marrow and the avoidance of fat solvent anesthetics. Suggested methods of treatment are the injection of sodium bicarbonate or bile salts, venesection, drainage of the thoracic duct, venous ligation, incision of the injured site to relieve pressure and to remove blood and fat and even amputation. Pituitrin, caffeine, nikethamide, morphine and insulin have been suggested because they have been found to cause a steady fall in the level of blood fat. The administration of oxygen is beneficial. Clinicians must think of fat embolism, particularly in injured patients. The dark field examination of the blood and the urine "sizzle" test seem to offer the most promise of corroborating the diagnosis of fat embolism.

Results of Vagus Resection in Peptic Ulcer.—Miller and Olwin attempt to evaluate results in a series of 101 patients subjected to vagotomy in the past two and a half years. For the most part these 101 patients had a long-standing chronic peptic ulcer which had failed to respond to a medical regimen. In more than half the duration was over ten years. In 87 the lesion was in the duodenum. In 47 there was a history of bleeding; 26 had had perforations, and in 36 obstruction was demonstrable. The transthoracic approach was employed in 29 and the abdominal approach in 72 patients. The postoperative course was usually smooth. The Levine tube was left in place three or four days. Early ambulation was encouraged. A few patients had a mild pleural effusion and pain in the chest for several days, but in only 1 instance was it a prominent feature in the months following operation. One woman had trouble swallowing for almost a week, and 1 had a paralytic ileus, but this passed away. Fulness in the abdomen was a common temporary complaint, but diarrhea was the most obstinate. It was present in 39 patients, being temporary in 30, prolonged for several months in 2 and persistent in 7. There have been no deaths. Nine patients had left Chicago and could not be traced, which leaves 92 in whom follow-up was possible. In 76 of these the results were good, in 13 they were fair, and in 3 poor.

Testosterone Propionate in Cancer of Breast.—McGraw says that 12 women under care at the Henry Ford Hospital for breast cancer, recurrent after radical operation, were given testosterone propionate and the resulting effects were closely watched. Individual doses were mostly 150 mg. Aggregate total doses were from 450 to 6,225 mg. Injections were intramuscular in alternate buttocks. Given slowly, they have not produced pain, soreness or any late untoward local reactions. Only in the first 2 patients treated were there objectionable general reactions to the drug, and those were the result of unnecessary large initial doses. There have been slight masculinizing effects in 3 patients, principally of the voice, none sufficient to create a problem. Of the 12 patients treated, 6 have died, but only 1 failed to show some beneficial clinical response.

In 6 of the 12, clinical improvement was striking, in 2 good and in 3 fair. The author concludes that although testosterone propionate does not cure cancer, its use as a palliative agent has a logical basis, and its beneficial effects are such as to encourage further use and study. Best results with respect to duration of palliation have been in patients whose metastases have been principally or solely in bone. Testosterone propionate is an adjunct to, not a substitute for, roentgen therapy.

Bulletin of Johns Hopkins Hospital, Baltimore 83:463-610 (Dec.) 1948

SYMPOSIUM ON THE PHYSIOLOGY OF ACETYLCHOLINE

- Role of Acetylcholine in Conduction. D. Nachmansohn.—p. 463.
Quaternary Ammonium Ions and Sodium Ions in Nerve Physiology. R. Lorente De Nö.—p. 497.
Acetylcholine as Pharmacologic Agent. T. Koppányi.—p. 532.
Concerning the Mode of Action of Acetylcholine. J. H. Welsh.—p. 568.
Effect of Anticholinesterases and Related Substances on Nervous Activity in Cockroach. K. D. Roeder.—p. 587.

Cancer Research, Baltimore

8:301-348 (July) 1948

- Levels of Carcinogenic Azo Dyes in Livers of Rats Fed Various Diets Containing p-Dimethylaminoazobenzene: Relationship to Formation of Hepatomas. H. Silverstone.—p. 301.
Effect of Rice Diets on Formation of Induced and Spontaneous Hepatomas in Mice. H. Silverstone.—p. 309.
Comparative Studies of Immunologic, Toxic and Tumor-Necrotizing Properties of Polysaccharides from *Serratia marcescens* (Bacillus prodigiosus). H. J. Creech, Mary Alice Hamilton and Irene C. Diller.—p. 318.
Influence of Antibody-Containing Fractions on Lethal and Tumor-Necrotizing Actions of Polysaccharides from *Serratia marcescens* (Bacillus prodigiosus). H. J. Creech, Mary Alice Hamilton, E. T. Nishimura and R. F. Hankwitz Jr.—p. 330.
*Carcinomas of Uterine Cervix and Vagina in Estrogen- and Androgen-Treated Hybrid Mice. S. C. Pan and W. U. Gardner.—p. 337.
Effect of Methylcholanthrene on Viscosity of Paramecium. J. M. Butros.—p. 347.

Carcinomas in Hybrid Mice Treated with Estrogen or Androgen.—Two groups of reciprocal hybrid mice were used in the experiments by Pan and Gardner, PC₁ and PC₂. Of 57 female mice of group PC₁, 14 received estrogens and 43 were untreated controls. Ten of the 14 treated mice lived for more than two hundred days and are included in this study. Of the 70 female mice of the PC₂ group, 31 received steroid hormones and 39 were untreated. Twenty-five of the treated mice survived two hundred days or more and are included in this study. The hormone-treated mice received estradiol benzoate or diethylstilbestrol or estradiol benzoate plus testosterone propionate. Four of 10 estrogen-treated hybrid mice that tolerated the treatment more than two hundred days had carcinomas of the uterine cervix or vagina. Nine cervical carcinomas or invasive epithelial lesions were observed among 25 treated hybrids that survived two hundred days or more. All the 13 tumors were epidermoid carcinomas or invasive epithelial lesions that were considered to be early stages in tumor formation. None of the 82 mice in the control groups had carcinomas of the uterus or vagina, although 5 had uterine fibromyomas. In association with the neoplastic change of the uterine and cervical tissue, chronic proliferative vascular lesions have been observed involving the parametrial and uterine vessels.

Delaware State Medical Journal, Wilmington 20:233-256 (Nov.) 1948

- Intestinal Obstruction in Newborn. D. J. Preston.—p. 233.
Management of Infections Secondary to Tuberculosis. J. D. Wassersug.—p. 240.

Georgia Medical Association Journal, Atlanta 37:439-506 (Dec.) 1948

- Radium Irradiation of Nasopharynx for Hypertrophy of Lymphoid Tissue. B. H. Minchew and B. E. Collins.—p. 439.
Carcinoma of Corpus Uteri. R. L. Brown and J. E. Scarborough.—p. 443.
Some Features of Chemistry of Cancer of Breast. J. Funke.—p. 448.
Ruptured Tubal Pregnancy Following Previous Vaginal Hysterectomy. H. C. Frech.—p. 451.
Isolation and Cultivation of Donovan Bodies of Granuloma Inguinale. C. R. Reinstien, R. B. Dienst and R. B. Greenblatt.—p. 452.

Industrial Medicine, Chicago**17:461-502 (Dec.) 1948. Partial Index**

- Observations on Cardiovascular Patients in Industry: Results of Six-Year Study in a Small Industrial Plant. P. H. Kuhn.—p. 461.
- *Urinary Porphyrins in Lead Poisoning. S. F. Meek, T. Mooney and G. C. Harrold.—p. 469.
- Tetanus Immunization in Industry. J. K. Martins.—p. 473.
- Twenty Per Cent Dissolved Benzocaine Ointment in Treatment of Burns, Ulcers and Local Necroses. M. Finkel, A. J. Levine and M. Wohl.—p. 475.
- Medicolegal Problem of Hernia. C. C. Guy, V. P. Keig and V. L. Gynn.—p. 485.
- Vertigo. E. W. Hagens.—p. 488.

Urinary Porphyrins in Lead Poisoning.—Meek and his associates regard quantitative enumeration of basophilic stippled erythrocytes as a fairly laborious and time-consuming technic and one that is not entirely specific. The basophilic aggregation test of McCord, while no more specific, has proved to be a valuable refinement; it is relatively simple and saves time. Good correlation between the basophilic aggregation test and urinary lead excretion has been demonstrated in the case of certain lead salts soluble in human pleural fluid and blood serum. It does not correlate in "old" cases of lead poisoning. The urinary porphyrins have been given considerable attention with reference to lead poisoning. The hope is expressed that as knowledge of porphyrin metabolism increases, a simple test may be evolved which will give an early indication of lead absorption and/or lead poisoning. The following report does not reveal such a test, but it is hoped that it will stimulate interest in this approach. Single voidings of urine were obtained from 66 workers exposed to lead fumes. The lead content was determined on a portion of each sample. The semiquantitative urinary porphyrin test of de Langen and ten Berg was performed on another portion. There were 31 positive results among 66 lead-exposed workers. The rapid evaluation of present or potential lead intoxication by means of the determination of porphyrins in urine is subject, as is stippling or basophilic aggregation, to the influence of a number of other chemicals. It is not directly dependent on any blood dyscrasia. It represents potentially a laboratory tool which can represent with much greater fidelity the various forms of lead intoxication than could stippling methods.

Iowa State Medical Society Journal, Des Moines**38:509-560 (Dec.) 1948**

- Cerebral Palsy. W. M. Phelps.—p. 509.
- Etiology of Diabetes Mellitus: Current Concepts. A. G. Lueck.—p. 512.
- Finding the Undiagnosed Diabetic. E. B. Winnett and G. W. Harvey.—p. 517.
- *What Causes Gas? W. C. Alvarez.—p. 518.
- Pathology of Bone Tumors. M. C. Wheelock.—p. 522.

What Causes Gas?—Alvarez has studied the question of what causes flatulence for thirty-five years. It involves interference with the normal absorption of gas from the bowel. Much of the gas in the bowel is swallowed air. Much appears to come out suddenly from the blood. Some is formed during digestion. In the healthy person gas formed in the bowel is rapidly picked up by the blood and excreted by the lungs. The three main gases in the bowel are nitrogen, oxygen and carbon dioxide. The first causes the most distress because it is absorbed slowly. Gas or swallowed air goes through the bowel rapidly and painlessly if there is no spasm anywhere. Spasm is more likely to be associated with the gas produced by food allergy. The physician must make sure what the patient means by "gas." Does he belch, or bloat or pass gas? Belching often repeated is a neurosis associated with the swallowing of air. There is also a pseudobloating, hysterical in nature, and not due to gas. True bloating can be due to eating, to being hurt physically, to taking a nap or to constipation. An excess of flatus may be due to swallowing air, to indigestion, to constipation or to eating more food than the bowel can handle or to eating certain gas-making foods. Flatulence can be produced by any disease that interferes with the circulation or with the functions of the liver or the lungs. It is seen with cholecystitis, diarrheas, duodenal ulcer, constipation, hemorrhoids, intestinal obstruction, mucous colics and the eating of a rough or flatulent diet. Drugs fre-

quently fail in the treatment. A patient may be helped with a smooth diet, a light diet or diet without foods to which he is allergic. Some persons are relieved if they keep the colon clean with enemas.

Journal of Clin. Endocrinology, Springfield, Ill.**8:895-1012 (Nov.) 1948**

- *Intoxication with Vitamin D. J. E. Howard and R. J. Meyer.—p. 895.
- Tracing Thyroid Hormone in Peripheral Tissues. W. T. Salter and M. W. Johnston.—p. 911.
- Increased Protein-Bound Blood Iodine in Patients with Hyperthyroidism. R. E. Swenson and G. M. Curtis.—p. 934.
- Assay of Thyrotropic Hormone in Human Blood. E. De Robertis.—p. 956.
- Urethral Smear in Normal Human Male. Mildred T. Vogel, T. H. McGavack and H. Kammandel.—p. 967.
- Effect of dl-Alpha-Tocopherol Acetate on Progesterone Metabolism. H. De Watteville, R. Borth and M. Gsell.—p. 982.
- Turner's Syndrome. R. B. Greenblatt and H. E. Nieburgs.—p. 993.

Intoxication with Vitamin D.—Howard and Meyer feel that despite publicity in the medical literature on the dangers associated with the administration of large doses of preparations of vitamin D, there are still many physicians who use these drugs without the precautions necessary for substances potentially so toxic. During the past three years the authors have seen 11 instances of intoxication by such sterols. Ten of these patients had been given the drugs by physicians who were not aware that the alarming symptoms exhibited were related to the therapy which they themselves were prescribing. The eleventh patient was one in whom the authors themselves induced hypercalcemia with calciferol (crystalline vitamin D₂) within fourteen days. Most of the patients had anorexia, nausea, vomiting, weakness, fatigue and lassitude. In every instance weight loss and fatigue had been noted prior to anorexia and vomiting, and these are, therefore, considered the main symptoms of intoxication with vitamin D. Despite careful search only one of the patients showed evidences of gross vicarious calcification in periarticular, subcutaneous or renal tissues. However, the characteristic eye lesions described by Walsh and Howard were seen in nearly all patients. These lesions are visible by slit lamp examination, and the deposits beneath the conjunctival basement membranes are thought to be calcium salts. All patients, when first seen by the authors, had renal insufficiency. The only therapy prescribed was cessation of drug administration, forced fluids and a diet low in calcium. Subjective improvement occurred within two to eight weeks after instituting this regimen, even in those who showed but small objective improvement. The authors present 2 of the 11 case histories. They believe that hypercalcemia is largely responsible for the symptoms and signs of vitamin D poisoning. Patients to whom these drugs are administered should be followed by frequent slit lamp examination, urinary analyses and determinations of the serum calcium.

Journal of Gerontology, Springfield, Ill.**3:251-330 (Oct.) 1948**

- Quantitative Determinations of Skin Lipid Secretion in Middle-Aged and Old Individuals. E. Kirk.—p. 251.
- Age Changes in Light Threshold of Dark Adapted Eye. J. E. Birren, M. W. Bick and Charlotte Fox.—p. 267.
- Pulse Rate in Old Age. T. H. Howell.—p. 272.
- Study of Influence of Institutionalization on Social Adjustment of Old People. Ju-Shu Pan.—p. 276.
- *Geriatric Group in General Hospital: Organization and Objectives. F. D. Zeman.—p. 281.
- Cicero's Ideal Old Man. A. R. Chandler.—p. 285.

A Geriatric Group in a General Hospital.—According to Zeman the general hospital is caring for an increasing number of older men and women who present not only complex medical problems but also a variety of social and economic problems. To serve these aged persons more effectively, he suggests that a special geriatric group be organized in each large hospital to study their medical, surgical and psychiatric needs. It would function in the hospital wards and in the outpatient department and would integrate the work of the general hospital with that of other health and welfare agencies. Through this group's activities the older patients would receive better care and would find their hospital sojourn a far happier experience.

Journal of Investigative Dermatology, Baltimore**11:397-476 (Dec.) 1948. Partial Index**

- Spectral Absorption Studies of Antihistaminic Drugs. A. S. Friedlaender, S. Friedlaender and J. M. Vandenbelt.—p. 397.
Bistrimate Therapy in Scleroderma. G. V. Stryker, D. C. Tweedal and W. B. O'Connor.—p. 399.
Electroencephalographic Abnormalities in Patients with Generalized Neurodermatitis. T. H. Sternberg and G. D. Baldrige.—p. 401.
Nature of Inhibition of Ultraviolet Erythema by Pyribenzamine. R. L. Baer, P. R. Kline and L. Rubin.—p. 405.
*Studies in Solar Urticaria. P. L. Beal.—p. 415.
Treatment of Asymptomatic Neurosyphilis in White Mouse. H. J. Magnuson and Barbara Rosenau.—p. 435.
Histoplasmosis and Lymphoblastoma: Are These Diseases Related? E. P. Cawley and A. C. Curtis.—p. 443.
Comparison of Effect of Anti-Histamine Drugs in Human Subjects by Means of Histamine Iontophoresis. D. J. Perry, M. S. Falk and D. M. Pillsbury.—p. 461.

Solar Urticaria.—Beal says that in solar urticaria a brief exposure of the skin is followed in a few minutes by development of intense itching and erythema confined exactly to the areas exposed to the sunlight. A few minutes later, small islands of wheals form in the erythematous area and in a short time coalesce to form a continuous urticarial wheal limited to the exposed area. As the urticarial edema develops, a flare of diffuse erythema occurs around the wheal in the unexposed skin. According to the intensity of exposure it lasts from half an hour to several hours. The author presents studies made on 2 patients with solar urticaria. Both were women, aged 42 and 30, respectively. Their spectral sensitivity was established by use of glass filters and monochromator. The range of sensitivity was found to be between 2,967 and 3,341 angstrom units, with a maximum at 3,131 angstrom units. The urticarial sensitivity could be passively transferred by injecting the patients' serum into the skin of normal persons and irradiating the injection site with the active wavelengths. Antihistaminic drugs were found to be protective against the urticarial reaction, and by virtue of this protective action it was possible to subject these patients to gradually increasing ultraviolet exposures. Eventually the skin acquired enough tolerance to the active wavelengths and it was possible to discontinue the use of the antihistaminic substances.

Journal of Nervous and Mental Disease, New York**108:455-538 (Dec.) 1948**

- Study of Fasciculations. H. A. Teitelbaum and H. W. Bird.—p. 455.
Study of Relationship Between Constitutional Variations and Fundamental Psychotic Behavior Reactions. Phyllis Wittman, W. H. Sheldon and C. J. Katz.—p. 470.
*Self-Inflicted Prefrontal Lobotomy: Case Report. J. W. Papez and E. M. Smolen.—p. 477.
Group Psychotherapy in State Hospital. W. Gray.—p. 485.
Porencephaly in Institutional Epileptics. A. W. Pigott, T. S. P. Fitch and S. M. Weingrow.—p. 496.
*Acute Porphyria: Report of Case. E. E. Clark and H. E. Lawrence.—p. 502.
Diplopia Due to Divergence Insufficiency. J. M. McKinney, W. Mitchell and J. R. Lisa.—p. 507.

Self-Inflicted Prefrontal Lobotomy.—Papez and Smolen report the case of a man, aged 63, who attempted suicide by shooting himself in the right temple with a revolver. After nine weeks of hospitalization he was admitted to the Columbus State Hospital because of the residua of his injury. An attempt was made to deduce the reasons for the attempted suicide by an evaluation of the patient's personality difficulties and the cortical degenerative changes, both of which were related to the patient's chronic alcoholism. Neurologic findings were minimal, and could be related to the proximity of the path of the bullet to the middle frontal gyrus. The chief defects seemed to be in the higher mental functions; the ones usually ascribed to the prefrontal areas. The patient's postoperative course roughly resembled that seen in prefrontal lobotomies. The recovery was much slower, not so steadily progressive and not nearly so complete. This was not unexpected because of the much greater violence, the increased destruction of brain tissue and the more profuse hemorrhage. At the time of this report the patient was neat and clean, and was able to find his way around the ward. He was content to be by himself and made no effort to mingle with the other patients. He showed placidity, mild euphoria and some confusion and inappropriate outbursts of laughter or crying. The psychologic tests revealed loss of

abstracting and generalizing ability, disturbances of voluntary attention, easy distractibility and impaired memory, as well as disturbance of associative processes. He showed no concern for the future, and his ideation was extremely limited. He manifested the typical picture of impaired functioning of the prefrontal lobes.

Acute Porphyria.—Clark and Lawrence report a woman, aged 19, who was hospitalized with complaints of nausea, vomiting and mental changes of three weeks' duration. On the fourth hospital day she began experiencing cramplike pains in the abdomen and musculature of the upper arms and legs, became disoriented, confused and later comatose. At this time her urine was first observed to have a deep wine red color which became darker on standing or exposure to sunlight. The urine was found to contain an abnormally large amount of ether-soluble porphyrins (coproporphyrin). Porphobilinogen was also present. The clinical course following diagnosis consisted of remissions and exacerbations of her presenting symptoms during which a Landry type of ascending paralysis developed, advancing to a complete quadriplegia and bulbar involvement necessitating at one point the use of a Drinker respirator. She died on the seventy-second hospital day. The authors suggest that porphyria may occur more frequently than is realized. The patients may be subjected to needless abdominal surgery, to hospitalization in a psychiatric ward for a supposed functional psychosis, or to both. Any acute abdominal illness with little or no abdominal tenderness should make one suspect this disease. The addition of psychiatric symptoms, neurologic signs, or both, is almost diagnostic. Patients presenting this picture should be questioned about the color of the urine. The urine may be examined with Ehrlich's reagent, which produces a wine color in urine containing abnormal amounts of porphyrins. Among the conditions to be differentiated are the Guillain-Barré syndrome, tick paralysis, poliomyelitis, familial recurrent and familial periodic paralysis, serum paralysis, parotitic paralysis and periarteritis nodosa (Hoagland). Therapy is symptomatic and supportive.

Kansas Medical Society Journal, Topeka**49:501-548 (Dec.) 1948**

- Diagnosis and Treatment of Hypertension. A. C. Ernestene.—p. 501.
Bronchoscopy in Diseases of Chest. W. Barry.—p. 505.
Repeated Perforations of Peptic Ulcers. J. C. Mitchell.—p. 508.
Care of Injuries to Semi-Lunar Cartilages of Knee. T. P. Butcher.—p. 511.

Minnesota Medicine, St. Paul**31:1281-1398 (Dec.) 1948****SYMPOSIUM ON ANTIBIOTICS**

- Present Trends in Penicillin Therapy. S. Boyer Jr.—p. 1305.
Streptomycin in Tuberculosis. K. H. Pfuetze and Marjorie M. Pyle.—p. 1309.
Streptomycin and Newer Antibiotics in Treatment of Infections Other Than Tuberculosis. W. E. Herrell.—p. 1314.
First Line of Defense. L. E. Harris.—p. 1319.
Treatment of Open Wounds of Hand. M. L. Mason.—p. 1324.
*Chronic Schistosomiasis Japonica Diagnosed by Rectal Biopsy: Report of Case. L. Zieve and R. H. Conley.—p. 1331.
Protective Vaccination Against Tuberculosis, with Special Reference to BCG Vaccine. J. D. Aronson.—p. 1336.

Schistosomiasis Japonica Diagnosed by Rectal Biopsy.

—Zieve and Conley say that practically all of the cases of schistosomiasis in the armed forces during the last war were acquired in the Philippine island of Leyte. Approximately 1,500 patients were treated while in the service, and it is estimated that in an equal number, less severely infected, the disease went undiagnosed. The case reported illustrates the need for alertness to the possibility of schistosomiasis in a veteran who has been on Leyte. During repeated examinations scrapings of the anal crypts and rectal mucosa were examined for ova without success. A complement fixation test with schistosome antigen was negative, and a skin test with mixed schistosome antigen also was negative. Finally, four pieces of tissue were removed, one of which contained ova of *Schistosoma japonicum*. Therapy with antimony potassium tartrate was instituted, a total of 444 cc. of a 0.5 per cent solution of antimony and potassium tartrate (0.799 Gm. antimony) being given over a period of five weeks. The patient noted appreciable relief from his pain

in the right upper quadrant. Rectal biopsies were repeated, fragments being taken from each of the three valves of Houston. The fragment from the uppermost valve showed submucosal pseudotubercles with nests of encapsulated ova similar to those seen at pretreatment biopsy. The other two fragments were normal. The patient remained asymptomatic. His liver was no longer tender. The white blood cell count returned to normal levels. His whipworm infestation was successfully treated. He was discharged during the fifteenth week of his second admission, twenty-three weeks after he was first hospitalized. The classical description of schistosomiasis has been based on observations in native populations where multiple parasitic infestations, reinfection and nutritional deficiencies are common. It seems logical to expect that the course among well nourished American soldiers, who were usually exposed a relatively short time, should be different. The present patient, despite the prolonged course, recurrent clinical manifestations and lack of treatment, appeared well nourished and, with the exception of the periods when diarrhea recurred, was able to keep up his farm duties. The authors stress the diagnostic importance of rectal biopsy.

Missouri State Medical Assn. Journal, St. Louis

45:867-936 (Dec.) 1948

- Symposium on Pediatrics. G. Hoff and others.—p. 881.
Symposium on Pediatrics. W. J. Shaw and others.—p. 888.
Topical Hemostasis with Methyl Cellulose. M. M. Marks.—p. 894.
Posterior Dislocations at Elbow: Simple Method for Reduction. G. B. Starkloff.—p. 895.
Allergy: New Concept in Treatment. W. M. Ketsham.—p. 896.
Experiences with Cardioliipin Antigen. G. J. Dammin and V. C. Scott.—p. 900.
Useful Laboratory Procedure. C. F. Kent.—p. 902.

New England Journal of Medicine, Boston

239:945-984 (Dec. 16) 1948

- Delays and Errors in Diagnosis of Brain Tumor. F. C. Redlich, R. H. Dunsmore and E. B. Brody.—p. 945.
Effect of Subacute Bacterial Endocarditis on Course of Underlying Heart Disease. B. Rapoport and L. B. Ellis.—p. 951.
*Generalized Bullous Eruption Following Testing for Sulfonamide Hypersensitivity. D. A. Straus.—p. 956.
Fertility Studies in Human Male with Traumatic Injuries of Spinal Cord and Cauda Equina. H. W. Horne, D. P. Paul and D. Munro.—p. 959.
Thoracic Surgery (Concluded). J. G. Scannell.—p. 961.
Bilateral Retroperitoneal Fibrosarcoma, with Involvement of Both Adrenal Glands and with Metastases to Liver and Stomach. Chordoma of Lumbar Vertebrae.—p. 972.
Complete Atrophy of Acinar Tissue of Pancreas. Chronic Bronchitis. Emphysema. Severe Fat Infiltration of Liver. Biliary Cirrhosis of Liver.—p. 975.

239:985-1020 (Dec. 23) 1948

- Moral Problems in Practice of Medicine with Analogies Drawn from Profession of Ministry. W. L. Sperry.—p. 985.
Prognosis in Essential Hypertension: Eight-Year Follow-Up Study of 430 Patients on Conventional Medical Treatment. R. S. Palmer, Dorothea Looftbourow and C. R. Doering.—p. 990.
Recent Concepts Regarding Spread and Treatment of Poliomyelitis. R. B. Lawson.—p. 994.
Lipemia in Hemochromatosis: Report of Case. A. R. Lenzner and B. D. Bowen.—p. 998.
The Medical Examiner and the Practicing Physician. R. Ford.—p. 1001.
BAL. R. V. Randall and A. O. Seeler.—p. 1004.
Hemochromatosis, Liver, Pancreas, Skin and Lymph Nodes. Hepatoma, with Extension into Hepatic and Portal Veins.—p. 1009.
Homologous Serum Hepatitis.—p. 1013.

Generalized Bullous Eruption Following Testing for Sulfonamide Hypersensitivity.—According to Straus, the bullous eruptions that may result from sulfonamide toxicity are often clinically indistinguishable from idiopathic erythema multiforme exudativum. The author reports a case which demonstrates the importance of establishing or excluding the sulfonamide compounds as etiologic agents when the possibility of their future therapeutic use is considered. Although the patient gave no past history of exposure to a sulfonamide drug, the onset of fever followed by the eruption and conjunctivitis which occurred on the second day (rather than after seven or ten days) of sulfonamide therapy in December 1947 suggested previous sensitization to the drug. In retrospect, it might be conjectured that the "erythema multiforme" reported from 1945 followed the use of the drug at that time. The history of this patient also illustrates the unreliability of the patch test, an untoward and at first unrecognized reaction to the intradermal

passive transfer test and a severe reaction following an oral test dose of sulfonamide compound. It is believed, therefore, that testing for sulfonamide sensitivity should be approached with care, as should the treatment of erythema multiforme exudativum with sulfonamide compound, unless it is certain that this drug is not the etiologic agent.

New Orleans Medical and Surgical Journal

101:249-316 (Dec.) 1948

- Clinical Features of Summer Disease (Three-Day Fever) Apparently of Virus Etiology. C. H. Webb, S. G. Wolfe and Verre Simpson.—p. 249.
*Kerosene Poisoning. N. A. Bologna and N. C. Woody.—p. 256.
Somatic Substitutive Reactions in Adolescents. H. E. Harms.—p. 260.
Consideration of Management of Child with Rheumatic Fever. A. E. Hansen.—p. 264.
Electroencephalography in Childhood. J. G. Hughes.—p. 268.
Postgraduate Education in Pediatrics for General Practitioners. S. S. Chipman.—p. 277.
Advantages of Early Recognition and Treatment of Allergic Disorders in Infancy and Childhood. W. A. McGee.—p. 280.
Corrosive Esophagitis in Children. R. V. Platou and G. J. Austin.—p. 284.
Care of Toxic Newborn. J. D. Russ.—p. 292.

Kerosene Poisoning.—Bologna and Woody say that at the Charity Hospital in New Orleans for the ten year period 1937 to 1947 there were 252 records of kerosene ingestion by children. Ages ranged from 5 to 72 months, and 97 per cent of the patients were between the ages of 6 and 36 months. These figures illustrate the fact that this, like most accidental poisonings, is most frequent in the toddler or runabout age. There were 9 deaths among these 252 patients, a fatality rate of 3.6 per cent. Effects on the pulmonary and nervous systems dominate the picture and evidences of gastrointestinal disturbances are relatively inconspicuous. Everything points to pulmonary irritation and edema as the principal cause of death. Rational therapy of kerosene poisoning should have as its chief objective the prevention or amelioration of pulmonary edema. Though the mechanism of the production of pulmonary edema is poorly understood, absorbed kerosene may play some role; the authors have seen pulmonary edema improve after removal of kerosene from the stomach and they have seen children who experienced severe respiratory distress only after they had fought, gagged, struggled and undoubtedly aspirated during ill timed attempts at lavage. Whenever it is possible to do so without increasing dangers of aspiration the stomach should be lavaged. The only other therapy which holds promise is the administration of oxygen, since death in pulmonary edema is due, literally, to drowning. Use of antibiotic and chemotherapeutic agents may be indicated to prevent or treat pneumonia or other respiratory infections. Hyperventilation and postural drainage may be instituted for atelectasis and as prophylaxis against later bronchiectasis. Such measures are begun only after the twelve hour damage has passed.

North Carolina Medical Journal, Winston-Salem

9:599-662 (Dec.) 1948

SYMPOSIUM ON HEADACHE

- Mechanisms of Production and Points of Referral. H. D. Green.—p. 599.
Clinical Considerations in Headache. J. B. Stevens.—p. 602.
Characteristics of Headache in Anxiety and Hysterical Reactions. L. J. Thompson.—p. 606.
Surgical Management of Present-Day Empyema. P. W. Sanger.—p. 609.
Accidental Poisoning in Children. J. M. Arena.—p. 615.
*Visualization and Photography of Uterine Canal. W. B. Norment.—p. 619.
Insulin Hypoglycemia in Diabetes Mellitus. C. W. Styron.—p. 624.
Experiences of Greensboro Tumor Clinic. F. K. Harder.—p. 628.
Pentothal Sodium, Nitrous Oxide-Oxygen, Curare Anesthesia. J. C. Montgomery.—p. 631.

Visualization and Photography of Uterine Canal.—Norment points out that submucosal myomas and polyps are sometimes difficult to diagnose by palpation or curettage, but when an opaque dye is instilled into the uterine canal, they are usually easily seen on a roentgenogram. He discusses the filling defects produced by polyps, myomas and cancers. A hysteroogram can be made in the office and, unless there is severe constriction of the cervical canal, it causes little discomfort. It is preferable that the dye be injected into the uterine canal when the patient is not bleeding. If the patient is bleeding

continuously, the author attaches a light rubber tissue bag to a catheter and instills the dye through the bag. This method, however, requires dilation of the cervix with the patient under anesthesia. In cases with filling defects in the hystrogram, the author uses a new lens hysteroscope for direct visualization of the interior of the uterine canal. By this combination of roentgen examination and direct inspection, diagnosis of pathologic lesions in the uterine canal is made much more accurate. The author describes the construction and operation of the instrument that he has devised for hysteroscopic examination. A reproduction of a photograph made by the camera that can be attached to the optical system of the hysteroscope shows the interior of the uterus. Through the hysteroscope a carcinoma is seen as a whitish gray growth against a red background. In a few cases of carcinoma of the fundus that the author observed through the hysteroscope there was no doubt about the presence of a malignant growth. In doubtful cases a curettage is the only safe way to determine the presence or absence of a carcinoma.

Philippine Medical Association Journal, Manila

24:589-632 (Oct.) 1948

- Management of Hypertension. A. Liboro.—p. 589.
Extraction of Immature Cataract. G. De Ocampo.—p. 593.
Early Diagnosis of Cancer. J. Z. Sta. Cruz.—p. 599.
Early Diagnosis of Cancer. P. S. Chilianco.—p. 605.
Treatment of Pulmonary Tuberculosis. F. Nepomuceno.—p. 611.

24:633-682 (Nov.) 1948

- *Preliminary Report on Cam-AQ: Dihydrochloride (Miaquin, Camoquin) in Treatment of Human Malaria. A. Ejercito and M. Duque.—p. 633.
Comparative Studies on Tuberculin Testing. F. N. Quintos and C. Santiago.—p. 643.
Nutrition in Public Health Work. S. G. Jao.—p. 647.

Camoquin® in Malaria.—Ejercito and Duque report on the use of a new synthetic drug originally known as CAM-AQ. It has the chemical name 4-(7-chloro-4-quinolylamino)-alpha-diethylamino-ortho-cresol—it is known also as camoquin® and is dispensed in 0.05 Gm. tablets of a light yellow color. The authors have used this drug in 128 patients with malaria at the San Lazaro Hospital, Manila. Eighty-four patients had vivax malaria and 44 the falciparum type. In the vivax malaria, fever and peripheral blood parasites usually disappeared after the third or fourth day. In afebrile patients the parasites disappeared on the second day. In patients with the falciparum type of malaria fever disappeared on the third to the fifth day, the asexual parasites between the second and fourth days and the sexual parasites between the ninth and the nineteenth day. The drug seems to have slight or no effect on the crescent forms, but it has a decided effect on the vivax gametocytes and on the asexual forms of both vivax and falciparum malaria. Ten of the patients had a relapse; these belonged chiefly to the group with the vivax form. The drug caused no undesirable secondary effects.

Public Health Reports, Washington, D. C.

63:1635-1666 (Dec. 17) 1948

- Evaluation of County-Wide DDT Dusting Operations in Murine Typhus Control. E. L. Hill and H. B. Morlan.—p. 1635.
Attempt to Produce an Arsenic-Resistant Strain of *Spirochaeta pallida* in Experimental Syphilis. T. F. Proby.—p. 1654.

63:1667-1698 (Dec. 24) 1948

- Some Qualitative and Quantitative Factors in Nurse Education. Ellwynne M. Vreeland.—p. 1667.
Occurrence of Cercarial Dermatitis in Green Lake, Seattle, Washington. F. F. Ferguson.—p. 1692.

63:1699-1726 (Dec. 31) 1948

- Trends of Diarrheal Disease Mortality in United States 1941 to 1946, Inclusive. F. M. Hemphill.—p. 1699.

- *Q Fever Studies in Southern California: VIII. Recovery of *Coxiella burnetii* from Butter Made from Naturally Infected and Unpasteurized Milk. W. L. Jellison, R. J. Huebner, M. D. Beck and others.—p. 1712.

Q Fever and Milk.—Jellison and his associates point out that the recovery of Q fever organisms from the raw milk of four dairies in Los Angeles County was reported previously. The strains isolated were identified by all accepted criteria as *Coxiella burnetii*. Subsequently, samples of raw milk from other

dairies and from many cows in the same area were found to be infectious. The possibility was considered that Q fever organisms might persist in milk products that are not subjected to pasteurization or cooking. Test animals given injections of fresh milk, freshly churned butter and buttermilk all survived and were bled in thirty days. The serums were tested for Q fever antibodies and all were positive at high titer. Of the two test animals given injections of butter after it had been stored forty-one days at below freezing temperature, one died on the ninth day of test from undetermined cause. The other was bled on the thirty-second day and the serum sample was positive at high titer. Of the 8 animals given injections of butter at the Rocky Mountain Laboratory, 3 died before the end of the test period; 1 was killed for transfer, and a strain of Q fever was established. The 4 remaining animals were bled on the twenty-ninth day after injection, and all serums were positive at high titer.

Rhode Island Medical Journal, Providence

31:649-704 (Nov.) 1948

- Etiology and Treatment of Chronic Ulcerative Colitis (Non-Specific). A. Bassler.—p. 663.
Bilateral Non-Simultaneous Femoral Arterial Embolic Occlusion. J. P. Eddy III.—p. 669.

South Carolina Medical Assn. Journal, Florence

44:349-376 (Nov.) 1948

- Vaginal Spread: Its Usefulness as Diagnostic Aid in 1000 Cases. R. E. Seibels.—p. 349.
Outline of Essential Treatment of Bulbar Poliomyelitis. J. L. Wilson.—p. 354.
Drug Laws. T. D. Wyatt.—p. 358.

44:377-422 (Dec.) 1948

- On Friendliness. R. Fitz.—p. 377.

SYMPOSIUM ON MANAGEMENT OF CHRONIC DISEASES OF MIDDLE LIFE

- Some Aspects of Surgery of Hypertension. W. H. Bridgers.—p. 381.
Chronic Pulmonary Disease. R. B. Smith.—p. 382.
Surgical Treatment of Chronic Pulmonary Diseases. D. Wilson.—p. 384.
Menopausal and Mid-Life Depressions: Psychiatric Management. W. P. Beckman.—p. 385.
Treatment of Menopause. J. M. Fleming.—p. 385.
Some Aspects of Chronic Orthopedic Disease. J. A. Seigling.—p. 387.
Rehabilitation. G. S. T. Peeples.—p. 389.

South Dakota Journal of Medicine, Sioux Falls

1:418-441 (Nov.) 1948

- Diagnosis and Treatment of Lymphoma and Leukemia. E. D. Bayrd.—p. 418.
Comparative Tolerance of Lugol's Solution and Organidin in Man. D. Slaughter.—p. 425.

1:442-465 (Dec.) 1948

- Therapeutic Anesthesiology. R. M. Mayer.—p. 442.
Thoracic Tumors. T. J. Kinsella.—p. 445.
Nursing Problem in South Dakota. R. G. Mayer.—p. 451.

Southwestern Medicine, El Paso, Texas

28:69-84 (Dec.) 1948

- Current Trends in Surgical Treatment of Lesions of Stomach and Duodenum. R. M. Zollinger and S. O. Hoerr.—p. 73.

29:1-20 (Jan.) 1949

- Late Effect of Fractures about Joints of Lower Extremity. R. K. Ghormley.—p. 7.
Surgical Treatment of Hypertension. L. Villareal.—p. 13.

Texas State Journal of Medicine, Fort Worth

44:561-634 (Dec.) 1948

- Tuberculosis and General Practitioner. R. B. Homan Jr.—p. 568.
Early Tuberculous Pulmonary Lesion and Its Management. D. E. Jenkins.—p. 571.
Indications for Pulmonary Resection. G. V. Brindley Jr.—p. 577.
Survey of Methods for Detection and Measurement of Ionizing Radiation. L. M. Garrett.—p. 580.
Plain Roentgenogram of Skull. R. H. Millwee.—p. 584.
New Developments in Irradiation Therapy of Cancer of Uterine Cervix. C. L. Martin.—p. 587.
Prognostic Significance of Vaginal Smear After Irradiation of Uterine Carcinoma. M. H. Grossman, W. P. Lochte and W. W. Coulter Sr.—p. 594.
Abuses and Uses of Des Stilbestrol in Obstetrics and Gynecology, with Further Report on Toxicity. K. J. Karnaky.—p. 596.
Medicine Men and Doctors. L. S. Goin.—p. 600.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted. Single case reports and trials of new drugs are usually omitted.

Australian J. of Exper. Biol. and M. Science, Adelaide
26:465-565 (Nov.) 1948. Partial Index

- *Experimental Salmonella Infections in Australian Cockroaches. I. M. Mackerras and P. Pope.—p. 465.
Reaction of Perfusion Fluids in Long Lasting Experiments. F. Lippay, G. G. Mitchell and B. J. Potter.—p. 471.
Sodium, Potassium Balance in Cells. C. J. Stratmann and R. D. Wright.—p. 493.
Cardiac Aneurysms: Mechanical Analysis of Their Formation. T. E. Lowe and E. R. Love.—p. 497.
Observations on Life-Cycle of Plasmodium Malariae. M. J. Mackerras and Q. N. Ereole.—p. 515.
Fibrinolysis Following Electrically Induced Convulsions. P. Fantl and Shirley E. Simon.—p. 521.
Metabolism of Erythrocytes. P. M. Nossal.—p. 531.

Experimental Salmonella Infections in Cockroaches.—Mackerras and Pope infected four species of cockroaches with five species of Salmonella, about 75 per cent of insects tested becoming infected and 15 per cent retaining their infections for more than a fortnight. Viable Salmonella organisms were excreted in the feces up to forty days from infection. The purpose of the work was to determine whether cockroaches would act as vectors or even as temporary reservoirs of Salmonella infections. The authors believe that that purpose has been fulfilled.

British Journal of Radiology, London
21:583-642 (Dec.) 1948

SYMPOSIUM ON CARCINOMA OF BREAST

- Results from Statistical Research. J. Clemmesen.—p. 583.
*"Precancerous Conditions" of Breast. E. K. Dawson.—p. 590.
Prognosis in Carcinoma of Breast. R. W. Scarff.—p. 594.
Discussion on Carcinoma of Breast. S. Cade.—p. 596.
Value of Simple Mastectomy and Radiotherapy in Treatment of Cancer of Breast. R. McWhirter.—p. 599.
Surgical Aspect of Carcinoma of Breast. R. C. B. Ledlie.—p. 610.
Sail-Like Triangular Projection from Mediastinum: Radiographic Appearance of Thymus Gland. F. H. Kemp, Helen M. C. Morley and Elinor Emrys-Roberts.—p. 618.
Radiologic Diagnosis of Chronic Amebic Colitis. E. Samuel.—p. 625.
Mobile Geiger-Müller Tube Counting System and Some of Its Medical Applications. R. C. Turner and W. K. Sinclair.—p. 632.

"Precancerous Conditions" of Breast.—Dawson defines cancer as the terminal stage of a long proliferative process which eventually produces a malignant tissue. Precancer, in the strict sense of a cause-effect relationship, implies the stages before actual malignancy emerges; i. e., a condition or conditions which will go on to cancer, even when the carcinogenic agent is withdrawn. There is no lesion in the breast, or in any tissue of which one can say, "this will inevitably become carcinoma." In cancer, one is dealing not with one but with several unknowns—the carcinogenic agent itself, the mechanism by which it produces malignant cells, the stages through which the cells pass in this transformation and the time factor; there is also, possibly, an ill defined, genetic organ or tissue susceptibility. Thus the term "precancer" can be used only in the sense of antecedent lesions which may later emerge as cancer. Adenosis as such does not lead to carcinoma; neither does the blue dome cyst; the majority of fatty cysts also eventually become quiescent, but with the fatty cyst, and in ducts with fatty contents or fatty degeneration of proliferated epithelium but little dilatation, there is always the possibility of the formation of a progressive epitheliosis which may become definitely malignant. One or two implications, rather than conclusions, seem justified: 1. The pathologist should not be expected to give a dogmatic report on a small piece of tissue excised from a suspected mammary lesion. With local excision of the clinically obvious abnormal area, there is no guarantee of what is happening or may happen in the rest of the breast. Relevant data in the patient's reproductive history are helpful in the interpretation of many hyperplastic appearances, at any age. 2. Examination of suspected lesions of "chronic mastitis" type, as the breast is approaching the cancer age, shows a tissue instability suggestive of a to and fro struggle between a degeneration which gradually destroys much of the glandular structure, often with residual cyst formation but with later permanent quiescence, and a proliferation which becomes progressively

atypical and eventually cancerous. The author believes that the concept of a sudden development of carcinoma of the breast can be rejected.

British Medical Journal, London
2:1091-1130 (Dec. 25) 1948

- Nervous and Humoral Control of Gastric Secretion. G. Kahlson.—p. 1091.
Results of Partial Gastrectomy for Peptic Ulcer. T. W. Mimpriss and St. J. M. C. Birt.—p. 1095.
*Streptomycin-Sulfadiazine Treatment of Undulant Fever. E. F. Scowen and L. P. Garrod.—p. 1099.
Treatment of Anuria. D. A. K. Black and S. W. Stanbury.—p. 1101.
Splenic Aneurysm and Splenic Enlargement in Pregnancy. H. L. Sheehan and N. M. Falkner.—p. 1105.
Calcified Cyst of Spleen. J. H. Donovan.—p. 1106.

Streptomycin-Sulfadiazine in Undulant Fever.—Scowen and Garrod point out that when two chemotherapeutic agents of partial efficacy are available it is likely that they will have an additive if not a synergistic effect when administered together. A trial of the combined effect of streptomycin and sulfadiazine was therefore indicated in cases of undulant fever. Eisele and McCullough reported 1 case of the disease so treated, and Scowen and Garrod present 2 additional cases in this report. One of these was of several months' duration and the other was recent. Both patients responded to combined treatment with streptomycin and sulfadiazine, the former with a fall in temperature to normal within three days, the second somewhat more gradually, the temperature reaching normal only at the end of the course. They have now been afebrile for six and two months, respectively. These observations confirm American reports of the efficacy of this treatment.

Lancet, London

2:955-996 (Dec. 18) 1948

- Metabolism in Experimental Diabetes Mellitus. F. G. Young.—p. 955.
*Early Ambulation in Obstetrics and Gynecologic Cases. R. de Soldenhoff.—p. 961.
Some Aspects of Action of Histamine Antagonists. W. A. Bain, F. F. Hellier and R. P. Warin.—p. 964.
Dimethylsulphanilamido-Isoxazole (NU-445) in Urinary Infections. J. D. Fergusson, D. G. Reinold and F. Wrigley.—p. 969.
Determination of Hemoglobin: VI. Test of the M.R.C. Grey-Wedge Photometer. E. J. King, I. D. P. Wootton, R. Donaldson and others.—p. 971.
Diagnostic Fluoroscopy at Chest Clinic. W. H. Tattersall.—p. 974.

Early Ambulation in Obstetric and Gynecologic Cases.—According to de Soldenhoff there is considerable variation in what is meant by early ambulation. In the United States it means getting out of bed in the first twenty-four hours after operation or delivery. In some parts of Europe the patient walks back from the theater or delivery room. To the author early ambulation means to be out of bed on the third postnatal or postoperative day, though occasionally he has followed Leithauser's technic of making the patient stand by the bedside and cough three or four times within eight hours of operation, particularly where pulmonary complications may be expected. The results of a year's trial of such early ambulation are here compared with those of a previous year in a survey of 2,735 admissions, with 1,878 deliveries. The author found that in cases of cesarean section, myomectomy and other operations that the psychologic response to early rising is most pronounced, particularly in cases of repeat cesarean section in women who previously had been fourteen days in bed. The patients appear to be impressed by their rapid return to normality. Early rising is particularly valuable after an abdominal operation, because the loss of muscular tone is more rapid and the interference with respiration more complete than in any other type of case, and recumbency reduces the vital capacity. The author is convinced that early ambulation does no immediate harm either to obstetric or to gynecologic patients, and it certainly allows a much bigger turnover of patients in hospital. It is hard on the staff, but a physical therapist saves the nurses much work by encouraging patients in their exercises.

Proceedings of Royal Society of Medicine, London
41:813-888 (Dec.) 1948. Partial Index

- Hirschsprung's Disease. F. D. Stephens.—p. 831.
Tomography in Surgical Tuberculosis. V. Snell.—p. 853.
Late Results of Tuberculosis of Spine in Children, with Special Reference to Spinal Grafting. D. M. Dunn.—p. 858.

Acta Dermato-Venereologica, Stockholm

28:523-634 (No. 6) 1948. Partial Index

- Research on Some Fundamental Aspects of Contact Eczema. C. H. Beek.—p. 523.
Effect of Tertian Fever upon Epidermal Allergy. E. Hollström.—p. 553.
Effect of Penicillin on Late Congenital Syphilis, with Special Reference to Wassermann Reaction. E. Hollström and S. Iiard.—p. 560.
*Contribution to Problem of Etiology and Pathogenesis of Psoriasis. R. Norrlind.—p. 571.
Comparative Investigation of Gonorrhea Treated with Penicillin with Single Doses and Multiple Doses. T. Romanus.—p. 597.
*Derris Root as Cause of Occupational Disease in Tropics: Studies on Action of Derris on Gold-Fish. R. D. G. Ph. Simons.—p. 601.

Causation of Psoriasis.—Norrlind published in 1947 investigations on the existence of positive agglutination reactions with streptococci in patients with psoriasis. He has continued these studies and has found that, compared with controls, patients with psoriasis show a much higher incidence of positive agglutination with streptococci. He assumes that these agglutination reactions are brought about by past or present streptococcal infections outside of the skin, usually in the respiratory tract. Factors which favor this theory are: Patients with psoriasis rarely have other skin infections simultaneously; positive streptococcal agglutination reactions are twice as frequent among patients with psoriasis as among those with other skin diseases including pyoderma, and respiratory infections occasionally precede the appearance of psoriasis. There are factors which suggest that psoriasis, "psoriasis arthropathica" and chronic, rheumatic polyarthritis are related, possibly in that the infections giving rise to the rheumatic polyarthritis also give rise to psoriasis in persons with a predisposition to this disease. The author calls attention to the fact that patients with arthritis also have a high incidence of positive streptococcal agglutination reactions and that disorders of the joints in patients with psoriasis resemble those in chronic rheumatic polyarthritis. A number of factors may play a part in the onset of psoriasis. One case is cited in which a throat infection, sun bathing, medication with arsenic and pressure from a waist band seemed possible causal factors.

Derris Root as Cause of Occupational Disease.—Simons gives an account of clinical pictures observed in employees of derris mills. In subjects exposed to derris for a considerable period catarrhs and dermatitis usually develop: conjunctivitis (scleritis), rhinitis, pharyngitis, laryngitis, balanitis and posthitis. Eczema may develop on the lips, nostrils and eyelids; also on the scrotum, penis and groin. Other symptoms are loss of taste and appetite, sensation of tongue swelling, headache, nausea and numbness, vomiting, abdominal pain, coma and death. The value of medicinal preparations containing derris is doubtful.

Archiv f. Experiment. Path. & Pharmacol., Heidelberg

205:647-758 (Oct. 7) 1948. Partial Index

- Investigations on Effects of Prolonged Action of Air Mixtures with High Oxygen Content in the Presence of Low Total Pressure. H. A. Kühn and J. Pichotka.—p. 659.
Morphogenesis of Pulmonary Changes in Oxygen Intoxication. H. A. Kühn and J. Pichotka.—p. 667.
Behavior of Electrolytes in Blood and Tissues Under Increased Carbon Dioxide Tensions of Respiratory Air. G. Malorny.—p. 684.
*General Condition and Changes in Blood Under Influence of Thiouracil and 4-Methyl Thiouracil. Lena Fischer, R. Kopf and A. Loeser.—p. 730.

General Condition and Blood Changes Under Influence of Thiouracil and 4-Methyl Thiouracil.—Fischer and her associates studied the general condition and the blood picture of female rats which were treated with thiouracil or with 4-methyl thiouracil. They found that when these drugs were given to young growing rats in daily oral doses of 0.1 or 0.5 Gm. per kilogram of body weight their increase in body weight during twenty-two days of medication was decidedly less than in untreated controls. The resistance to intercurrent disorders was lessened by both antithyroid substances in proportion to the dosage given. The blood picture showed a decrease in the number of leukocytes and immature myeloid cell forms. Nuclear shifting appeared late in the course of treatment or even after treatment had ceased, but it may persist after treatment. It was observed only after the administration of the larger doses, whereas leukopenias were observed even after the 0.1 Gm. doses.

As regards the changes in the blood, there was little difference whether thiouracil or 4-methyl thiouracil was given, but the other secondary effects were more frequent and severe after treatment with 0.5 Gm. doses of 4-methyl thiouracil than after the same dose of thiouracil.

Archiv für Kinderheilkunde, Stuttgart

135:193-252 (No. 4) 1948

- *Specific and Unspecific Rheumatism in Childhood. S. Künstler.—p. 193.
Elastometry in Children with Changing Dilatation of Skin. J. Jochims.—p. 228.
Damage Caused by Mitigal in 2 Infants; Remarks on Effect of Sulfur. W. Ziegler.—p. 237.

Rheumatism in Childhood.—Künstler distinguishes two main types of rheumatism in children, i. e., the specific infectious rheumatism or "rheumatismus verus" and the unspecific rheumatism with cocci as causative agents. Of 137 children with rheumatism who had been treated at the pediatric clinic in Cologne during the period from 1934 to 1941, 127 had specific infectious rheumatism and 10 had unspecific rheumatism. Treatment of the 127 patients consisted of large doses of aminopyrine for six to eight weeks. Children under 8 years of age were given 0.3 Gm. five times daily, and older children received the same dose six times daily. The average total dose of the drug varied from 55 to 70 Gm. This therapy was combined with strict rest in bed and with application of cotton wool packs in the presence of pronounced swelling. Aminopyrine was tolerated well by all the patients. There was not a single case of agranulocytosis after aminopyrine. Fifty of 64 patients with rheumatic arthritis made a complete recovery; there were 13 among the 64 patients who had had recurrences before the treatment and 11 of them recovered. Twenty-one of 41 patients with rheumatic arthritis and carditis recovered, 6 of 16 with recurrences. Four patients of 12 with rheumatic arthritis associated with pancarditis or pericarditis, 2 of 3 with endocarditis and 3 of 7 with pancarditis recovered. Follow-up of 80 patients revealed that permanent cure, prevention of recurrences and a favorable effect on the carditis resulted from this specific treatment provided that it was instituted before the dissemination of the causative agent of the specific infectious rheumatism and before irreversible damage had been caused. Treatment of the 10 patients with unspecific rheumatism caused by cocci consisted of elimination of the focus by tonsillectomy or by dental treatment. Six of the patients recovered.

Geburtshilfe und Frauenheilkunde, Stuttgart

8:731-788 (Nov.) 1948. Partial Index

- Röntgenologic Aspects of Malformations of Uterus with Respect to Its Function. E. Philipp.—p. 731.
Experiences with Twilight Sleep. R. Stewens.—p. 746.
*Simple Method for Detection of Erythroblastosis in the Newborn. P. Dahr.—p. 752.
Fetal Erythroblastosis without Rh Agglutination. H. Hartenauer.—p. 756.
Question of Dependence of Prothrombin Content of Blood on Menstrual Cycle. H. Bayerle and R. Marx.—p. 767.

Simple Method for Detection of Erythroblastosis in the Newborn.—Dahr places on a slide one drop each of AB serum and of isotonic sodium chloride solution. The two drops should not be applied by means of the same pipet. A trace of blood from the umbilical cord of the newborn infant is brought into the drop of AB serum and also into the isotonic sodium chloride solution. If the umbilical blood is introduced by means of a slide, different corners of the slide should be used for introduction into the two drops. The drops are stirred and spread out until a uniform mixture has been obtained. After about two minutes the slide is rocked back and forth, and this is repeated from time to time. The reaction can be read at the end of twenty minutes. If the blood of the newborn infant contains univalent Rh antibodies, they become activated by the x-protein contained in the AB serum, and as a result a fine granular agglutination is visible, but in the sodium chloride mixture no agglutination is evident. The reaction can be read with the naked eye or with a reading glass; microscopic examination is unnecessary. If no agglutination is visible in the AB serum, either the infant does not have erythroblastosis or, if he does have it, univalent Rh antibodies are lacking. Thus

the method is reliable only if it is positive. It has the advantage that it is simple and rapid. If it is positive, transfusion into the vein of the umbilical cord can be begun at once without waiting for tests on the blood of the parents.

Presse Médicale, Paris

56:865-880 (Dec. 11) 1948. Partial Index

- *Allergic Dermatitis Caused by Streptomycin in Nursing Personnel. A. Touraine and R. Pichon.—p. 865.
Splenectomy for Renal Infarct in Course of Osler's Disease. D. Giraud, A. Camelin, H. Garnung and A. Tarel.—p. 866.
Differential Diagnosis of Excito-Motor Convulsions by Means of Anesthesia Induced by Intravenous Administration of Barbiturate. R. Targowla and A. Feder.—p. 868.

Allergic Dermatitis from Streptomycin in Nurses.—Touraine and Pichon point out that after reports appeared in different countries indicating that in some nurses who handle streptomycin mucocutaneous lesions develop, the public health authorities in France issued a circular drawing attention to this fact and suggested that these disorders might be prevented by having the nurses wear rubber gloves and protective glasses and by excluding from the handling of streptomycin those nurses who are sensitive to it. The sensitivity usually becomes evident after several months of contact with streptomycin. It manifests itself in the form of general malaise, blepheroconjunctivitis and dermatitis on the uncovered parts of the body. These mucocutaneous lesions are generally mild and disappear when contact ceases, but recur when contact is resumed. Since they are due to progressive allergic sensitization, nursing personnel susceptible to them can be detected by cutaneous tests.

Revista de la Asociación Méd. Argentina, Buenos Aires

62:617-722 (Nov. 15-30) 1948. Partial Index

- *Epidemic Anemic-Hematuric Syndrome. J. Brage Villar.—p. 649.
*Clinical Diagnosis of Cancer of Lung. G. H. Alvarez.—p. 690.

Epidemic Syndrome of Anemia and Hematuria.—According to Brage Villar, this syndrome was observed sporadically in certain regions of the Province of Entre Rios. Since 1947 it has been epidemic and in apparent relation with the aggravation and subsidence of a regional disease in cows. The disease is more frequent in children than in infants and adolescents and it is rare in adults. The syndrome occurs either in winter or in summer with prodromal symptoms, subacute hypochromic anemia, asthenia, tachycardia, fever and vesiculocrythematosus dermatitis of the body common to both forms. The predominant symptom in both forms is subacute anemia. Mixed forms can be observed. The predominant early symptoms in winter are anemia and renal disorders. Edema, dyspnea, oliguria, hematuria, albuminuria and cylindruria appear in the course of the disease. The predominant symptoms, in summer, are lack of appetite, nervousness, vomiting, fetid diarrhea, gastralgia, jaundice and dehydration. The prognosis is favorable. Early and continuous rehydration of the patient is of importance. The treatment consists in administration of nonmercurial diuretics in patients with renal disorders and antidiarrheal drugs, vitamins, nicotinic acid, liver extract and iron in the enteropathic forms. Sedatives in the presence of nervousness, the treatment of the cutaneous lesions and proper diet are of importance. The convalescence is of long duration, but as a rule it is without complications. The author concludes that the disease seems to be caused by a benign lesion of the reticuloendothelial system. Antibiotics are of no value.

Cancer of Lung.—According to Alvarez, an early diagnosis of cancer of the lung can be made for the purpose of resection of the tumor. He carried out successful resection in 47 patients with an early diagnosis. The earliest syndrome of the disease is the bronchial syndrome, either catarrhal or hemoptoic and a rheumatoid syndrome of the type of Bamberger-Marie. The bronchial syndrome appeared in 24 out of the total number of 47 patients, whereas the rheumatoid syndrome appeared in 12. The rheumatoid syndrome appeared earlier than the bronchial and when associated with a roentgen tumor shadow in the lung was diagnostic in 90 per cent of the cases. The author advises in patients with any of the mentioned syndromes to verify the diagnosis by: (1) roentgen examination of the chest in the frontal and lateral views and (2) by biopsy obtained by bron-

choscopy. Before the operation the differential diagnosis between cancer and chronic suppuration of the lung is made by the administration of antibiotics. Cancer of the lung and infiltrative types of pulmonary tuberculosis are differentiated by inoculation of guinea pigs with material obtained by bronchial aspiration. In pulmonary hydatidosis and pulmonary mycosis the operation is indicated. The diagnosis is made during the operation. Cancer of the lung is curable by early surgical intervention. The operation is contraindicated: (1) in certain types of hyperacute early course, (2) in presence of local or remote metastases, (3) in heart disease with decompensation and (4) in cachexia in extremely old patients. Infected cancer can be rendered operable by administration of antibiotics.

Schweizerische medizinische Wochenschrift, Basel

78:1213-1236 (Dec. 18) 1948

- Pharmacology of Para-Aminosalicylic Acid; Demonstration, Distribution in the Organism and Renal Elimination. L. Ragaz.—p. 1213.
*Chemotherapy of Tuberculosis with Para-Aminosalicylic Acid. H. Steinlin and E. Wilhelmi.—p. 1219.
Pathogenesis of Red (Essential) Arterial Hypertension and of Malignant Sclerosis. F. Volhard.—p. 1224.
*Can Adhesions Result from Intraperitoneal Administration of Penicillin During Surgical Intervention? U. von Rütte.—p. 1229.
Effect of Inhalation Narcosis on Inactivation of Thrombin. L. A. Pálos.—p. 1230.

Para-Aminosalicylic Acid in Tuberculosis.—Steinlin and Wilhelmi treated 103 tuberculous patients with para-aminosalicylic acid. Fifty of these patients were given the sodium salt of para-aminosalicylic acid by mouth, 10 dragées (3 Gm. free acid) four times daily, with a total daily dose of 12 Gm. free acid. Twenty-four of the 50 patients were treated with para-aminosalicylic acid exclusively and 26 were given in addition 0.5 Gm. of streptomycin twice a day, with a total dose of 100 Gm. of streptomycin. Fifty-three patients, 47 of them with pleural empyema and exudate, were treated locally with a 10 per cent solution of para-aminosalicylic acid in isotonic solution of sodium chloride or distilled water. Sixteen of these 53 patients were given dragées simultaneously. In a large percentage of the patients temperature, blood sedimentation rate, cough, expectoration and presence of bacilli in the sputum were influenced favorably. Still more regular and more intensive was the effect of the drug on the general condition, appetite, body weight and hemoglobin content of blood. Thus collapse treatment and other necessary surgical interventions could be carried out which were not feasible before. Treatment with para-aminosalicylic acid was continued for four to six months. The exudate subsided and small cavities disappeared. In several patients with severe pulmonary tuberculosis whose reactions had been positive for a long time, the sputum became negative and a no longer expected phase of recovery was induced by para-aminosalicylic acid alone. The effect of the drug seems to be more beneficial when combined with streptomycin. The tolerance of the para-aminosalicylic acid was in general satisfactory; toxic phenomena did not occur. The local treatment with para-aminosalicylic acid was highly effective in tuberculous exudates and empyemas. The local treatment of cavities and fistulas offers a favorable prognosis provided that an appropriate technic is employed.

Intraperitoneal Penicillin and Adhesions.—Von Rütte injected 30,000 units of penicillin into the peritoneal cavity and 20,000 units of penicillin into the abdominal wall of a woman aged 40 in whom the uterine cavity was opened during the removal of a submucosal myoma. Extensive adhesions between intestine and omentum, and between uterus and intestine, were observed two weeks later when a total hysterectomy was performed because of sarcomatous degeneration of the removed myomatous node. Laboratory experiments on guinea pigs revealed that injections of purified crystalline penicillin produce anaphylactic signs of irritation in the animals. Adhesions were not produced by intraperitoneal administration of high doses of penicillin (50,000 units) in guinea pigs, mice and rats. It is suggested that the case of the woman reported may be one of a rare hypersensitivity of the sarcomatous, injured tissue to penicillin, resulting in adhesions and delayed wound healing. Similar cases have not been observed. Additional evidence is required to confirm the possibility of the occurrence of adhesions in tissues in which changes have occurred.

Book Notices

The Physiology of the Eye. By Hugh Davson, D.Sc., Honorary Research Associate, University College, London. With a foreword by Sir Stewart Duke-Elder, K.C.V.O., M.A., M.D. Cloth. Price, \$7.50. Pp. 451, with 301 illustrations. The Blakiston Company, Division of Doubleday Company Inc., 1012 Walnut St., Philadelphia 5; Toronto 2, Canada, 1949.

This treatise is designed especially for students, opticians and general practitioners who desire an introduction to or a quick reference to physiology of the human eye. It is written in clear style, and subjects of considerable complexity are discussed in a manner that makes them comparatively simple to understand. Exhaustive research in published textbooks and current literature on the part of the author has made it possible for him to choose the important and significant phases of physiology and to present them with reservations rather than to leave the selection to the uninitiated and inexperienced to attempt to obtain a clear understanding of problems that are still the subject of incompatible theories. The drawings are all clearly made and clearly explained so as to avoid confusion. The optical properties of the eye are described according to the best accepted explanations of visual function and ocular motility.

The contents are divided into five sections. The sections on mechanism of vision and muscular mechanics are comprehensive but condensed. The volume contains 435 pages of text. There is an addendum of key references for the convenience of those who wish to carry special investigations to a further extent than this volume permits. The author supports the Young-Helmholtz theory of color vision as a generalization and through references to current studies indicates his preference for this theory over others since proposed and no more provable. The volume well fulfils its purpose and will be a welcome addition to the list of new books available to students.

Diseases of the Nose, Throat and Ear. By William Lincoln Ballenger, M.D., F.A.C.S., and Howard Charles Ballenger, M.D., F.A.C.S., Associate Professor and Acting Chairman of the Department of Otolaryngology, Northwestern University School of Medicine, Chicago. Assisted by John Jacob Ballenger, B.S., M.D. Ninth edition. Cloth. Price, \$12.50. Pp. 993, with 613 illustrations. Lea & Febiger, 600 S. Washington Sq., Philadelphia 6, 1947.

The appearance of the ninth edition of this work is evidence of its continuing value. As always, this text remains well and profusely illustrated. The concern of the authors for a necessary knowledge on the part of the reader of the anatomy, physiology and pathology of the diseases in the areas involved is obvious from the large amount of space allotted to their discussion. There is a whole new and ably illustrated portion on rhinoplasty. There appears, as well, for the first time, a chapter of considerable value on the headaches and neuralgias of the face and neck region. Several chapters which have long been considered unusually complete and authoritative have been brought up to date. These concern themselves with peroral endoscopy and those portions relating to the physiology and the testing of the inner ear labyrinth as well as its inflammatory diseases. This textbook remains a valuable guide to the diseases of the ear, nose and throat.

The Normal and Pathological Physiology of Pregnancy. Proceedings of the Conference of the Committee on Human Reproduction of the National Research Council, on Behalf of the National Committee on Maternal Health, held in New York City, January 1948. Reprinted from *Obstetrical & Gynecological Survey*, Vol. III, No. 5, October, 1948. Cloth. Price, \$2.75. Pp. 176, with illustrations. Williams & Wilkins Co., Mt. Royal & Guilford Aves., Baltimore 2, 1948.

This book contains fourteen articles read at a conference sponsored by the Committee on Human Reproduction in New York City Jan. 30-31, 1948. The general subject under discussion was "The Normal and Pathological Physiology of Pregnancy," and the fourteen papers read were as follows: "Some Functional Activities of Trophoblast," by George B. Wislocki, Edward W. Dempsey and Don Wayne Fawcett; "Placental Dysfunction in Eclamptogenic Toxemias," by Ernest W. Page; "Patterns of Uterine Contractions in Women During Pregnancy," by S. R. M. Reynolds, L. M. Hellman and P. Bruns; "Pregnancy and the Thyroid Gland," by John

P. Peters, Evelyn B. Man and Martin Heinemann; "The Excretion of Various Hormone Metabolites in Normal Pregnancy," by Eleanor Venning; "Urinary Excretion of Ketosteroids in Pregnancy," by Konrad Dobriner, Seymour Liberman, C. P. Rhoads and Howard C. Taylor Jr.; "Endocrine Patterns in Abortion," by Eleanor Delfs and G. E. Seegar Jones; "Experimental Studies on Nutrition in Pregnancy," by Josef Warkany; "The Biochemical Assessment of Nutritional Status During Pregnancy," by William J. Darby, Richard O. Cannon and Margaret M. Kaser; "Nutritional Needs in Pregnancy in Relation to Nutritional Intakes as Shown by Dietary Histories," by Bertha S. Burke; "Diet Studies in Pregnant Patients," by W. J. Dieckmann and others; "Hemorrhagic Tendencies in Toxemia of Pregnancy" (Practical Evaluation and Management), by Foster S. Kellogg; "Liver Function in Pregnancy," by Equinn W. Munnell, and "The Clinical Management of the Late Toxemias of Pregnancy," by S. A. Cosgrove and Leon C. Chesley.

This book deserves careful study because it contains a great deal of valuable information, it is distinctly authoritative and it reveals what important strides are being made in the problems of human reproduction. All of the articles are important presentations. The book should be in the hands of every one interested in human reproduction and maternal health.

The Management of Binocular Imbalance. By Emanuel Krinsky, M.D., Adjunct Professor of Ophthalmology, New York Polytechnic Medical School, Brooklyn. Cloth. Price, \$12.50. Pp. 464, with 200 illustrations. Lea & Febiger, 600 S. Washington Sq., Philadelphia 6, 1948.

American Ophthalmology is justly proud of its progress in the study of correction of ocular muscle imbalance. There have recently appeared a number of splendid books by our authors which have presented this complex subject from two points of view, the objective anatomic evidence and measurement (Duane, White and others) and the neuromuscular concept (Lancaster, Adler, Cogan and others) and approach. Dr. Krinsky's well written and illustrated book is a worthy addition to this growing shelf of fine books by American authors. He very ably coordinates the two schools of approach and points out that neither one entirely satisfies the requirements in all cases.

He has resurrected the corneal light reflex of Hirschberg, Priestley-Smith and others, from the limbo of neglected tests for ocular muscle imbalance and by combining it with prism measurements of its displacement in squint has developed a rapid and accurate method of measurement of the angle of squint and the obtaining of useful clinical data, for example in the determination of abnormal retinal correspondence. The reflex prism test will be widely used. The book gives evidence of profound thought, study and originality. It is not easy reading but repays careful attention.

Maladie de famine: Recherches cliniques sur la famine exécutées dans le ghetto de Varsovie en 1942. Redacteur en chef: Dr. med. Emil Apfelbaum. Paper. Pp. 264, with illustrations. Warsaw; American Jewish Joint Distribution Committee, Inc., Suite 800, 270 Madison Ave., New York 16, 1946.

This is a terrible and inspiring document, the account, largely posthumous, of the studies made in the Warsaw Ghetto by the physicians and scientists who set about to gain scientific knowledge from their own extermination by the Nazis. Behind the barricades of the Ghetto 43,000 persons died of starvation in a year, but the experiment was terminated by the technical improvement of the gas chambers, which accounted for 250,000 persons in two months. Some few escaped to carry away the manuscript notes which are here presented as the matter of fact records of clinical observations, controlled experiments and autopsy findings, the latter numbering 3,658 cases of famine death.

Most of the results are presented in verbal descriptions and generalizations with a minimum of numerical data or detailed case histories and almost a complete absence of statistical analysis. The lack of details about methods is also a serious fault, as is the fact that the authors were apparently almost totally unacquainted with the world literature on starvation and nutrition. In spite of such defects, the book is of great value in presenting, for the first time, the picture of active and pro-

gressive starvation in a whole population. The emphasis is on pathologic changes and symptoms, but there were many controlled experiments and measurements on groups selected to represent "pure" uncomplicated starvation. The disappearance of reactivity to epinephrine, to insulin and to tuberculin tests was striking. There are only few data on the incidence and course of concomitant disease, but several features are notable. Infectious disease was, with the exception of typhus and tuberculosis, unimportant, and some diseases, like measles, ran an exceptionally mild course. Rheumatic fever virtually disappeared. As elsewhere in starving areas of Europe in World War II, the manifestations of vitamin deficiencies were remarkable for their absence. There is no information about psychiatric or psychologic problems, though studies on these questions should have been most instructive.

One must believe that the original materials from which the present book was written contain more than here shown. The whole would seem to merit a fuller presentation, perhaps in English and with the benefit of more systematic editing, but even in the present form the book can be recommended to a large audience.

Index to the Literature of Experimental Cancer Research 1900-1935. Prepared by Donner Foundation, Incorporated (originally International Cancer Research Foundation), Philadelphia, Pa. Cloth. Pp. 1057. Donner Foundation, Inc., 2136 Land Title Building, Broad & Sansom Sts., Philadelphia 10, 1948.

This volume is a compilation of all articles bearing on experimental cancer research published between the years 1900 and 1935. The compilers state that the importance or significance of the papers included was not considered and that the bibliography, therefore, is in no way a critical one. A separate author index with complete bibliographic reference is included. The subject index is published separately with excellent selection of detailed subject headings and with many helpful cross references. The publication of this volume is timely; it will be an important tool to the cancer research worker.

Die Durchleuchtungstechnik der Thoraxorgane. Von E. A. Zimmer, Privatdozent an der Universität Basel, Basel, Switzerland. Second edition. Cloth. Price, 12.50 Swiss francs. Pp. 119, with 67 illustrations. Benno Schwabe, Klosterberg 27, Basel 10; imported by Grune & Stratton, Inc., 381 4th Ave., New York 16, 1949.

The second edition, like the first, is a small handbook of a little over 100 pages, intended to serve as a guide in fluoroscopy of the chest. Descriptions are included of the technical apparatus and roentgenoscopic methods and findings. Detailed instruction is offered concerning protection against electrical and irradiation dangers for the patient and the physician; the necessary preparation of the eyes, and the findings, normal and pathologic, in fluoroscopy of the thoracic organs.

The Hospital Purchasing File. Established 1919 as the Hospital Yearbook by the Modern Hospital Publishing Co., Inc. Twenty-sixth edition, 1948-1949. Boards. No pagination. Purchasing Files, Inc., 919 North Michigan Ave., Chicago 11, 1948.

The present volume on hospital products and purchasing follows the pattern of previous editions. As in former years, the book contains a vast amount of information including a classified list of hospital products, an alphabetic list of manufacturers and distributors and sixteen groups of manufacturers' catalogs arranged on a departmental basis with further subdivision into types of products. The catalogs concern the hospital administrative departments, dietary services, housekeeping, laundry, building construction and maintenance, plant operations, professional equipment and facilities relating to surgery, obstetrics, hospital nurseries, anesthesia, oxygen therapy, roentgenologic and laboratory services, hospital pharmacy and physical and occupational therapy.

Planning and reference data are also presented which include check lists for 50, 100 and 200 bed general hospitals, with directions for the planning of x-ray and laboratory departments, rehabilitation facilities, dietary functions, ward and private services, surgical department and housing and educational facilities for nurses. For convenience of reference there are additional lists of hospital associations and federal and other national agencies serving the hospital and allied fields. There has also

been added in this present issue a valuable index of the editorial reference material published in previous editions from 1940 to 1948.

All of this material, which has been carefully compiled and well organized, will be welcomed by hospital administrators and other personnel concerned with the construction, operation and maintenance of hospital services.

Chemical Analysis: A Series of Monographs on Analytical Chemistry and Its Applications. Editors: Beverly L. Clarke and I. M. Kolthoff. Volume V: Aquametry: Application of the Karl Fischer Reagent to Quantitative Analyses Involving Water. By John Mitchell, Jr., M.S., and Donald Milton Smith, Ph.D. Cloth. Price, \$8. Pp. 444, with 51 illustrations. Interscience Publishers, Inc., 215 Fourth Ave., New York 3, 1948.

The authors have performed a valuable service to analytical chemistry by combining in a single volume a large portion of the information available in the literature and at the author's laboratory on the application of the Karl Fischer reagent to quantitative analyses involving water. The Karl Fischer reagent is a solution of iodine, pyridine and sulfur dioxide in methanol. It is the basis of one of the most rapid titrimetric procedures available for the determination of any quantity of water in organic and inorganic materials.

Part I of the book considers the determination of water in various organic and inorganic materials. The method is especially valuable when the system contains nonaqueous volatile components or when a component decomposes on heating.

Part II deals with the quantitative determination of organic functional groups which can enter into reactions involving the liberation or consumption of water. The following is a partial list of such functional groups: alcoholic hydroxyl, carboxyl, acid anhydride, carbonyl, amino, nitrile, ester and peroxide.

The text provides sufficient detail to permit laboratory determinations without further references. An excellent index is provided. This book is recommended as a valuable addition to any medical or biologic chemistry library.

La Marihuana en la America Latina: La Amenaza Que Constituye. Por Pablo Osvaldo Wolff, Doctor en medicina y filosofia. Paper. Pp. 55. Libreria y editorial "El Ateneo," Florida 340—Córdoba 2099, Buenos Aires, 1948.

The title "La Marihuana en la America Latina" does not do justice to the wide scope of this monograph. While Dr. Wolff has placed particular emphasis on Latin American aspects, his discussion is of general application and interest. He has made a painstaking review of information on the abuse of cannabis. It is a much needed compilation of current knowledge in one volume. The author has done his usual erudite, well documented job. The style is interesting, and the book is recommended to readers desiring a comprehensive and accurate view of this field. The bibliography is extensive. An English translation is being printed.

Manual of Public Health Hygiene. By J. R. Currie, M.A., M.D., LL.D., County Medical Officer of Buteshire and Medical Officer of Health of the Royal Burgh of Rothesay, and A. G. Mearns, M.D., B.Sc., D.P.H. Third edition. Cloth. Price, \$9. Pp. 724, with 216 illustrations. Williams & Wilkins, Mt. Royal & Guilford Aves., Baltimore 2, 1948.

In this third edition of the well known textbook 122 new figures and 32 new tables have been added by the authors, who have produced a thoroughly revised and comprehensive volume. New sections include health education and medical climatology. Discussion and proposed use of fumigation receive more emphasis than given in some texts in the United States. In general, the information presented is sound.

From a concluding section entitled The Social Vista, the following passage deserves quotation to illustrate the constructive approach:

"The complex problem of the aged will be solved only when the geriatrist, the economist, the almoner, the health visitor and the social worker cooperate, under central direction, to encompass the difficulties which beset the later years. By whatever means they are to be achieved, the aims are clear. They are the fullest possible restoration to health and happiness of those whose days of service are over; and the provision for them of an environment in which physical comfort and mental tranquillity combine to give in their lives peace at eventide."

Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. THEY DO NOT, HOWEVER, REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS, BUT THESE WILL BE OMITTED ON REQUEST.

BREAST FEEDING DURING PREGNANCY

To the Editor:—What is the effect on mother and baby if the baby is nursing and the mother becomes pregnant? Has work been done to explain the altered physiology?

M. K. Braly, M.D., Mooreland, Okla.

ANSWER.—The English literature does not help much in appraising the value of milk from pregnant mothers. Finkelstein stated that pregnancy upsets the breast-fed infant. Holt and McIntosh stated that milk from a toxemic patient may be toxic to the infant. Sedgwick stated that clinical evidence did not indicate that such milk was harmful. Mitchell and Nelson were of the opinion that after the first month of pregnancy breast milk was contraindicated. None of these opinions were substantiated with adequate scientific data. However, three articles in the Japanese literature reported an infant disease called "atomitsuware," apparently associated with breast feeding from pregnant mothers.

Arakawa devised a test which indicates the amount of peroxidase in milk. The absence of this substance (negative Arakawa) is found to be associated with the following: (1) nutritional disturbances of infants, (2) all milk from pregnant mothers and (3) diseases of infants of unknown relationship to breast feeding during pregnancy. Infants who were fed milk which lacked peroxidase (negative Arakawa) showed symptoms of dyspepsia, anemia, thrombocytosis and large platelets, findings which became more pronounced with the continued use of negative milks. After the administration of vitamin B for a long period the mother's milk became less toxic and the baby's platelets became normal. However, in some instances the babies became so ill that weaning from the breast was imperative.

The onset of pregnancy in a lactating woman is not an immediate indication for weaning from the breast. The baby should be watched closely, and, if any of the symptoms mentioned develop, the infant should then be changed to artificial feeding.

THERAPEUTIC LIPIODOL®

To the Editor:—Lipiodol® is used for roentgenographic visualization of hollow viscera and sinuses. I have seen it used frequently in the treatment of bronchial asthma and bronchitis. Do harmful effects occur following the frequent instillation of lipiodol® into the trachea and bronchi? Does it cause pneumonitis?

M.D., North Carolina.

ANSWER.—Instillations of iodized oil, chiefly lipiodol®, are used for both diagnosis and treatment. They are essential in confirming the diagnosis of bronchiectasis, as they reveal the condition of the bronchial tree more clearly and thoroughly than any other method of examination, including bronchoscopy.

Therapeutically, the procedure has stirred up a storm of criticism. Lipiodol® is an iodized poppyseed oil containing 40 per cent iodine in organic combination. Lipiodine®, the ethyl ester of diiodobrassic acid, contains 41 per cent iodine. These substances are usually coughed up quickly, or they may be slowly absorbed. Occasionally, they may remain in the lungs for long periods. Flamm reported retention in 2 cases for one and two years, respectively, with continued severe asthma, which the author believed due to areas of pneumonitis around the residual oil; 1 of these patients also had symptoms of iodism.

The therapeutic use of iodized oil followed the observation that in some asthmatic patients improvement occurred after the diagnostic instillation of lipiodol®. The iodine in the oil probably does not act as an antiseptic, but the oil is heavier than sputum and is, therefore, supposed to displace the sputum from the lowest air passages, so that expectoration is facilitated. The lubrication of inspissated mucous plugs may also be a factor.

The earlier reports were rather enthusiastic. Anderson reported "complete relief" for one to eight years in 90 per cent of 200 cases of asthma in which the average duration was twelve years; failure occurred in only 20 cases (10 per cent). Later reports were more conservative, and workers have once again urged that the procedure cannot hope to obtain the good results which can usually be secured by correct allergy surveys, followed by specific avoidance, with or without hyposensitization. Moore treated asthmatic patients who had not been aided by the usual allergy regimen. He instilled iodized oil one hundred

and eighty-nine times in 35 patients: 3 were made worse (8.5 per cent); 13 unimproved (37.2 per cent); 10 improved (28.6 per cent), and 9 had good results (25.5 per cent). In 1 patient acute iodism developed.

Replies to a questionnaire sent to sixty-four doctors were as follows: About one third of the doctors were still using the oil, but only in a few selected cases; in 267 cases of bronchial asthma, failure occurred in 73.4 per cent, improvement in 24.7 per cent, and "cure" in 1.9 per cent. In 39 cases of asthmatic bronchitis, failure occurred in 76.4 per cent, improvement in 22.8 per cent, and "cure" in 0.8 per cent. Most workers were either opposed to the method or apathetic. Crip and Hampsey also noted untoward reactions due to idiosyncrasy to iodine or poppyseed, circulatory failure, spread of infection or pulmonary damage. Fatalities can occur, and they conclude that the procedure can only bring temporary relief in a small percentage and that it is not without danger.

In summary, good results can be obtained in some cases, and untoward reactions can be minimized by observing proper precautions and by the preliminary administration of the oil to test for sensitivity to iodine or poppyseed oil. The procedure, if used at all, should be limited to asthmatic patients, with or without associated bronchiectasis, who have not responded to the usual antiallergy regimen. One should add that severe reactions, sometimes fatal, have occurred from the use of cocaine or one of its derivatives during the procedure, especially if the procedure is carried out bronchoscopically.

FAMILIAL BOWING OF LEGS

To the Editor:—What is the correct procedure to follow in the case of a 5 month old infant girl whose legs show definite bowing? She was delivered normally, is otherwise healthy and has had antirachitic medication from birth. Her father, paternal aunt, grandfather and grandmother also have definite to moderate bowing of the legs, all of the same pattern—that is, the bowing is entirely in the legs and the point of maximum bend is at the junction of the upper and middle thirds of the leg. Her father and aunt definitely received cod liver oil in infancy and do not show signs of previous rickets. Is this an inherited feature? What can be done, besides osteotomy, to influence or correct the bowing so that the girl will have straight legs later? If indicated, when is osteotomy best performed?

M.D., New York.

ANSWER.—The bowing of the legs in the 5 month old infant girl whose father, aunt, grandfather and grandmother show similar bowing is probably a familial condition and due to inheritance. The bowing due to rickets usually is not manifested until the infant or child stands, and is accompanied by craniotabes, enlarged fossae of the skull, large wrists and ankles, rachitic rosary with Harrison's groove and delayed closure of the fontanelles. The laboratory findings in rickets include changes in the epiphyses in the roentgenogram and a lowering of the plasma phosphorus. The blood phosphatase is usually high in active rickets.

Besides osteotomy to influence or correct the bowing, gentle corrective manipulation and the discouragement of weight bearing may be effective. Braces are usually ineffective.

If the bowing is extreme osteotomy will be necessary, and had best be done between the ages of 3 and 6 years. Alfred Hess has described a group of infants with nonrachitic soft bones, a number of whom also had bowed legs (*Am. J. Dis. Child.* 41:1309-1316 [June] 1931).

SUDDEN DEATH IN INFANCY

To the Editor:—A 17 month old girl suddenly became unconscious while being dried after her morning bath. She had been completely normal until six weeks before, when there was a great increase of body weight and spontaneous growth of pubic hair. The week previously she had been placed on 1/10 grain (6 mg.) thyroid three times a day. While being examined the baby went into a convulsive seizure; despite all methods of therapy, her abdomen became distended and temperature rose from normal to above 108 F. within one hour. She died suddenly. Permission for necropsy was not obtained. The condition appeared to be a cerebral disorder, probably pituitary or perhaps adrenal. What are the other possibilities of diagnosis and causes of death?

M.D., New York.

ANSWER.—The cause for the sudden death in this seventeen month old infant with terminal hyperpyrexia (108 F.) was probably of cerebral origin. The sparsity of clinical history and findings make the suggestions for the diagnosis and causes of death difficult. In addition to tumor of the pituitary or adrenal gland, one might suggest, as other causes of sudden death, brain tumor, brain abscess, ruptured aneurysm of cerebral origin, acute hemorrhagic encephalitis or acute septic infection.

The evidence of early growth of pubic hair need not have been directly associated with the sudden death. The fact that the child died in convulsions and with hyperpyrexia makes one think of a cerebral infection in the region of heat-regulatory center.

CHOLINE IN ATHEROSCLEROSIS

To the Editor:—1. What is the present status of choline relative to its use in coronary thrombosis and the associated atherosclerotic diseases? 2. Are there any reports in literature regarding the use of choline as a preventive measure against atherosclerotic diseases? 3. What is the present concept of the action of choline in these conditions? 4. What are the possible untoward reactions of choline used for long periods? 5. What is the therapeutic dosage?
Ivan Gilbert, M.D., Columbus, Ohio.

ANSWER.—The use of choline in the treatment of coronary atherosclerosis in human beings is in the experimental stages. There have not been detailed reports in the literature on the effectiveness of this substance in the treatment or prevention of atherosclerosis. Hermann (*Texas State J. Med.* 42: 260, 1946) has reported that the serum cholesterol of 35 patients given 3 Gm. of choline daily for one to four months is lowered on the average of 20 per cent. Morrison (*Ann. Heart J.* 36: 466, 1948) has studied the effect of choline on the serum cholesterol of 200 patients with coronary arteriosclerosis for periods up to two years. Deleterious effects were not observed. Choline has been fairly extensively prescribed in doses of 3 to 4 Gm. daily to patients with cirrhosis of the liver without untoward effects. An occasional patient will experience gastrointestinal intolerance to this medication, which subsides promptly on discontinuance.

The rationale for the use of choline in atherosclerosis results from studies in rabbits in which experimental atherosclerosis had been produced by high cholesterol diets. Steiner (*Proc. Soc. Exper. Biol. & Med.* 38: 231, 1938; *Arch. Path.* 45: 327, 1948) and Kesten and Silbowitz (*Proc. Soc. Exper. Biol. & Med.* 19: 71, 1942) have shown that choline is effective in preventing experimental atherosclerosis in cholesterol-fed rabbits for a limited period of time. Steiner (*Proc. Soc. Exper. Biol. & Med.* 38: 411, 1938) has also reported that choline causes reabsorption of previously induced atherosclerosis in rabbits. Hermann (*Proc. Soc. Exper. Biol. & Med.* 61: 302, 1946) has found that choline reduces the level of cholesterol and cholesterol esters in the serum, the aorta, heart muscle and the liver of old hens.

GASTRIC CRISIS IN SYPHILIS

To the Editor:—In 1919 a patient contracted syphilis for which he refused to take adequate treatment. In 1947 gastric crises developed, occurring about every sixty days. During these episodes, which occur every few days now, he requires morphine to relieve the gastric pain and vomiting, which will continue for days unless so treated. He has had a positive blood Wassermann reaction at all times. The spinal fluid is Wassermann negative at all times. He has been confined in three government hospitals for treatment during the last two years, as he is a veteran, and has received 13,500,000 units of penicillin with apparent relief for a few days. The staffs of the hospitals do not give encouragement to this man. A sympathectomy has been advised, but a neurologist of Vanderbilt University disagrees with this suggestion. Can you offer some suggestions that will be of advantage to this man?
G. P. Zirkle, M.D., Kingston, Tenn.

ANSWER.—Additional information regarding spinal fluid findings is necessary to evaluate the present status of this patient's central nervous system involvement. This should include a cell count and determination of total protein and colloidal gold reactions, in addition to a properly performed quantitative complement fixation test. If the cell count and total protein are within normal limits it may be assumed that this patient has an inactive (Dattner-Thomas) type of spinal fluid, indicating an arrested syphilitic process. In such circumstances, further antisyphilitic therapy is not indicated. The inquirer is referred to the textbook "Modern Treatment of Syphilis," second edition, by J. E. Moore (Springfield, Ill., Charles C Thomas, Publisher, 1941), pages 435-438, for detailed information regarding the symptomatic and surgical treatment of tabetic crises. Surgical procedures should be used only as a last resort.

If the spinal fluid findings indicate an active syphilitic process (elevated cell count and total protein) additional therapy is indicated and may afford relief of his symptoms.

HORMONE CREAMS

To the Editor:—Of what value are creams or ointments containing estrogenic hormones in causing breast enlargement? Will these ointments cause breast enlargement by actual growth of breast tissue? What are the contraindications to use of such ointments? Several such ointments are manufactured by pharmaceutical houses which claim good results in their advertising literature.
M.D., Washington, D. C.

ANSWER.—Ointments, creams or tinctures of estrogens are effective in causing stimulation of growth of the accessory sex organs on local application under the proper conditions. When applied to the breasts, they will cause enlargement of this organ through growth of the breast tissue, which, however, recedes in size with cessation of estrogen application. Breast enlargement, however, will take place only where there is a potentiality of growth. In women who menstruate regularly, but whose breasts are small, the addition of ointments or creams containing

estrogen will be ineffectual, since they already have received adequate stimulation. In a woman with ovarian failure, however, such an application of hormone should cause an enlargement of the breasts as long as the material is applied. The contraindications to this type of therapy are those for estrogens in general. If estrogens are applied to a woman who is menstruating regularly, her cycles may be deranged through suppression of the anterior pituitary by the estrogen.

INCUBATION TIME OF HEPATITIS

To the Editor:—Could blood plasma or serum given in April 1947 be responsible for homologous serum hepatitis occurring in June or November of the same year? Could blood given in July be responsible for homologous serum hepatitis occurring in November?

J. S. Collins, M.D., Wabasha, Minn.

ANSWER.—Two similar types of jaundice may be transmitted by transfusion of blood or plasma. One of these, infectious hepatitis, ordinarily has an incubation period of twenty to forty days. The other, homologous serum jaundice (serum hepatitis), ordinarily has an incubation period of sixty to one hundred and forty days.

VITAMIN E AND BLOOD CHOLESTEROL

To the Editor:—Does vitamin E have any influence on blood cholesterol? A drug salesman told me he had had effort angina for a long time until he began taking it. Now he can walk up a long hill rapidly.

M.D., New York.

ANSWER.—Information on this subject is not available from human subjects, but when rabbits and rats are deprived of vitamin E, the cholesterol content of muscle is significantly increased. A similar increase was found in brain and nervous tissue of rats, and a hypercholesterolemia was reported in rabbits.

Data are not available on the relation between blood cholesterol and effort angina. Heart muscle is normally rich in vitamin E. When rats are deprived of vitamin E, blood pressure is lowered.

CIRCUMCISION

To the Editor:—Exception can be taken to the answer given on circumcision on page 273 of The Journal, January 22, which read in part: "It is generally conceded that routine circumcision of the newborn is definitely indicated."

True, many physicians practice routine circumcision. By contrast, a number of obstetricians do not subscribe to this procedure. At the Chicago Lying-in Hospital, our practice is to allow circumcision on the indication that the prepuce cannot be freed and retracted. Then it is only done on normal full term infants who are healthy and gaining weight. Circumcision is, as a rule, without complication, but serious results have occurred on any service where a sufficient number have been performed. These hazards include hemorrhage, which can be severe and potentially fatal, infection, which may be virulent, and, finally, deforming scars have resulted which have caused much alarm to the parents and to the child as he grew up. For these reasons, the procedure for the staff cases at the Chicago Lying-in Hospital is as follows:

Circumcision is not done if the prepuce can be retracted. (The mother is instructed in the care of the baby.) It is not done on premature babies, or those not gaining weight or afflicted with a blood disease, with an infection or otherwise abnormal. For babies suffering from one of these complications, when there is an indication for circumcision, it may be done after the baby has completely recovered.

Occasional circumcision is done because of insistence of the parents, but only after a fair discussion of the risks involved. Ritual circumcisions are performed on the eighth day, or later if the infant's condition is not favorable at that time.

H. Close Hesseltine, M.D., Chicago.

IMPOTENCE IN DIABETES

To the Editor:—In The Journal, January 29, page 345, a questioner asks about treatment of impotence in diabetes. The consultant set forth some interesting theories, and advises the use of testosterone propionate. He then adds that it has not proved to be of help in many cases of impotence.

We have recently reported some work in this regard. (The Inactivation of Estrogens by Lipotropic Substances—Studies of Liver Dysfunction, *Rev. Gastroenterol.* 15: 762 [Oct.] 1948. We were treating certain cases of diabetes with choline on the assumption first enunciated by Soskin, and Biskind and Schreier, that certain cases of diabetes in older persons were improved when their hepatic function was improved. In addition to improvement in carbohydrate function these patients reported that libido was also improved. It seems unlikely that this improvement in the carbohydrate tolerance and in libido would be on a psychogenic basis. We think we have proof that such was not the case. Our theory on the action of choline in this regard is that with better hepatic function better inactivation of estrogen occurs in the patient. It is well known that the male has both estrogen and androgen in his body. With subnormal inactivation of estrogen, it may accumulate in the body and antagonize the androgen and in this way cause loss of libido.

Giving testosterone would have only a temporary effect, since it depresses the patient's own testicular secretion. It would therefore seem to be contraindicated in a 37 year old person unless there is absolute evidence of testicular atrophy.

Louis Pelnar, M.D.,
Samuel Waldman, M.D.,
Brooklyn.

The Journal of the American Medical Association

Published Under the Auspices of the Board of Trustees

VOL. 140, No. 4

CHICAGO, ILLINOIS
COPYRIGHT, 1949, BY AMERICAN MEDICAL ASSOCIATION

MAY 28, 1949

PATHOGENESIS, DIAGNOSIS AND TREATMENT OF HUMAN TOXOPLASMOSIS

J. K. FRENKEL, M.D.
Hamilton, Mont.

Toxoplasmosis is an infection occurring in nature. In animals it has been observed in an acute stage¹ and in a chronic latent stage.² In human beings the following clinical forms have been recognized, characterized chiefly by (1) congenital or neonatal meningo-encephalitis, usually associated with hydrocephaly, chorioretinitis, cerebral calcifications and convulsions; (2) atypical encephalitis; (3) postencephalitic sequelae, or (4) pneumonitis associated with fever and a rash. Subclinical forms of the infection have been diagnosed from the presence of specific *Toxoplasma*-neutralizing antibodies in certain persons and from the delivery of toxoplasmic infants by seemingly healthy mothers.³ I recently had the opportunity to study pathologically 5 cases of fatal congenital toxoplasmosis in 2 of which clinical diagnosis had been made and *Toxoplasma* isolated. The lesions produced by three strains of *Toxoplasma* were studied in experimental animals. In addition, about 80 patients with uveitis and more than 200 other patients were investigated clinically, serologically and by cutaneous test for evidence of past or present infection with *Toxoplasma*. The detailed results of these investigations are to be published elsewhere.⁴ The purpose of this paper is to describe and to reinterpret the pathogenesis of the infection which will serve to facilitate diagnosis of the disease and which may form a rationale for its treatment.

HISTORICAL INTRODUCTION

Toxoplasma gondii, the type species, was first described by Nicolle and Manceaux⁵ from the Institute Pasteur in Tunis in the year 1908. The name is derived from the Greek *toxos*, meaning a bow or arc,

connoting the lunate shape of the organism (fig. 1A and B). The specific name *gondii* is derived from the name of the type host, the *gondi* (*Ctenodactylus gondi*, Pallas, 1778), a small North African rodent, which was used as a laboratory animal at the Institute Pasteur. The organism is generally believed to be a protozoan. Reproduction is by multiple binary fission. Proliferating organisms and pseudocysts may be distinguished. In the same year (1908) Splendore⁶ described the organism isolated from a rabbit in Brazil. Jankú,⁷ in 1923, described the first well authenticated case in a human being from Czechoslovakia. It was that of an infant with unilateral microphthalmus and bilateral chorioretinitis. In 1929, Levaditi and his co-workers⁸ published an extensive experimental study of *Toxoplasma* isolated from rabbits. Sabin and Olitsky⁹ were the first to prove the existence of the organism in North America (1937), when they encountered *Toxoplasma* in a guinea pig. These authors also demonstrated the development of neutralizing antibodies in the course of the disease in Rhesus monkeys. Likewise in 1937, Wolf and Cowen¹⁰ reported the first instance of human infection with *Toxoplasma* in the United States. Subsequently, these authors, together with Paige, described 10 further cases in infants and children.^{3a} Pinkerton and Weinman,¹¹ in 1940, reported the first fatal case in an adult, a Peruvian with concomitant bartonellosis. In the following year, Pinkerton and Henderson¹² published a study of 2 further fatal adult cases of toxoplasmosis, observed in the St. Louis area. Sabin,¹³ in 1941, described 2 cases in children from Cincinnati characterized by encephalitic symptoms. One of these children survived. Sabin and Warren,¹⁴ in 1942, reported successful treatment of experimental toxoplasmosis with sulfapyridine and sulfathiazole, but ineffectiveness of certain antiprotozoal drugs that were toxic in vitro.¹⁵ The same authors¹⁶

6. Splendore, A.: Un nuovo protozoa parasite de conigli. *Rev. Soc. scient. São Paulo* 3: 109, 1908.

7. Jankú, J.: Pathogenesis and Pathologic Anatomy of Coloboma of the Macula Lutea in an Eye of Normal Dimensions and in a Microphthalmic Eye with Parasites in the Retina. *Časop. lékař. česk.* 62: 1021, 1052, 1081, 1111 and 1138, 1923.

8. Levaditi, C.; Sanchis-Bayarri, V.; Lepine, P., and Schoen, R.: Etude sur l'encephalo-mielite provoquée par le *Toxoplasma cuniculi*. *Ann. Inst. Pasteur* 43: 673 and 1063, 1929.

9. Sabin, A. B., and Olitsky, P. K.: *Toxoplasma* and Obligate Intracellular Parasitism. *Science* 85: 336, 1937.

10. Wolf, A., and Cowen, D.: *Toxoplasma* Infection in Man. *Proc. Soc. Exper. Biol. & Med.* 45: 19, 1937.

11. Pinkerton, H., and Weinman, D.: *Toxoplasma* Infection in Man. *Arch. Pathol.* 30: 374 (July) 1940.

12. Pinkerton, H., and Henderson, R. G.: Adult *Toxoplasmosis*: A Previously Unrecognized Disease. *Proc. Soc. Exper. Biol. & Med.* 45: 19, 1937.

13. Sabin, A. B.: *Toxoplasma* Infection in Man. *Proc. Soc. Exper. Biol. & Med.* 45: 19, 1937.

14. Sabin, A. B., and Warren, J.: Therapeutic Effectiveness of Certain Sulfonamides on Infection by an Intracellular Protozoan (*Toxoplasma*). *Proc. Soc. Exper. Biol. & Med.* 51: 19, 1942.

15. Warren, J., and Sabin, A. B.: Effect of Certain Antiprotozoal Drugs on *Toxoplasma* in Vitro and in Vivo. *Proc. Soc. Exper. Biol. & Med.* 51: 15, 1942.

16. Warren, J., and Sabin, A. B.: The Complement Fixation Reaction in *Toxoplasma* Infection. *Proc. Soc. Exper. Biol. & Med.* 51: 11, 1942.

From the Division of Pathology, University of California Medical School, San Francisco (22).

Present address: United States Public Health Service, Rocky Mountain Laboratory, Hamilton, Mont.

Read before the Section on Pathology and Physiology at the Ninety-Seventh Annual Session of the American Medical Association, Chicago, June 25, 1948.

1. Olafson, P., and Monlux, W. S.: *Toxoplasma* Infection in Animals. *Cornell Vet.* 32: 176, 1942. Keagy, H. F.: *Toxoplasma* in the Chinchilla. *J. Am. Vet. M. A.* 114: 15 (Jan.) 1949.

2. (a) Findlay, G. M., and Middleton, A. D.: Epidemic Diseases Among Voles (*Microtus*) with Special Reference to *Toxoplasma*. *J. Animal Ecol.* 3: 150, 1934. (b) Perrin, T. L.; Brigham, G. D., and Pickens, E. G.: *Toxoplasmosis* in Wild Rats. *J. Infect. Dis.* 72: 91, 1943.

3. (a) Paige, B. H.; Cowen, D., and Wolf, A.: *Toxoplasmic Encephalomyelitis*: V. Further Observations of Infantile *Toxoplasmosis*; Intracutaneous Inception of the Disease; Visceral Manifestations. *Am. J. Dis. Child.* 63: 474 (March) 1942. (b) Sabin, A. B.: *Toxoplasmosis*, a Recently Recognized Disease of Human Beings, in De Sanctis, A. G.: *Advances in Pediatrics*, New York, Interscience Publishers, Inc., 1942, vol. 1, p. 1.

4. (a) Frenkel, J. K., and Friedlander, S.: The Pathology of Neonatal *Toxoplasmosis*, to be published. (b) Frenkel, J. K.: Dermal Hypersensitivity to *Toxoplasma* Antigens (*Toxoplasmins*). *Proc. Soc. Exper. Biol. & Med.* 68: 634, 1948.

5. Nicolle, M. M. C., and Manceaux, L.: Sur un protozoaire nouveau du *gondi* (*Toxoplasma n.g.*). *Arch. Inst. Pasteur Tunis* 4: 97, 1909.

also studied the complement fixation reaction in toxoplasmic infection. Sabin and Ruchman¹⁷ investigated the characteristics of the Toxoplasma-neutralizing antibody in monkeys and human beings.¹⁸ Heidelberg¹⁹ evaluated the Toxoplasma-neutralizing antibody test in patients with chorioretinitis. The ocular lesions of toxo-

been added to these. Infections in both human beings and animals have been reported from all over the world.²⁷

PATHOGENESIS OF TOXOPLASMOSIS

Acute Toxoplasmosis.—The acute infection is a generalized one,²⁸ involving every organ, although lesions may be only microscopic in character. Toxoplasma has been observed to proliferate intracellularly in many types of cells. It is perhaps most frequently found in macrophages, fibroblasts, reticular cells and sinusoidal lining cells, in pulmonary alveolar lining cells, and in smooth muscle and cardiac muscle cells. Smaller or larger areas of necrosis may be associated with Toxoplasma. As a cellular response macrophages and lymphoid cells predominate over amphophilic granulocytes. In the central nervous system both neuronal and microglial elements may contain the organisms, and the microglial nodule is the typical response to injury. Most frequently encountered are: interstitial pneumonitis, myocarditis, encephalitis, splenitis, hepatitis and orchitis. Clinically the pulmonary or meningoencephalic symptoms may be more prominent, and a cutaneous rash, and icterus due to hepatitis, are of frequent occurrence.

The numbers of organisms present, the degree of necrosis and the intensity of the cellular reaction in animals were observed to be variable, depending on the host as well as on the strain of Toxoplasma. Too

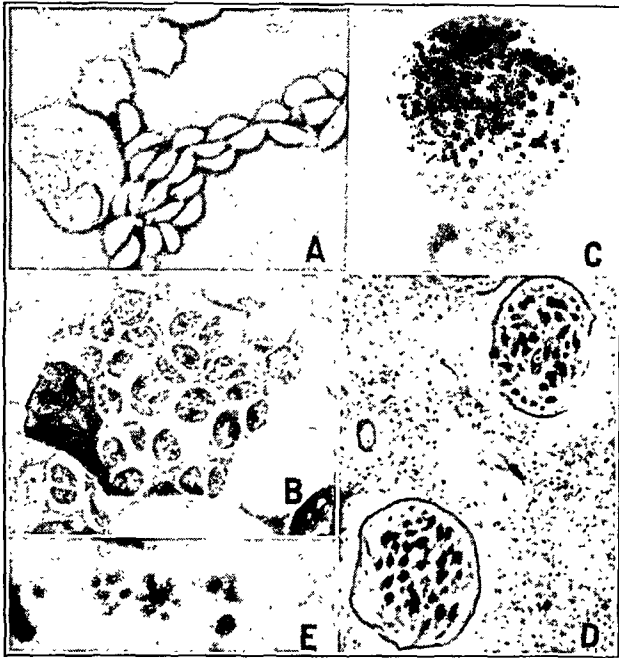


Fig. 1.—A, Toxoplasma, fresh preparation from peritoneal exudate of mouse; showing organisms free and within macrophage, also crenated red blood corpuscles. Phase-contrast microscope. B, Toxoplasma, Giemsa stain. C, Toxoplasma pseudocyst in neuron of substantia nigra (case B.D.A.) (hematoxylin and eosin). D, Toxoplasma pseudocysts impregnated with silver by Wilder's method. The argyrophilic cyst wall and its rigidity, indicated by the ragged tearing, may be noted. E, Toxoplasma, proliferative organisms in brain (case B.D.A.) (hematoxylin and eosin). (All illustrations $\times 960$).

plasmosis were studied by Koch and his co-workers²⁰ and by Heath and Zuelzer²¹ and by others.²² The radiologic observations in toxoplasmosis were described by Sante,²³ by Dyke and his co-workers²⁴ and by others. Excellent reviews of the subject were published by Sabin,^{3b} Weinman²⁵ and by Callahan, Russell and Smith.²⁶

About 35 cases of toxoplasmosis in human beings have been reported to date, diagnosed by either autopsy or animal inoculation. Cases of chorioretinitis associated with serologic evidence of toxoplasmosis have



Fig. 2.—Microglial nodule in subcortical white matter (case R.F.). Note hypertrophic microglia in periphery and ameboid microglia in the center of the nodule. The vascular perithelium is proliferating (formaldehyde-Penfield's silver carbonate, $\times 325$).

few cases in human beings have been studied pathologically during the acute stage of the disease to evaluate the factors operating in the production of different

17. Sabin, A. B., and Ruchman, I.: Characteristics of the Toxoplasma Neutralizing Antibody, *Proc. Soc. Exper. Biol. & Med.* **51**: 1, 1942.

18. Sabin, A. B.: Toxoplasma Neutralizing Antibody in Human Beings and Morbid Conditions Associated with It, *Proc. Soc. Exper. Biol. & Med.* **51**: 6, 1942.

19. Heidelberg, J. M.: Evaluation of Toxoplasma Neutralization Tests in Cases of Chorioretinitis, *Arch. Ophthalm.* **34**: 28 (July) 1945.

20. Koch, F. L. P.; Wolf, A.; Cowen, D., and Paige, B. H.: Toxoplasmic Encephalomyelitis: VII. Significance of Ocular Lesions in the Diagnosis of Infantile, or Congenital, Toxoplasmosis, *Arch. Ophthalm.* **29**: 1 (Jan.) 1943.

21. Heath, P., and Zuelzer, W. W.: Toxoplasmosis: Report of Ocular Findings in Infant Twins, *Arch. Ophthalm.* **33**: 184 (March) 1945.

22. Holm, S.: Eye Manifestations in Toxoplasmosis, *Svenska Läkartidning*, **45**: 387, 1948. Franceschetti, A., and Bamatter, F.: Alterazioni Oculari e Tossoplasmosi, read before the Thirty-Sixth Congress of the Italian Society of Ophthalmology, September 1947.

23. Sante, L. R.: Roentgen Manifestations of Adult Toxoplasmosis, *Am. J. Roentgenol.* **47**: 825, 1942.

24. Dyke, C. G.; Wolf, A.; Cowen, D.; Paige, B. H., and Caffey, J.: Toxoplasmic Encephalomyelitis: VIII. Significance of Roentgenographic Findings in the Diagnosis of Infantile or Congenital Toxoplasmosis, *Am. J. Roentgenol.* **47**: 830, 1942.

25. Weinman, D.: Human Toxoplasma, *Puerto Rico J. Pub. Health & Trop. Med.* **20**: 125, 1944.

26. Callahan, W. P., Jr.; Russell, W. O., and Smith, M. G.: Human Toxoplasmosis: A Clinicopathologic Study with Presentation of Five Cases and Review of the Literature, *Medicine* **25**: 343, 1946.

27. Magnusson, J. H., and Wahlgren, F.: Human Toxoplasmosis: An Account of Twelve Cases in Sweden, *Acta path. et microbiol. Scandinav.* **25**: 216, 1948. Winsler, J.; Verlinde, J. D.; van Thiel, P. H.; Davel, J., and van der Elst, P.: Isolation of Toxoplasma from Cerebrospinal Fluid of a Living Infant in Holland, *Proc. Soc. Exper. Biol. & Med.* **67**: 292, 1948.

28. (a) Paige, Cowen and Wolf,^{2a} case 5. (b) Pratt-Thomas, H. R., and Cannon, W. M.: Systemic Infantile Toxoplasmosis, *Am. J. Path.* **22**: 779, 1946. (c) Pinkerton and Henderson.¹² (d) Pinkerton and Weinman.¹¹

degrees of organ involvement. The age of the patient appears to be of importance, since infants show more severe and extensive lesions at autopsy than do adults. It is important to keep in mind that the acute stage of the infection may be relatively or entirely asymptomatic, especially so in adults, and need not cause disease.



Fig. 3.—Microglial nodule in mouse brain. The cells are better outlined since fixation was prompt and more appropriate to the silver technic (formaldehyde ammonium bromide, Hortega's silver carbonate, $\times 162$).

Subacute Toxoplasmosis.—This terminology is used to designate the cases in which there are regressing lesions in the extraneural viscera, whereas in the central nervous system and the eyes *Toxoplasma* continues to proliferate actively. Most of these patients acquired toxoplasmosis antenatally or neonatally, suggesting a low degree of resistance of fetuses and infants to *Toxoplasma*. The majority of neonatal cases of toxoplasmosis fall into this group. Here one sees in extraneural tissue evidence of past acute infection in the form of focal accumulations of lymphocytes, plasma cells and eosinophilic granulocytes. Fibroblasts are proliferating and are organizing areas of necrosis. *Toxoplasma* is not encountered in these foci.

The central nervous system presents a completely different picture. The basic lesion, the microglial nodule, is of common occurrence, and *Toxoplasma* is frequently found associated with it. These microglial nodules have been termed granulomas by most other authors,²⁹ supposedly consisting of accumulations of epithelioid cells and thought to be derived from hyperplastic endothelial and adventitial cells from the vessel walls as well as possibly from large hematogenous mononuclear cells.¹⁰ In my hands, appropriate methods of silver impregnation showed these lesions to be made up of microglial cells in both human and animal material (figs. 2 and 3). These microglial cells are derived from preexisting microglia and from perithelial cells,

but no significant endothelial proliferation was found. Furthermore, the hypertrophic microglia of the nodules present a different appearance from epithelioid cells of a tuberculoma in neural tissue.

The disappearance of *Toxoplasma* from the extra-neural viscera can best be explained on the basis of acquired immunity. Equivocal neutralizing antibody reactions, thought to be due to low titers of antibody, were obtained with the serums of 2 patients³⁰ succumbing with subacute toxoplasmosis. The persistent proliferation of *Toxoplasma* within the central nervous system may be explained by the observed poor diffusion of serum antibody into brain substance. This has previously been observed for bacterial antibody³¹ and viral antibody³² in rabbits where the ratio of serum antibody content versus brain antibody content, versus cerebrospinal fluid antibody content, was approximately equivalent to 300:3:1. It is of interest to note that the serum-cerebrospinal fluid antibody ratio parallels the protein content of the two fluids (6,000:20 mg. per hundred cubic centimeters), thus perhaps explaining this apparent "blood-brain-barrier" on the basis of a differential diffusion gradient for proteins. Differential *Toxoplasma*-neutralizing antibody titers have been

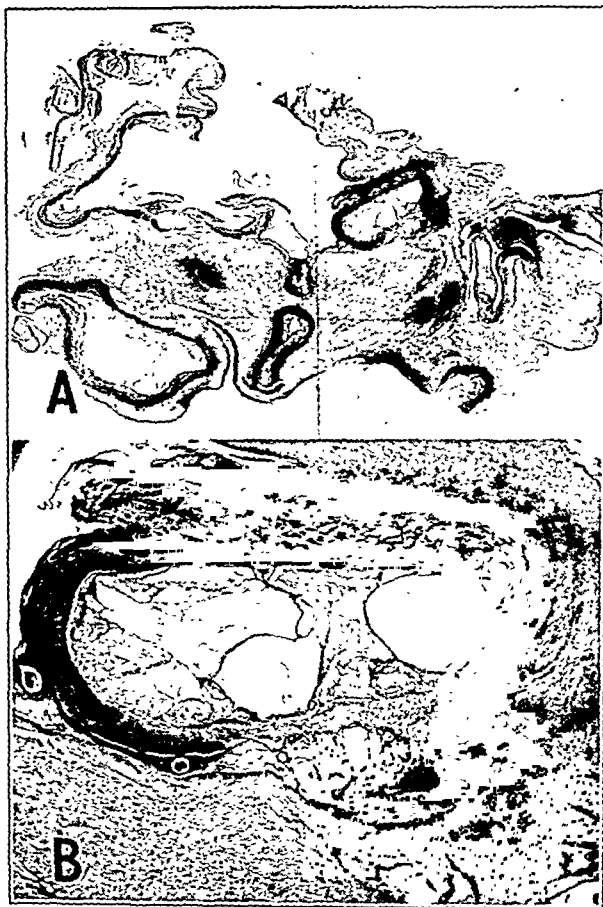


Fig. 4.—A, cross section of brain (case B.D.A.) showing periventricular zones and degeneration of white matter (phosphotungstic acid hematoxylin $\times$ about 93/100). B, close-up of right ventricle. The periventricular zones are absent where ependymal lining (choroid plexus) has been preserved (phosphotungstic acid hematoxylin $\times$ about 4½).

29. (a) Wolf and Cowen,¹⁰ (b) Callahan, Russell and Smith,²⁹ (c) Sabin,³⁰ (d) Zuelzer, W. W.: Infantile Toxoplasmosis, with a Report of Three New Cases, Including Two in Which the Patients Were Identical Twins, Arch. Path. 38:1 (July) 1944.

30. Zuelzer,³⁰ case 2. Frenkel and Friedlander,³¹ case B.D.A.
31. Frenkel and Friedlander, 1930.
32. M. R. W., and Olitsky, P. K.: Induced System to Experimental Infection with Equine
Exper. Med. 76:357, 1942.

also studied the complement fixation reaction in toxoplasmic infection. Sabin and Ruchman¹⁷ investigated the characteristics of the *Toxoplasma*-neutralizing antibody in monkeys and human beings.¹⁸ Heidelman¹⁹ evaluated the *Toxoplasma*-neutralizing antibody test in patients with chorioretinitis. The ocular lesions of toxo-

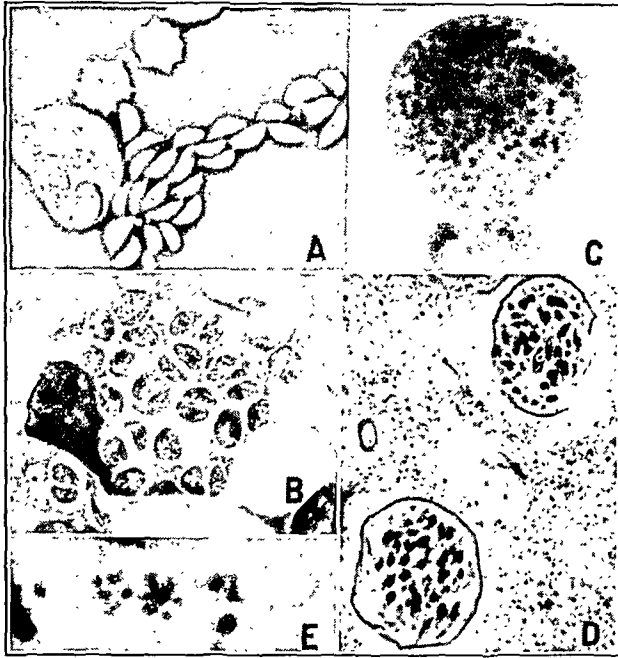


Fig. 1.—A, *Toxoplasma*, fresh preparation from peritoneal exudate of mouse; showing organisms free and within macrophage, also crenated red blood corpuscles. Phase-contrast microscope. B, *Toxoplasma*, Giemsa stain. C, *Toxoplasma* pseudocyst in neuron of substantia nigra (case B.D.A.) (hematoxylin and eosin). D, *Toxoplasma* pseudocysts impregnated with silver by Wilder's method. The argyrophilic cyst wall and its rigidity, indicated by the ragged tearing, may be noted. E, *Toxoplasma*, proliferative organisms in brain (case B.D.A.) (hematoxylin and eosin). (All illustrations $\times 960$).

plasmosis were studied by Koch and his co-workers²⁰ and by Heath and Zuelzer²¹ and by others.²² The radiologic observations in toxoplasmosis were described by Sante,²³ by Dyke and his co-workers²⁴ and by others. Excellent reviews of the subject were published by Sabin,^{3b} Weinman²⁵ and by Callahan, Russell and Smith.²⁶

About 35 cases of toxoplasmosis in human beings have been reported to date, diagnosed by either autopsy or animal inoculation. Cases of chorioretinitis associated with serologic evidence of toxoplasmosis have

been added to these. Infections in both human beings and animals have been reported from all over the world.²⁷

PATHOGENESIS OF TOXOPLASMOSIS

Acute Toxoplasmosis.—The acute infection is a generalized one,²⁸ involving every organ, although lesions may be only microscopic in character. *Toxoplasma* has been observed to proliferate intracellularly in many types of cells. It is perhaps most frequently found in macrophages, fibroblasts, reticular cells and sinusoidal lining cells, in pulmonary alveolar lining cells, and in smooth muscle and cardiac muscle cells. Smaller or larger areas of necrosis may be associated with *Toxoplasma*. As a cellular response macrophages and lymphoid cells predominate over amphophilic granulocytes. In the central nervous system both neuronal and microglial elements may contain the organisms, and the microglial nodule is the typical response to injury. Most frequently encountered are: interstitial pneumonitis, myocarditis, encephalitis, splenitis, hepatitis and orchitis. Clinically the pulmonary or meningoencephalitic symptoms may be more prominent, and a cutaneous rash, and icterus due to hepatitis, are of frequent occurrence.

The numbers of organisms present, the degree of necrosis and the intensity of the cellular reaction in animals were observed to be variable, depending on the host as well as on the strain of *Toxoplasma*. Too



Fig. 2.—Microglial nodule in subcortical white matter (case R.F.). Note hypertrophic microglia in periphery and ameboid microglia in the center of the nodule. The vascular perithelium is proliferating (formaldehyde-Penfield's silver carbonate, $\times 325$).

few cases in human beings have been studied pathologically during the acute stage of the disease to evaluate the factors operating in the production of different

17. Sabin, A. B., and Ruchman, I.: Characteristics of the *Toxoplasma* Neutralizing Antibody, *Proc. Soc. Exper. Biol. & Med.* **51**: 1, 1942.

18. Sabin, A. B.: *Toxoplasma* Neutralizing Antibody in Human Beings and Morbid Conditions Associated with It, *Proc. Soc. Exper. Biol. & Med.* **51**: 6, 1942.

19. Heidelman, J. M.: Evaluation of *Toxoplasma* Neutralization Tests in Cases of Chorioretinitis, *Arch. Ophth.* **34**: 28 (July) 1945.

20. Koch, F. L. P.; Wolf, A.; Cowen, D., and Paige, B. H.: Toxoplasmic Encephalomyelitis: VII. Significance of Ocular Lesions in the Diagnosis of Infantile, or Congenital, Toxoplasmosis, *Arch. Ophth.* **29**: 1 (Jan.) 1943.

21. Heath, P., and Zuelzer, W. W.: Toxoplasmosis: Report of Ocular Findings in Infant Twins, *Arch. Ophth.* **33**: 184 (March) 1945.

22. Holm, S.: Eye Manifestations in Toxoplasmosis, *Svenska Läkarsällskapet*, **45**: 387, 1948. Franceschetti, A., and Bamatter, F.: Alterazioni Oculari e Tossoplasmosi, read before the Thirty-Sixth Congress of the Italian Society of Ophthalmology, September 1947.

23. Sante, L. R.: Roentgen Manifestations of Adult Toxoplasmosis, *Am. J. Roentgenol.* **47**: 825, 1942.

24. Dyke, C. G.; Wolf, A.; Cowen, D.; Paige, B. H., and Caffey, J.: Toxoplasmic Encephalomyelitis: VIII. Significance of Roentgenographic Findings in the Diagnosis of Infantile or Congenital Toxoplasmosis, *Am. J. Roentgenol.* **47**: 830, 1942.

25. Weinman, D.: Human Toxoplasma, *Puerto Rico J. Pub. Health & Trop. Med.* **20**: 125, 1944.

26. Callahan, W. P., Jr.; Russell, W. O., and Smith, M. G.: Human Toxoplasmosis: A Clinicopathologic Study with Presentation of Five Cases and Review of the Literature, *Medicine* **25**: 343, 1946.

27. Magnusson, J. H., and Wahlgren, F.: Human Toxoplasmosis: An Account of Twelve Cases in Sweden, *Acta path. et microbiol. Scandinav.* **25**: 216, 1948. Winsser, J.; Verlinde, J. D.; van Thiel, P. H.; Davel, J., and van der Elst, P.: Isolation of *Toxoplasma* from Cerebrospinal Fluid of a Living Infant in Holland, *Proc. Soc. Exper. Biol. & Med.* **67**: 292, 1948.

28. (a) Paige, Cowen and Wolf²⁰ case 5. (b) Pratt-Thomas, H. R., and Cannon, W. M.: Systemic Infantile Toxoplasmosis, *Am. J. Path.* **22**: 779, 1946. (c) Pinkerton and Henderson.¹² (d) Pinkerton and Weinman.¹¹

degrees of organ involvement. The age of the patient appears to be of importance, since infants show more severe and extensive lesions at autopsy than do adults. It is important to keep in mind that the acute stage of the infection may be relatively or entirely asymptomatic, especially so in adults, and need not cause disease.



Fig. 3.—Microglial nodule in mouse brain. The cells are better outlined since fixation was prompt and more appropriate to the silver technic (formaldehyde ammonium bromide, Horte's silver carbonate, $\times 162$).

Subacute Toxoplasmosis.—This terminology is used to designate the cases in which there are regressing lesions in the extraneural viscera, whereas in the central nervous system and the eyes *Toxoplasma* continues to proliferate actively. Most of these patients acquired toxoplasmosis antenatally or neonatally, suggesting a low degree of resistance of fetuses and infants to *Toxoplasma*. The majority of neonatal cases of toxoplasmosis fall into this group. Here one sees in extraneural tissue evidence of past acute infection in the form of focal accumulations of lymphocytes, plasma cells and eosinophilic granulocytes. Fibroblasts are proliferating and are organizing areas of necrosis. *Toxoplasma* is not encountered in these foci.

The central nervous system presents a completely different picture. The basic lesion, the microglial nodule, is of common occurrence, and *Toxoplasma* is frequently found associated with it. These microglial nodules have been termed granulomas by most other authors,²⁹ supposedly consisting of accumulations of epithelioid cells and thought to be derived from hyperplastic endothelial and adventitial cells from the vessel walls as well as possibly from large hematogenous mononuclear cells.¹⁰ In my hands, appropriate methods of silver impregnation showed these lesions to be made up of microglial cells in both human and animal material (figs. 2 and 3). These microglial cells are derived from preexisting microglia and from perithelial cells,

but no significant endothelial proliferation was found. Furthermore, the hypertrophic microglia of the nodules present a different appearance from epithelioid cells of a tuberculoma in neural tissue.

The disappearance of *Toxoplasma* from the extra-neural viscera can best be explained on the basis of acquired immunity. Equivocal neutralizing antibody reactions, thought to be due to low titers of antibody, were obtained with the serums of 2 patients³⁰ succumbing with subacute toxoplasmosis. The persistent proliferation of *Toxoplasma* within the central nervous system may be explained by the observed poor diffusion of serum antibody into brain substance. This has previously been observed for bacterial antibody³¹ and viral antibody³² in rabbits where the ratio of serum antibody content versus brain antibody content, versus cerebrospinal fluid antibody content, was approximately equivalent to 300:3:1. It is of interest to note that the serum-cerebrospinal fluid antibody ratio parallels the protein content of the two fluids (6,000:20 mg. per hundred cubic centimeters), thus perhaps explaining this apparent "blood-brain-barrier" on the basis of a differential diffusion gradient for proteins. Differential *Toxoplasma*-neutralizing antibody titers have been



Fig. 4.—A, cross section of brain (case B.D.A.) showing periventricular zones and degeneration of white matter (phosphotungstic acid hematoxylin $\times$ about 93/100). B, close-up of right ventricle. The periventricular zones are absent where ependymal lining (choroid plexus) has been preserved (phosphotungstic acid hematoxylin $\times$ about $4\frac{1}{2}$).

29. (a) Wolf and Cowen.¹⁰ (b) Callahan, Russell and Smith.²⁹ (c) Sabin.²⁶ (d) Zuelzer, W. W.: Infantile Toxoplasmosis, with a Report of Three New Cases, Including Two in Which the Patients Were Identical Twins. Arch. Path. 38:1 (July) 1944.

30. Zuelzer,²⁹ case 2. Frenkel and Friedlander,¹⁸ case B.D.A.
31. Freund, J.: Accumulation of Antibodies in the Central Nervous System. J. Exper. Med. 51:889, 1930.
32. Morcan, T. M., Cahalan, R. W., and Olitsky, P. K.: Induced System to Experimental Infection with Resistant Equine. Exper. Med. 76:357, 1942.

demonstrated in human serum, peritoneal fluid, brain and cerebrospinal fluid.³³

The other characteristic and unique lesion in the central nervous system is the periventricular reaction zone (figs. 4 and 5 *A*). This zone surrounds the lateral and third ventricles, wherever the ependymal epithelium has been denuded. Proceeding from the relatively unchanged brain tissue lumenally, this reaction zone may be conveniently described as consisting of four subzones of (1) cellular infiltration and thrombosis of capillaries, (2) thrombosis of large vessels, (3) cellular necrosis and (4) repair. The first subzone shows much microglial proliferation, necrobiosis of

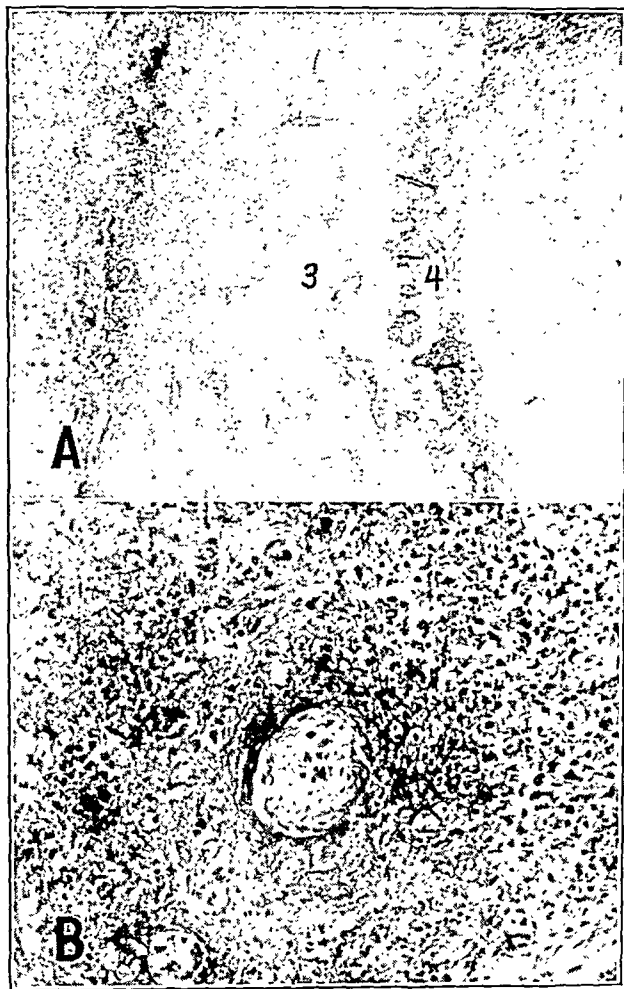


Fig. 5.—*A*, periventricular reaction zone, with the four subzones (1) of cellular infiltration and thrombosis of capillaries, (2) of thrombosis of large vessels, (3) of cellular necrosis and (4) of repair (phosphotungstic acid hematoxylin $\times$ about 192). *B*, periventricular subzone 2, showing fibrin exudation (black) surrounding a thrombotic vessel (formaldehyde-phosphotungstic acid hematoxylin $\times$ about 300).

astrocytes and neuronal cells, as well as much perivascular lymphocytic and granulocytic infiltration accompanying the damaged capillaries. The second subzone, of vascular thrombosis, is characterized by pronounced perivascular fibrin exudation, mural edema and plasma cell infiltration (fig. 5 *B*). The third subzone is marked by necrosis involving all cells excepting fibroblasts in the walls of certain large vessels. The fourth subzone, of repair, is formed by proliferating fibroblasts and small vessels that are derived from certain large vessels which have not undergone complete thrombosis in the

outer three subzones. Numerous plasma cells and adventitial wandering cells as well as *Toxoplasma*, both viable and degenerating forms, are found here. Calcium salts have been deposited throughout the third periventricular subzone and in bands of degenerating *Toxoplasma* in the fourth one.

The ventricular foramina of Monro and the aqueduct are blocked by inflammatory exudate. The ventricular lumens contain fluid of high protein content (1,000 to 2,600 mg. per hundred cubic centimeters), which cannot escape. *Toxoplasma* is frequently found in this ventricular fluid, which has been shown to contain *Toxoplasma* antigen (v.i.). If one recalls the aforementioned evidence for the presence of *Toxoplasma*-neutralizing antibodies in the serum, the zone of necrotizing vasculitis surrounding the antigen-containing ventricles strongly suggests this zone to be the site of an antigen-antibody reaction.

The necrotizing vascular reaction may be explained by antigen and antibody reacting in the scanty intercellular fluid and on the surface of the mural cells, thereby damaging the latter. Whatever small amount of blood reaches the fourth subzone contains less antibody, since much of it has been neutralized in passage through the outer zones. Furthermore, the proliferating fibroblasts in this fourth zone form a loose type of connective tissue, the interstices of which are filled with much antigen-containing fluid. This allows any remaining serum antibody to be neutralized in a liquid medium and in less contact with cells. The necrotizing vasculitis previously described bears considerable resemblance to the necrotizing allergic reaction, according to Bohrod's³⁴ classification. Ependymal epithelium covering the ventricular walls and the choroid plexus tufts seem to form an effective barrier for the ventricular fluid seepage into the surrounding tissue where it can come into contact with vascular channels containing antibody. Desquamation of a few choroid plexus lining cells gives rise to a formation of fibrinoid collagen in the plexus stroma. In summary, the periventricular reaction zone resembles an antigen-antibody reaction *in vivo*, analogous to a reaction of hypersensitivity. This lesion appears to have no exact parallel in any other infection.

The high protein content of the ventricular fluid (up to 2,600 mg. per hundred cubic centimeters), mentioned previously, is derived in part from the plasma that permeated the damaged vascular walls and in part from necrotic brain tissue that desquamated into the ventricles. The protein level of the subarachnoid fluid is lower, usually between 100 and 600 mg. per hundred cubic centimeters. It is in nearer to normal equilibrium with the blood stream owing to drainage and the vascularity of the meninges.

The clinical signs and symptoms of subacute toxoplasmosis, such as hydrocephaly and convulsions, are readily explained by the lesions described. Cerebral calcifications are usually small or even microscopic and may not be detectable radiologically. Chorioretinitis, however, is the most consistent clinical observation of the neonatal subacute disease, and it has been found in virtually every patient when it was looked for. Both exudative and proliferative types of retinitis and iridocyclitis have been encountered. The choroid usually shows less involvement and more chronic inflammation than the retina. A vitreous exudate is usually associated with the active retinal lesions, thus obscuring

33. Frenkel, J. K.: Unpublished data.

34. Bohrod, M.: Classification of the Histologic Reactions in Allergic Diseases, *Am. J. Med.* 3: 511, 1947.

the latter on fundoscopic examination. *Toxoplasma* organisms are found in the retinal lesions, frequently in the form of pseudocysts.

The subacute retinitis is analogous to the cerebral lesions, the retina being of neuroectodermal derivation. The ocular fluids contain an amount of protein similar to the cerebrospinal fluid (normal range 15 to 30 mg. per hundred cubic centimeters), hence similarly low antibody levels may be assumed to exist in the latter two fluids, as compared with the blood serum. The continued proliferation of *Toxoplasma* in the retina may therefore be analogous to the persistent proliferation of the organisms in the central nervous system. In the latter case, evidence has been presented that it proceeds because of the low level of specific antibodies present in that location.

Symptomatic subacute toxoplasmosis frequently has a fatal outcome, but surviving patients have been observed. Signs and symptoms in the surviving patients are variable, depending on the severity of lesions present. Chorioretinitis again is the most outstanding sign and may cause decided visual impairment if the macular area is involved. Since most of these patients at the time of their observation were in the chronic stage of the disease, they will be presented later.

Chronic Toxoplasmosis.—This terminology is used in reference to cases with clinical or laboratory evidence of toxoplasmosis without signs of widespread activity. Since no reports of autopsy of previously symptomatic patients are available and since *Toxoplasma* has not been isolated from any such cases of chronic disease, the crucial question of whether there is persistence of *Toxoplasma*, hence true chronicity, must remain only partially answered. There is much evidence, however, to favor the hypothesis of a chronic state of toxoplasmic infection in human beings. On several occasions, structures resembling *Toxoplasma* pseudocysts (fig. 1 C and D) have been found in routine autopsy material.³⁵ The recurrence of active chorioretinitis in patients showing the scars of subacute toxoplasmosis can best be explained by the hypothesis of *Toxoplasma* persisting through a latent stage. Finally, chronic latent toxoplasmosis has been demonstrated to occur in mice,³⁶ rats,^{2b} guinea pigs and rabbits³⁷ and hamsters.³³ Certain of these animals were found to have a chronic latent infection which had been acquired in nature, while in others this state has also been demonstrated experimentally. Depending on the virulence of the *Toxoplasma* strain as well as on the degree of host resistance (and hence the duration of the subacute stage of infection), fewer or larger numbers of *Toxoplasma* pseudocysts are found in the central nervous system and the eyes of such animals with chronic latent disease.³³ These pseudocysts may persist for considerable periods, probably for many years. An argyrophilic cyst wall (fig. 1 D) has been demonstrated on them,³³ which is probably the reason that they usually do not evoke a cellular reaction. However, the presence of small foci of necrosis and of microglial proliferation in animals with the chronic disease suggests the possibility of the rupture of such pseudocysts,

with the release of antigenic material in the form of organisms and other proteins. Whereas chronic toxoplasmosis may be clinically and pathologically latent, reactivation may occur secondary to rupture of pseudocysts.

The failure to isolate *Toxoplasma* from the brain of monkeys that have passed through the acute stage of the infection³⁸ and from the brain of an asymptomatic patient who showed, in results of cutaneous and serologic tests, evidence of past toxoplasmic infection³³ might indicate that chronic latent toxoplasmosis may be of rare occurrence in primates. However, these few experiments cannot be regarded as conclusive. The numbers of organisms persisting in the brain of a relatively resistant host may be very small, so that, after grinding, *Toxoplasma* liberated from the protective pseudocyst wall may be inactivated even by the small amount of neutralizing antibody present in the unperfused brain. The brain of the patient just mentioned possessed slightly greater *Toxoplasma*-neutralizing capacity than her cerebrospinal fluid.³³ In contrast, the number of *Toxoplasma* pseudocysts in the central nervous system of rodents may be large enough to be found on routine microscopic brain sections. Their complete neutralization would be of less likely occurrence, because of the quantitative relationships between organisms and antibody.

Clinical signs and symptoms of past or persistent (chronic) toxoplasmosis may be variable according to the amount of damage produced during the acute and subacute stage of the disease. In symptomatic patients, chorioretinitis is the most frequent sign, followed in incidence by electroencephalographic evidence of cerebral damage, cerebral calcifications demonstrable radiologically and other signs, such as microcephaly, hydrocephaly, ocular malformations, spastic paraplegia and their associated symptoms. The significance of toxoplasmosis in the causation of anterior uveitis has not been clearly established. The rupture of a pseudocyst within the retina is suggested as the causative mechanism of recurrent acute chorioretinitis in patients with laboratory evidence of toxoplasmosis. The antigen liberated gives rise to a hypersensitivity reaction, characterized clinically by the exudative and hemorrhagic phenomena of "granulomatous posterior uveitis."³⁹ Since this reaction may persist for a prolonged period of time, it may be assumed, first, that antigen has been released into the retina and vitreum, whence absorption and neutralization would occur relatively slowly, and, secondly, that *Toxoplasma* might proliferate within the retina for some time, again releasing more antigen. As has been mentioned before, *Toxoplasma*-neutralizing antibody levels may be expected to be as low in the ocular fluids as in the cerebrospinal fluid, since the protein content of these two fluids is similar. Of 28 patients with "granulomatous chorioretinitis" studied by me,⁴⁰ 20, or 71 per cent, showed evidence of toxoplasmosis in results of cutaneous and serologic tests. The mean age of these patients when first seen was 23 years; their mean age when symptoms or signs were first noted was 13 years, whereas lesions most likely were

35. Kean, B. H., and Grocott, R. G.: Asymptomatic Toxoplasmosis, *Am. J. Trop. Med.* 27: 745, 1947. Plaut, A.: The Problem of Human Toxoplasma Carriers, *Am. J. Path.* 22: 427, 1946.

36. (a) Findlay, and Middleton.^{2a} (b) Weinman, D.: Chronic Toxoplasmosis, *J. Infect. Dis.* 72: 85, 1943.

37. Perrin, T. L.: Toxoplasma and Encephalitozoon in Spontaneous and in Experimental Infections of Animals: A Comparative Study, *Arch. Path.* 36: 568 (Dec.) 1943.

38. Sabin and Ruchman.¹⁷ Frenkel.²³

39. Woods, A. C.: The Influence of Hypersensitivity on Endogenous Uveal Disease (The Jackson Memorial Lecture), *Am. J. Ophth.* 20: 257, 1947.

40. Frenkel, J. K.: Uveitis and Toxoplasmin Sensitivity. Proceedings Association for Research in Ophthalmology, Seventeenth Meeting, 1948, *Am. J. Ophth.*, to be published.

present at a much earlier age in many of them. Fourteen of the 20 patients (70 per cent) were female.

Evidence for the occurrence of asymptomatic (and later chronic?) toxoplasmosis has been accumulated from the serologic observations associated with dermal hypersensitivity to *Toxoplasma* antigen. A survey conducted by me at the University of California Medical School revealed an incidence of 10 per cent in a group of 50 normal persons between the ages of 20 and 35 years and an incidence of 28 per cent in a group of 50 hospital patients between 50 and 83 years of age. None of these patients had any of the recognized clinical signs of toxoplasmosis, and from only 1 was a history of encephalitic symptoms elicited. Whereas the incidence of past (or persistent?) toxoplasmosis increases with age, signs and symptoms of the disease appear to be mainly connected with infection occurring during fetal life or in childhood. Most of the mothers who have given birth to infected infants have shown laboratory evidence of past toxoplasmic infection; however, none were recorded as having had symptoms suggestive of an acute infection, except for such acute respiratory and gastroenteric diseases that are prevalent in the population as a whole. It is likely, therefore, that acute toxoplasmosis may be asymptomatic in resistant persons (especially in adults) or that it might be accompanied with nonspecific signs and symptoms, suggesting "flu," a gastrointestinal upset, infectious mononucleosis or the like.

Transplacental Toxoplasmosis.—Direct evidence of the antenatal inception of toxoplasmosis was brought forth by Paige, Cowen and Wolf,³⁴ whose fourth patient had intrauterine hydrocephalus necessitating craniotomy for delivery. Autopsy showed advanced subacute toxoplasmosis. Indirect evidence has been accumulated in the several cases reported with neonatal manifestations of widespread and advanced organ involvement characteristic of the subacute disease. The question arises as to whether the mother's initial infection with *Toxoplasma* was contracted during pregnancy or whether she had a chronic latent infection, in the course of which a few organisms escaped from a ruptured pseudocyst, infecting the placenta and hence the fetus. While either of these possibilities appear possible, primary infection of the pregnant mother appears more likely to be the commoner mode of fetal toxoplasmic infection. There is no history of a mother's transferring the disease in more than one pregnancy. None of the mothers with preexisting clinical signs and laboratory evidence of toxoplasmosis subsequently gave birth to infected infants. Conversely, none of the mothers who gave birth to toxoplasmic infants had any signs of the disease, except in 1 case of Heidelman's¹⁹ (case 27), in which chorioretinitis in both the mother and the child was associated with *Toxoplasma*-neutralizing antibodies. However, the mother's only lesion was active eight years after the birth of the infant and there was no evidence that the lesion had been acquired before that pregnancy. The presence of a pronounced hypersensitivity to *Toxoplasma* after the acute infection

makes blood stream dissemination of the organism rather unlikely.⁴¹

Furthermore, the grouping of cases in as rare a disease appears worthy of mention. Patients C. J. and B. D. A., observed by me,⁴ were born on the same day in San Francisco, without any cases having been recognized in the succeeding eighteen months in several hospitals of this city. The 2 patients reported by Sabin (1941) showed symptoms of the disease within ten days of each other in adjacent localities. Zuelzer's patients reported in 1944 were born in Detroit within a week of each other. Pinkerton and Henderson's (1941) cases occurred during the same summer in St. Louis. These data might be interpreted as being indicative of minor epidemics of toxoplasmosis, leading to acute infection of the mothers. With the mode of adult infection not yet definitely established, one can only speculate on an epizootic among arthropod vectors.

DIAGNOSIS OF TOXOPLASMOSIS

The isolation of *Toxoplasma* from a patient is the most significant single datum in the establishment of the diagnosis. Unfortunately, isolation is frequently not possible, leaving one to resort to pathologic, immunologic and serologic methods to confirm impressions gleaned from a patient's history and physical findings. Attempting to base a diagnosis only on one or the other finding appears to be premature in the present state of knowledge of the disease. It is highly desirable that one investigate patients completely, employing every method available, to arrive at a better understanding of the clinical syndromes. The lesions produced and the resulting signs and symptoms have been discussed in the previous sections. In the following section, an attempt will be made to evaluate the available laboratory aids.

Isolation of Toxoplasma.—During the acute stage of the infection, organisms might be recovered from blood, bone marrow, splenic puncture material, cerebrospinal fluid and possibly sputum. During the subacute stage organisms have been found in the ventricular fluid obtained by aspiration and from the central nervous system at autopsy. In the chronic state organisms might be present in the central nervous system, the eye and the myocardium. Visual demonstration of *Toxoplasma* on direct smears is rarely successful, except in the case of ventricular fluid sediments, where organisms have been demonstrated on several occasions during the subacute stage of the infection. Animal inoculations to study the biologic characteristics of the strain are highly desirable. Since chronic latent toxoplasmosis has been observed in many laboratory animals, it becomes necessary to utilize several species in each isolation attempt. Furthermore, the stock animals should be tested for the presence of such chronic latent infection by "blind passage" of their organs (especially brain) to other animals.

The following procedures were most useful in my hands for the isolation of *Toxoplasma* from human or animal sources. The inoculum, such as ventricular fluid sediment, is injected into groups of mice, hamsters and guinea pigs. One group of 4 to 6 animals of each species is inoculated intracerebrally, and a like group is inoculated intraperitoneally. If any of the animals should die, the brain is removed aseptically from animals inoculated by either route and it is subinoculated

41. Recently, Doctor C. D. Binkhorst reported from Holland the concurrence of chorioretinitis in a mother and her daughter (Toxoplasmosis, a monograph, Leiden, Netherlands, H. E. Stenfort Kroese, 1948, case 11; *Ophthalmologica* 115:65 [Feb.] 1948 [case 21]). Ocular lesions were first observed in the otherwise normal child at the age of 5 months; her serum contained *Toxoplasma*-neutralizing bodies when she was 6 years old. It was impossible to determine whether her infection was acquired in utero. Her mother's chorioretinitis is not typical for toxoplasmosis, and the result of her neutralizing antibody test was doubtful.

into other animals. At the same time impression films are prepared, stained with Wright's stain and examined for *Toxoplasma* (fig. 1 B). Intraperitoneally inoculated animals are examined for peritoneal exudate on the sixth and tenth days after injection. They are lightly etherized, and an abdominal paracentesis is performed with a 20 gage needle attached to a 2 cc. syringe. The pooled fluid, which must be obtained under aseptic conditions, is subinoculated intracerebrally into groups of fresh mice, hamsters and guinea pigs. The fluid is then examined either fresh or on a stained film for the presence of *Toxoplasma*. In the case of death of an intraperitoneally inoculated animal, impression films should be prepared from the mesentery, the liver, spleen and lung, and searched for *Toxoplasma*. If none of the animals should have ascites or die within one month, the survivors must be examined for infections that passed asymptotically because of the low pathogenicity of certain (unadapted) strains. Half of the animals of each group are killed after one month and their brains pooled and subinoculated. This single "blind passage" frequently will bring to light a toxoplastic infection present, although occasionally two or more such passages may be needed. The other half of the first inoculated animals should be held until the "blind passage" experiment has been carried to a definite conclusion. They may then be tested for immunity if an organism has been isolated. Most of these animals should be immune to a challenge injection with the homologous strain, although immunity to a heterologous virulent strain may be less pronounced (especially in mice).⁴²

Pathologic Examination.—During the course of the acute infection, biopsies of skin, lymph node, bone marrow, liver and spleen may be available. From patients in the subacute stage ventricular fluid sediment may be obtained and treated like a "button." Various tissues may be available from autopsies of patients in any of the stages of the disease. *Toxoplasma* are easily recognizable in sections stained with hematoxylin and eosin or with one of the polychromic methylene blue dyes. Fixation of tissues in Zenker-formaldehyde is preferable to formaldehyde if cytologic detail is appreciated. Contrary to their elongate appearance in the fresh state or on the dry film, on sections *Toxoplasma* are usually rounded up and nearly spherical bodies of equal size (fig. 1 C and E). Great care must be exercised to distinguish *Toxoplasma* from organisms such as *Histoplasma capsulatum*, *Trypanosoma cruzi*, *Leishmania*, *Encephalitozoon* and *Sarcocystis*.⁴³

Antigenic Test for the Demonstration of *Toxoplasma* Antigen in Ventricular Fluid of Infants with Hydrocephalus.^{4b}—Fluids obtained from ventricular puncture of patients with subacute toxoplasmosis are centrifuged. One-tenth cubic centimeter of the supernatant is injected intradermally into normal guinea pigs and into guinea pigs with chronic latent toxoplasmosis. Ventricular fluids from 2 patients from whom *Toxoplasma* was isolated evoked after twenty-four hours a large area of erythema and induration at the site of injection in the infected guinea pigs. Little or no similar reaction was present in the normal animals. Ventricular fluids

from 4 other hydrocephalic infants without evidence of toxoplastic infection gave negative reactions in both infected and control groups.

On the other hand, ventricular fluid from a patient with *Escherichia coli* meningitis evoked a slight area of erythema and induration in the toxoplastic guinea pigs, but none in the normal controls. Guinea pigs previously injected with human brain or cerebrospinal fluid may not be used, since they show pronounced reactions of dermal hypersensitivity on reinjection with the like material. This test, carefully used, may facilitate a rapid differential diagnosis of neonatal hydrocephalus.

Cutaneous Tests with *Toxoplasma* Antigen (*Toxoplasmin*).—This test^{4b} is the most useful simple aid in the diagnosis of past or latent toxoplasmosis, whenever isolation of the causative organism is not feasible. Intradermal injection of suitable dilutions of toxoplasmin evoke reactions of a delayed (tuberculin) type of hypersensitivity in certain patients. Since 1945 about 300 persons have been investigated for toxoplasmin sensitivity, and high rates of positivity have been found in patients with chorioretinitis, in mothers who have given birth to infected children and others. There is a good correlation between the results of cutaneous tests and *Toxoplasma*-neutralizing antibody tests. When the result of a toxoplasmin cutaneous test is positive, it, is usually followed by the appearance of complement-fixing antibodies to *Toxoplasma* antigen, whereas a negative result does not seem to give rise to such antibodies.

The cutaneous test is most useful in the diagnosis of chronic toxoplasmosis. Patients with acute toxoplasmosis are not expected to acquire dermal hypersensitivity early enough to be diagnostically useful. The test requires further trials in patients with the disease in the subacute stage to evaluate its diagnostic efficiency.

The diagnostic antigen^{4b} is derived from the sediment of mouse peritoneal fluids rich in *Toxoplasma*. The organisms are inactivated, their cell bodies are broken up and the antigen is standardized, tested for sterility and diluted in phenolized saline solution. A control antigen is similarly treated. Both antigens are injected intradermally in amounts of 0.1 cc. Readings are obtained after forty-eight to seventy-two hours, but positive reactions usually are apparent after twenty-four hours. An area of erythema and induration of over 10 mm. with a negative reaction in a control is taken as evidence of past or persistent infection. The intensity of the positive reaction could not be correlated with the degree of clinical activity.

An *In Vitro* Test for Hypersensitivity to *Toxoplasma* Antigen.—Recently Nantz and Blatt⁴⁴ described a method for the evaluation of bacterial hypersensitivity by the application of a tissue culture technic. Their method permits a quantitative analysis of hypersensitivity exhibited by a patient's white blood cells toward a variety of antigens. At present, studies are under way to evaluate the usefulness of this test in the study of toxoplastic infection.

***Toxoplasma*-Neutralizing Antibody Test.**—This test, first described by Sabin and Ruchman,⁴⁵ has been

42. I shall be pleased to investigate immunologically and serologically the relationships of freshly isolated strains to strains of *Toxoplasma* carried by me.

43. Perrin,³¹ Ash, J. E., and Spitz, S.: *Pathology of Tropical Diseases: An Atlas*, Philadelphia, W. B. Saunders Company, 1945, p. 204.

44. Nantz, F. A., and Blatt, H.: The Application of a Tissue Culture Technique in the Clinical Evaluation of Bacterial Hypersensitivity, *Ann. Allergy* 5: 554, 1947.

45. Sabin and Ruchman.²⁷ Sabin.²⁴

present at a much earlier age in many of them. Fourteen of the 20 patients (70 per cent) were female.

Evidence for the occurrence of asymptomatic (and later chronic?) toxoplasmosis has been accumulated from the serologic observations associated with dermal hypersensitivity to *Toxoplasma* antigen. A survey conducted by me at the University of California Medical School revealed an incidence of 10 per cent in a group of 50 normal persons between the ages of 20 and 35 years and an incidence of 28 per cent in a group of 50 hospital patients between 50 and 83 years of age. None of these patients had any of the recognized clinical signs of toxoplasmosis, and from only 1 was a history of encephalitic symptoms elicited. Whereas the incidence of past (or persistent?) toxoplasmosis increases with age, signs and symptoms of the disease appear to be mainly connected with infection occurring during fetal life or in childhood. Most of the mothers who have given birth to infected infants have shown laboratory evidence of past toxoplasmic infection; however, none were recorded as having had symptoms suggestive of an acute infection, except for such acute respiratory and gastroenteric diseases that are prevalent in the population as a whole. It is likely, therefore, that acute toxoplasmosis may be asymptomatic in resistant persons (especially in adults) or that it might be accompanied with nonspecific signs and symptoms, suggesting "flu," a gastrointestinal upset, infectious mononucleosis or the like.

Transplacental Toxoplasmosis.—Direct evidence of the antenatal inception of toxoplasmosis was brought forth by Paige, Cowen and Wolf,^{3a} whose fourth patient had intrauterine hydrocephalus necessitating craniotomy for delivery. Autopsy showed advanced subacute toxoplasmosis. Indirect evidence has been accumulated in the several cases reported with neonatal manifestations of widespread and advanced organ involvement characteristic of the subacute disease. The question arises as to whether the mother's initial infection with *Toxoplasma* was contracted during pregnancy or whether she had a chronic latent infection, in the course of which a few organisms escaped from a ruptured pseudocyst, infecting the placenta and hence the fetus. While either of these possibilities appear possible, primary infection of the pregnant mother appears more likely to be the commoner mode of fetal toxoplasmic infection. There is no history of a mother's transferring the disease in more than one pregnancy. None of the mothers with preexisting clinical signs and laboratory evidence of toxoplasmosis subsequently gave birth to infected infants. Conversely, none of the mothers who gave birth to toxoplasmic infants had any signs of the disease, except in 1 case of Heidelman's¹⁹ (case 27), in which chorioretinitis in both the mother and the child was associated with *Toxoplasma*-neutralizing antibodies. However, the mother's only lesion was active eight years after the birth of the infant and there was no evidence that the lesion had been acquired before that pregnancy. The presence of a pronounced hypersensitivity to *Toxoplasma* after the acute infection

makes blood stream dissemination of the organism rather unlikely.⁴¹

Furthermore, the grouping of cases in as rare a disease appears worthy of mention. Patients C. J. and B. D. A., observed by me,⁴ were born on the same day in San Francisco, without any cases having been recognized in the succeeding eighteen months in several hospitals of this city. The 2 patients reported by Sabin (1941) showed symptoms of the disease within ten days of each other in adjacent localities. Zuelzer's patients reported in 1944 were born in Detroit within a week of each other. Pinkerton and Henderson's (1941) cases occurred during the same summer in St. Louis. These data might be interpreted as being indicative of minor epidemics of toxoplasmosis, leading to acute infection of the mothers. With the mode of adult infection not yet definitely established, one can only speculate on an epizootic among arthropod vectors.

DIAGNOSIS OF TOXOPLASMOSIS

The isolation of *Toxoplasma* from a patient is the most significant single datum in the establishment of the diagnosis. Unfortunately, isolation is frequently not possible, leaving one to resort to pathologic, immunologic and serologic methods to confirm impressions gleaned from a patient's history and physical findings. Attempting to base a diagnosis only on one or the other finding appears to be premature in the present state of knowledge of the disease. It is highly desirable that one investigate patients completely, employing every method available, to arrive at a better understanding of the clinical syndromes. The lesions produced and the resulting signs and symptoms have been discussed in the previous sections. In the following section, an attempt will be made to evaluate the available laboratory aids.

Isolation of Toxoplasma.—During the acute stage of the infection, organisms might be recovered from blood, bone marrow, splenic puncture material, cerebrospinal fluid and possibly sputum. During the subacute stage organisms have been found in the ventricular fluid obtained by aspiration and from the central nervous system at autopsy. In the chronic state organisms might be present in the central nervous system, the eye and the myocardium. Visual demonstration of *Toxoplasma* on direct smears is rarely successful, except in the case of ventricular fluid sediments, where organisms have been demonstrated on several occasions during the subacute stage of the infection. Animal inoculations to study the biologic characteristics of the strain are highly desirable. Since chronic latent toxoplasmosis has been observed in many laboratory animals, it becomes necessary to utilize several species in each isolation attempt. Furthermore, the stock animals should be tested for the presence of such chronic latent infection by "blind passage" of their organs (especially brain) to other animals.

The following procedures were most useful in my hands for the isolation of *Toxoplasma* from human or animal sources. The inoculum, such as ventricular fluid sediment, is injected into groups of mice, hamsters and guinea pigs. One group of 4 to 6 animals of each species is inoculated intracerebrally, and a like group is inoculated intraperitoneally. If any of the animals should die, the brain is removed aseptically from animals inoculated by either route and it is subinoculated

41. Recently, Doctor C. D. Binkhorst reported from Holland the concurrence of chorioretinitis in a mother and her daughter (Toxoplasmosis, a monograph, Leiden, Netherlands, H. E. Stenfort Kroese, 1948, case 11; *Ophthalmologica* 115:65 [Feb. 1948] [case 21]). Ocular lesions were first observed in the otherwise normal child at the age of 5 months; her serum contained *Toxoplasma*-neutralizing bodies when she was 6 years old. It was impossible to determine whether her infection was acquired in utero. Her mother's chorioretinitis is not typical for toxoplasmosis, and the result of her neutralizing antibody test was doubtful.

into other animals. At the same time impression films are prepared, stained with Wright's stain and examined for *Toxoplasma* (fig. 1B). Intraperitoneally inoculated animals are examined for peritoneal exudate on the sixth and tenth days after injection. They are lightly etherized, and an abdominal paracentesis is performed with a 20 gage needle attached to a 2 cc. syringe. The pooled fluid, which must be obtained under aseptic conditions, is subinoculated intracerebrally into groups of fresh mice, hamsters and guinea pigs. The fluid is then examined either fresh or on a stained film for the presence of *Toxoplasma*. In the case of death of an intraperitoneally inoculated animal, impression films should be prepared from the mesentery, the liver, spleen and lung, and searched for *Toxoplasma*. If none of the animals should have ascites or die within one month, the survivors must be examined for infections that passed asymptotically because of the low pathogenicity of certain (unadapted) strains. Half of the animals of each group are killed after one month and their brains pooled and subinoculated. This single "blind passage" frequently will bring to light a toxoplasmic infection present, although occasionally two or more such passages may be needed. The other half of the first inoculated animals should be held until the "blind passage" experiment has been carried to a definite conclusion. They may then be tested for immunity if an organism has been isolated. Most of these animals should be immune to a challenge injection with the homologous strain, although immunity to a heterologous virulent strain may be less pronounced (especially in mice).⁴²

Pathologic Examination.—During the course of the acute infection, biopsies of skin, lymph node, bone marrow, liver and spleen may be available. From patients in the subacute stage ventricular fluid sediment may be obtained and treated like a "button." Various tissues may be available from autopsies of patients in any of the stages of the disease. *Toxoplasma* are easily recognizable in sections stained with hematoxylin and eosin or with one of the polychromic methylene blue dyes. Fixation of tissues in Zenker-formaldehyde is preferable to formaldehyde if cytologic detail is appreciated. Contrary to their elongate appearance in the fresh state or on the dry film, on sections *Toxoplasma* are usually rounded up and nearly spherical bodies of equal size (fig. 1C and E). Great care must be exercised to distinguish *Toxoplasma* from organisms such as *Histoplasma capsulatum*, *Trypanosoma cruzi*, *Leishmania*, *Encephalitozoon* and *Sarcocystis*.⁴³

Antigenic Test for the Demonstration of *Toxoplasma* Antigen in Ventricular Fluid of Infants with Hydrocephalus.^{4b}—Fluids obtained from ventricular puncture of patients with subacute toxoplasmosis are centrifuged. One-tenth cubic centimeter of the supernatant is injected intradermally into normal guinea pigs and into guinea pigs with chronic latent toxoplasmosis. Ventricular fluids from 2 patients from whom *Toxoplasma* was isolated evoked after twenty-four hours a large area of erythema and induration at the site of injection in the infected guinea pigs. Little or no similar reaction was present in the normal animals. Ventricular fluids

from 4 other hydrocephalic infants without evidence of toxoplasmic infection gave negative reactions in both infected and control groups.

On the other hand, ventricular fluid from a patient with *Escherichia coli* meningitis evoked a slight area of erythema and induration in the toxoplasmic guinea pigs, but none in the normal controls. Guinea pigs previously injected with human brain or cerebrospinal fluid may not be used, since they show pronounced reactions of dermal hypersensitivity on reinjection with the like material. This test, carefully used, may facilitate a rapid differential diagnosis of neonatal hydrocephalus.

Cutaneous Tests with *Toxoplasma* Antigen (*Toxoplasmin*).—This test^{4b} is the most useful simple aid in the diagnosis of past or latent toxoplasmosis, whenever isolation of the causative organism is not feasible. Intradermal injection of suitable dilutions of toxoplasmin evoke reactions of a delayed (tuberculin) type of hypersensitivity in certain patients. Since 1945 about 300 persons have been investigated for toxoplasmin sensitivity, and high rates of positivity have been found in patients with chorioretinitis, in mothers who have given birth to infected children and others. There is a good correlation between the results of cutaneous tests and *Toxoplasma*-neutralizing antibody tests. When the result of a toxoplasmin cutaneous test is positive, it is usually followed by the appearance of complement-fixing antibodies to *Toxoplasma* antigen, whereas a negative result does not seem to give rise to such antibodies.

The cutaneous test is most useful in the diagnosis of chronic toxoplasmosis. Patients with acute toxoplasmosis are not expected to acquire dermal hypersensitivity early enough to be diagnostically useful. The test requires further trials in patients with the disease in the subacute stage to evaluate its diagnostic efficiency.

The diagnostic antigen^{4b} is derived from the sediment of mouse peritoneal fluids rich in *Toxoplasma*. The organisms are inactivated, their cell bodies are broken up and the antigen is standardized, tested for sterility and diluted in phenolized saline solution. A control antigen is similarly treated. Both antigens are injected intradermally in amounts of 0.1 cc. Readings are obtained after forty-eight to seventy-two hours, but positive reactions usually are apparent after twenty-four hours. An area of erythema and induration of over 10 mm. with a negative reaction in a control is taken as evidence of past or persistent infection. The intensity of the positive reaction could not be correlated with the degree of clinical activity.

An *In Vitro* Test for Hypersensitivity to *Toxoplasma* Antigen.—Recently Nantz and Blatt⁴⁴ described a method for the evaluation of bacterial hypersensitivity by the application of a tissue culture technic. Their method permits a quantitative analysis of hypersensitivity exhibited by a patient's white blood cells toward a variety of antigens. At present, studies are under way to evaluate the usefulness of this test in the study of toxoplasmic infection.

***Toxoplasma*-Neutralizing Antibody Test.**—This test, first described by Sabin and Ruchman,⁴⁵ has been

42. I shall be pleased to investigate immunologically and serologically the relationships of freshly isolated strains to strains of *Toxoplasma* carried by me.

43. Perrin.³⁷ Ash, J. E., and Spitz, S.: *Pathology of Tropical Diseases: An Atlas*, Philadelphia, W. B. Saunders Company, 1945, p. 204.

44. Nantz, F. A., and Blatt, H.: The Application of a Tissue Culture Technique in the Clinical Evaluation of Bacterial Hypersensitivity, *Ann. Allergy* 5: 554, 1947.

45. Sabin and Ruchman.³⁷ Sabin.⁴¹

widely used and has proved useful in demonstrating such antibodies as may be found in the subacute and the chronic state of the infection. However, equivocal readings are frequently obtained, apparently because of low titers of neutralizing antibodies.⁴⁶ The antibody titer usually increases after a positive reaction to a toxoplasmin cutaneous test; hence it is useful to employ these two tests in conjunction. Other disadvantages of the neutralizing antibody test include the fact that diagnostic readings require a week to develop and that neutralizing antibodies are unstable both at room and refrigerator temperatures, necessitating storage of test serums in the frozen state. For the performance of the test an active strain of *Toxoplasma* must be maintained in the laboratory. Neutralizing antibodies are demonstrated by their inhibiting effects in *Toxoplasma*-serum mixtures on the development of papulonecrotic cutaneous lesions in rabbits, at the sites of intradermal injection of various dilutions of *Toxoplasma*.⁴⁷ Recently Alm⁴⁸ demonstrated neutralizing antibodies quantitatively on infected chorioallantoic membranes of chick embryos. Since chronic active toxoplasmosis is frequently accompanied by relatively low levels of neutralizing antibodies, it is of interest to check for increase of antibody titers during treatment. Although the serum antibody measured here is not directly related to the degree of dermal hypersensitivity, analogous qualitative results are usually obtained. The patients who give divergent results with these two tests, however, are most interesting to study for possible pathologic implications of this phenomenon.

Toxoplasma Complement-Fixing Test.—This test was first described by Warren and Sabin.⁴⁹ Recently an improvement of this technic was reported by Warren and Russ.⁴⁹ Dr. Carl M. Eklund and Dr. David Lackman performed complement fixation tests with *Toxoplasma* antigen on the serums of many of my patients using a still different technic. Two of their observations will be quoted here, since they are important for correlation with those observations obtained by use of the other tests. Patients who showed a negative toxoplasmin skin test on repeated occasions, did not possess demonstrable complement-fixing antibodies, nor did they develop any in result of these antigen injections. Secondly, patients with positive toxoplasmin skin tests, who usually did not show complement-fixing antibodies in their serum, frequently showed an antibody titer in response to the antigen injections. Pre-existing titers were increased. Titers tended to disappear between one and two years after the patient received the last antigen injection or gave birth to an infected infant. Many patients have shown a positive neutralizing antibody test whereas a complement-fixing test on their serum has been negative. Data obtained by the use of monkeys likewise indicate that the presence of a complement-fixing titer is

indicative of a recent infection or of recent contact with *Toxoplasma* antigen. Judging from the animal data, complement-fixing titers might be detectable within a week after infection. Since at this time neutralizing antibodies cannot be demonstrated unequivocally, the complement-fixing test might prove especially useful in the early stage of the disease, if a rise in titer can be demonstrated (see, however, footnote 47). Its results should be compared, however, with those of the other tests, and, of course, an attempt should be made to isolate *Toxoplasma*.

Clinical Laboratory Data.—The most striking observation is the high ventricular fluid protein content in patients with subacute toxoplasmosis. No other consistent observations have been encountered, and further study is required to establish significant data.

TREATMENT OF TOXOPLASMOSIS

In acute toxoplasmosis the number and severity of lesions are in direct proportion to the number and virulence of the organisms and inversely proportional to the natural resistance of the host. Treatment with sulfadiazine and sulfamerazine in full doses has been observed to control this type of infection in animals. Robinson⁵⁰ reported the successful treatment of a child with predominantly meningoencephalitic signs and symptoms. Treatment should be continuous for about two to three weeks, until sufficient immunity has been acquired to prevent a relapse. As has been shown by Weinman,^{50b} treatment with sulfonamide drugs suppresses proliferation of organisms, but it does not rid the host of these organisms. *Toxoplasma* persists in the form of pseudocysts within neural tissue, and, since antibody titers are much lower there than in the serum the organisms might resume proliferation in the absence of a sufficiently high level of sulfonamide drugs or antibody. The clinical relapse observed by Robinson might be explained on this basis. Supportive treatment, such as oxygen, transfusions (if possible of serum containing neutralizing antibody) and a low fat diet, should be given as indicated. Penicillin,⁵¹ streptomycin, and a number of other drugs⁵² were not found effective in the treatment of toxoplasmosis. Recently, chloromycetin, aureomycin, subtilin, polymyxin-B, chlorguanide hydrochloride (paludrine®), bacitracin, p-aminosalicylic acid, nicotinic acid and nitrofurazone (furacin®) I found ineffective in treatment of experimental toxoplasmosis.

In subacute toxoplasmosis, extensive mechanical and usually irreversible lesions are present by the time the diagnosis is made. Indeed, hydrocephaly, being usually the first suggestive sign, depends on occlusion of the aqueduct and the ventricular foramina. Although treatment with sulfonamide drugs has proved effective in suppressing proliferation of the organisms, a patient observed by me (R. F.),^{4a} died later with extensive central nervous system damage, accompanied with histologic signs of repair and very few organisms. Zuelzer^{29d} has made similar observations, although 1 of his patients survived. In cases of more advanced disease, in which hydrocephaly and chorioretinitis are

⁴⁶ Heidelberg.¹⁰ Frenkel.^{4b}

⁴⁷ An in vitro dye test has recently been developed which is a better tool for the estimation of *Toxoplasma*-neutralizing antibody. The quantitative data obtained by this test provide the most useful information for the serologic diagnosis of Toxoplasmosis. Furthermore, it was demonstrated that the *Toxoplasma*-neutralizing antibody itself is heat stable, that, however, a heat-labile "accessory factor" is necessary to consummate the neutralizing process, in the rabbit test as well as in the in vitro dye test (Sabin, A. B., and Feldman, H. A.: Dyes as Microchemical Indicators of a New Immunity Phenomenon Affecting a Protozoan Parasite [*Toxoplasma*], *Science* **108**: 660 [Dec. 10] 1948).

⁴⁸ Alm, L.: Nagot om Toxoplasmosens Mikrobiologi, Svenska Läkarsällskapet, **45**: 333, 1948.

⁴⁹ Warren, J., and Russ, S. B.: Cultivation of *Toxoplasma* in Embryonated Egg: An Antigen Derived from Chorioallantoic Membrane, *Proc. Soc. Exper. Biol. & Med.* **67**: 85, 1948.

⁵⁰ Robinson, P.: A Case of Toxoplasmosis with Recovery, *Ann. paediat.* **168**: 134, 1947.

⁵¹ Augustine, D. L.; Weinman, D., and McAllister, J.: Rapid and Sterilizing Effect of Penicillin Sodium in Experimental Relapsing Fever Infections and Its Ineffectiveness in the Treatment of Trypanosomiasis (*Trypanosoma lewisi*) and Toxoplasmosis, *Science* **99**: 10, 1944.

⁵² Cross, J. B., and Anigstein, L.: Chemotherapeutic Study of Experimental Toxoplasmosis—Preliminary Report, *Texas Rep. Biol. & Med.* **6**: 260, 1948.

present, treatment with sulfonamide drugs does not appear to be very promising, and survival may be accompanied with such conditions as mental deficiency, partial or complete blindness, spastic paraplegia and convulsions.

In chronic active toxoplasmosis, lesions are thought to be due to rupture of *Toxoplasma* pseudocysts, such as in the retina, giving rise to localized reactions of hypersensitivity. Consideration of this concept, discussed previously, has led to attempts at desensitization of patients showing active chorioretinitis, associated with evidence of toxoplasmic infection from cutaneous and serologic tests. The rationale of this treatment implies stimulation of increased titers of free plasma and intercellular antibody, capable of binding and neutralizing the antigen in the intercellular fluids, and minimizing the amount of the same reaction taking place on the more vulnerable cell surfaces. High serum antibody levels should be obtained, since their diffusion ratio into the central nervous system and the eye is of very low order.

So far, 9 such patients have been treated by injection of graded increasing doses of *Toxoplasma* antigen, supplemented in some instances by nonspecific protein therapy with intravenous typhoid vaccine.⁴⁰ The lesions became inactive during treatment in 8 patients, as indicated by disappearance of the vitreous exudate, decreased retinal edema and infiltration and beginning pigment deposition. One patient was not improved, and granulomatous iridocyclitis developed in addition to the chorioretinitis. This latter patient also had a positive reaction to a tuberculin test. Since the course of these lesions cannot be predicted, any improvement occurring during treatment cannot necessarily be said to be due to it. The results of this experimental treatment are recorded here to point a way for careful and prolonged clinical research work, which should be controlled by the immunologic and serologic tests previously discussed.

Treatment with sulfonamide drugs does not appear to have a significant effect on *Toxoplasma* pseudocysts. The chorioretinal lesions are thought to be due more to the liberated antigen, which does not quickly diffuse out of the vitreous, than to proliferation of *Toxoplasma* in the retina. In persistent cases of chorioretinitis, treatment with sulfonamide drugs might be given a trial. However, again this treatment may be expected only to inhibit proliferation of organisms. What is needed is a drug that diffuses through the blood-neuroectodermal barrier into the brain and the eye and that kills *Toxoplasma*, rather than merely suppressing its multiplication.

SUMMARY

The classification proposed here is based primarily on the pathogenesis and secondarily on clinical manifestations of toxoplasmosis. Each infection is considered to progress from the acute, to the subacute, to the chronic stage, unless death supervenes. The laboratory tests most useful in the diagnosis of each stage are included in the following outline.

A. *Acute Toxoplasmosis*. Generalized, irrespective of age or mode of infection, involving all viscera, including the central nervous system; diagnosed by demonstration of the organisms (I), rise in complement fixation and neutralizing antibody⁴¹ titers (I, II)

I. *Symptomatic*—pneumonitis, hepatitis, meningoencephalitis, cutaneous rash, etc.

(a) Early predominantly visceral symptoms

1. Infantile cases^{28a, b}
2. Adult cases⁵³

(b) Late predominantly meningoencephalitic symptoms:

1. Infantile cases⁵⁴
2. Adult case⁵⁵

II. *Asymptomatic*—majority of cases, undiagnosed

B. *Subacute Toxoplasmosis*. Depending on persistence and proliferation of *Toxoplasma* in the central nervous system, including the eye; subsidence of other visceral lesions due to antibody formation; zone of antigen-antibody reaction surrounding ventricles; diagnosed by isolation of *Toxoplasma*, antigenic test with ventricular fluid (I), rise in neutralizing antibody titer, positive complement fixation titer (I, II)

I. *Symptomatic*

- (a) Fatal; chorioretinitis, usually with periventricular zones of necrosis, hydrocephaly, cerebral calcifications usually small or absent
- (b) Surviving; chorioretinitis, usually with microcephaly, cerebral calcifications frequently larger, other signs of cerebral damage (electroencephalogram)

II. *Asymptomatic*—majority of cases, no significant lesions; undiagnosed

C. *Chronic Toxoplasmosis*. Depending on persistence of *Toxoplasma* pseudocysts in the central nervous system, the eye and the myocardium; diagnosed clinically by immunologic and serologic tests

I. *Active*—chorioretinitis, anterior uveitis (?); positive reaction to cutaneous test, positive reaction to neutralizing antibody test, positive or negative complement fixation titer

II. *Latent*

(a) *Symptomatic*—chorioretinitis, anterior uveitis (?), microphthalmia, other ocular malformations, microcephaly, hydrocephaly, spastic paraplegia; positive reaction to cutaneous test, positive reaction to neutralizing antibody test, positive or negative complement fixation titer

(b) *Asymptomatic*

1. Mothers who gave birth to infected infant; positive reaction to cutaneous test, positive reaction to neutralizing antibody test, complement fixation titer usually positive for several months thereafter
2. Pseudocysts discovered at autopsy
3. Only evidence: positive reaction to cutaneous test, positive reaction to neutralizing antibody test, complement fixation titer usually negative.

53. Pinkerton and Weinman.¹¹ Pinkerton and Henderson.¹²

54. Sabin.¹³ Robinson.⁵⁰

55. Guimarães, F. N.: *Toxoplasmose humana: Meningoencefalomielite toxoplasmica; ocorrência em adulto e em recém-nascido*, Mem. Inst. Oswaldo Cruz 38: 320, 1943.

Radiation and Abnormal Children.—The best evidence we have to date is that in humans, in general, radiation will not significantly increase the rate of these mutations. Our studies of the survivors of Hiroshima and Nagasaki (carried on by the Atomic Casualty Commission) thus far fail to disclose any increase whatever of abnormal children, nor has there, thus far, been any increased incidence of still births or miscarriages, or of leukemia. Our Commission will continue to support this extensive work in Japan, the results of which in the course of time will throw a great deal of light on this whole subject of radiation effects—immediate and long-term.—From an address by David E. Lillenthal, Chairman, Atomic Energy Commission, before the American College of Physicians, New York, March 31, 1949.

CULDOSCOPY: ITS DIAGNOSTIC VALUE IN PELVIC DISEASE

ALBERT DECKER, M.D.
New York

Pathologic conditions of the female pelvis that do not permit a positive diagnosis by the routine methods are occasionally suspected or actually encountered. In the presence of inconclusive observations in conditions that require a positive diagnosis, exploration by laparotomy has frequently been employed. It is believed that any safe method of direct study of the pelvic viscera that avoids exposure by laparotomy deserves consideration.

HISTORY

The value of endoscopic visualization is amply demonstrated by its frequent application to the body cavities and hollow viscera by specialists in many fields.

In 1910, Kelling¹ successfully visualized the abdominal viscera through an endoscope by means of abdominal puncture. Ruddock² in 1934 published a report of 900 patients examined by means of a peritoneoscope introduced through the anterior abdominal wall. Abdominal puncture, in the absence of ascites, regardless of the favorable reports of its advocates, has not gained widespread recognition. The critics of peritoneoscopy fear bowel injury, infection, pain associated

with the puncture and the distention of the cavity with gas under positive pressure.

I have applied endoscopy to the pelvis by a technic that avoids the undesirable features of abdominal puncture. Endoscopy through the rectovaginal pouch, commonly termed the cul-de-sac of Douglas, accomplishes this purpose. The procedure is termed culdoscopy.

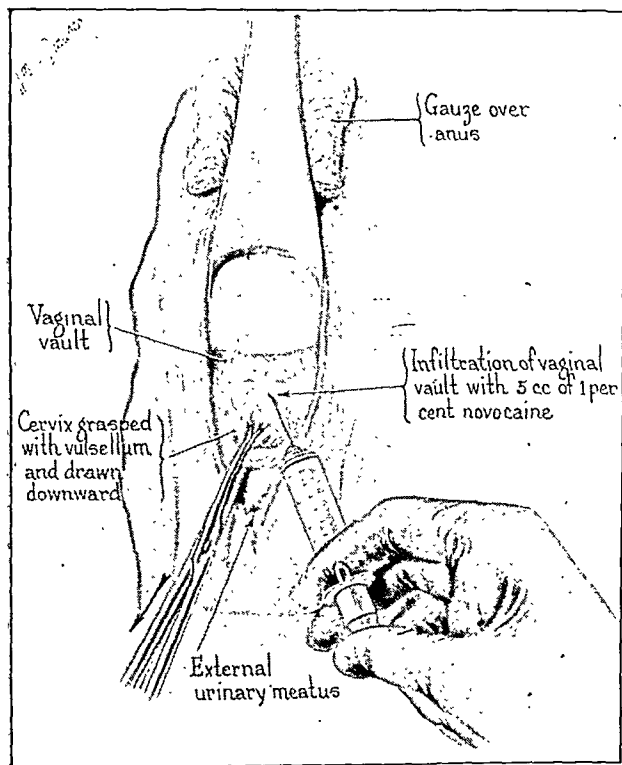


Fig. 1.—Posterior view of the vaginal canal, with the patient in the knee-chest position. Injection of local anesthetic in the vaginal vault.

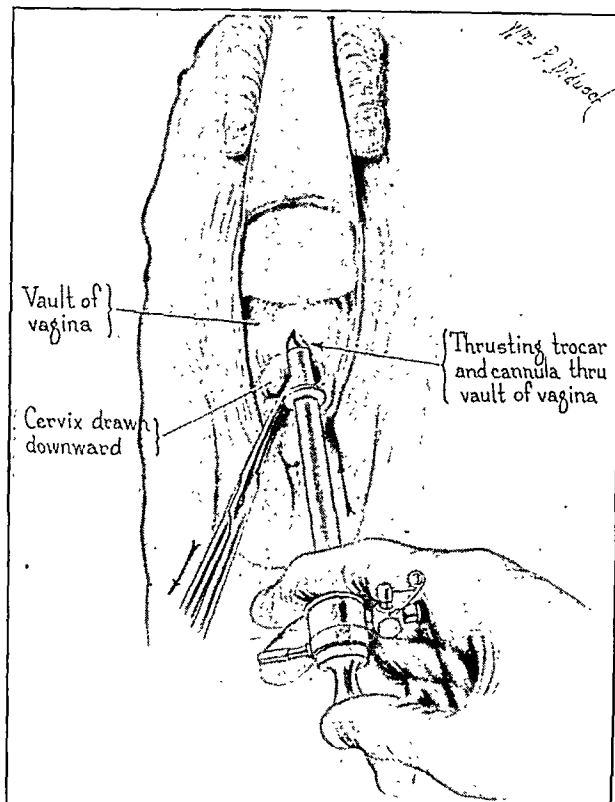


Fig. 2.—Posterior view of the vaginal canal, with the patient in the knee-chest position. The trochar is in the cannula, the tip poised over the vaginal vault ready for puncture.

THE PUNCTURE

It is apparent that any complications or accidents that might occur during culdoscopy would result from the puncture rather than from visualization. It is the puncture, then, that must be critically considered.

The surgical anatomic relations of the rectovaginal pouch to the cervix and rectum in the knee-chest position account for the desirable features of culdoscopy. In the knee-chest position the movement of abdominal viscera cephalad creates a negative pressure in the abdominal cavity. This may amount to as much as 35 to 50 cc. of water. The intestines fall out of the pelvis. The posterior vaginal vault becomes exaggerated, stretches and is thinned out, so that it is frequently only a few millimeters in thickness. The vaginal mucous membrane and the peritoneum of the cul-de-sac approximate at the point of greatest concavity. The rectum is separated from the cervix by several centimeters. In this condition the vaginal vault may be easily punctured with needle or trochar with very little discomfort. The puncture is accompanied with the inrush of air which signalizes entry into the peritoneal cavity. A spontaneous pneumoperitoneum amounting to 800 to 1,600 cc. of air may result. Positive gas pressure is not required. Embolism and the extraperitoneal extravasation of air are thus avoided.

Attending Gynecologist, Knickerbocker Hospital; Assistant Attending Gynecologist, New York University-Bellevue Medical Center, University Hospital.

Read before the Section on Obstetrics and Gynecology at the Ninety-Seventh Annual Session of the American Medical Association, Chicago, June 24, 1948.

1. Kelling, G.: Ueber die Möglichkeit die Zystoskopie bei Untersuchungen seröser Höhlungen anzuwenden, München, med. Wchnschr. 57: 2358, 1910.

2. Ruddock, J. C.: Peritoneoscopy, West. J. Surg. 42: 392, 1934.

The cul-de-sac has been punctured by me and by others³ more than four hundred times with trochar and needle without serious complications.

INSTRUMENT AND EQUIPMENT

A trochar and cannula have been devised to puncture the vaginal mucosa and peritoneum of the cul-de-sac by one thrust without preliminary incision. The cannula is large enough to admit an endoscope designed to view the pelvic organs.

The trochar is grooved and the cannula is equipped with a valve so that carbon dioxide may be introduced into the peritoneal cavity before the trochar is removed. A length of rubber tubing from a container of carbon dioxide may be attached to the cannula valve. When the valve is opened, the gas will be drawn into the peritoneal cavity until the negative pressure is neutralized. Self-retaining cervical cannulas of the screw tip and balloon type have been devised for the purpose of introducing a solution of indigo carmine through the uterus and tubes while they are being observed through the culdoscope.

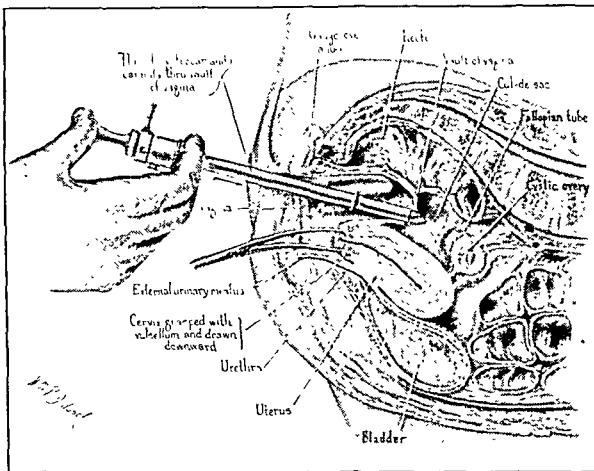


Fig. 3.—Sagittal section of the pelvis, with the patient in the knee-chest position. The posterior vaginal septum shown at the moment of puncture.

The examining table should be equipped with tall upright leg holders and shoulder braces. Muslin bandages or thigh straps are necessary to support the thigh against the leg holders. Other instruments required are an 8 inch (20 cm.) knee bent vulsellum, perineal retractor, 10 cc. syringe and a 4½ inch (11 cm.) 22 gage needle. Complete operating room facilities are not necessary. A convenient examining room will suffice.

PREPARATION OF THE PATIENT

The vulva is shaved. The bladder and rectum are emptied. One hundred milligrams of meperidine hydrochloride may be given by hypodermic injection forty-five minutes before the examination. Three grains (195 mg.) of amobarbital sodium given orally one hour before the examination has often been satisfactory. In many cases the preexamination medication has been omitted.

THE PROCEDURE

The patient is placed in the knee-chest position, maintained by shoulder braces, leg holders and thigh bandages. The vulva, buttocks and anal region are painted with a nonirritating antiseptic solution. The patient is draped with a sterile sheet or

towels. The perineum is elevated with a perineal retractor. The retracting blade should be applied to the outer three fourths of the posterior vaginal wall. The cervix is grasped with a knee bent vulsellum and drawn down. The point of greatest concavity of the vaginal vault is infiltrated with three or four wheals of 2 per cent procaine hydrochloride, with a 10 cc. syringe and a 4½ inch (11 cm.) 22 gage needle. Five or six cubic centimeters of the anesthetic agent are sufficient. The

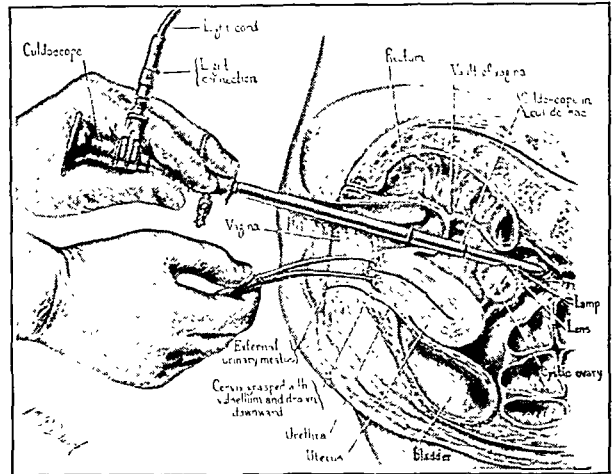


Fig. 4.—Sagittal section of the female pelvis, with the patient in the knee-chest position. The trochar has been removed and the culdoscope introduced through the cannula in position for visualization.

tip of the perineal retractor should be adjusted so that it does not extend into the vaginal vault. The perineum and distal three fourths of the posterior vaginal wall should be elevated as high as comfort will allow. The cervix should be drawn down only enough to accentuate the vaginal concavity and to steady the structures during puncture. Forceful traction on the cervix at this moment should be avoided. The trochar and cannula with the valve closed are then poised over the posterior vaginal wall at the point of greatest concavity. This point may be nearer the posterior vaginal wall and rectum than to the cervix. The trochar is then pushed through the vaginal wall with one quick thrust. When the valve on the cannula is opened or if the trochar is removed, air will be heard to enter the

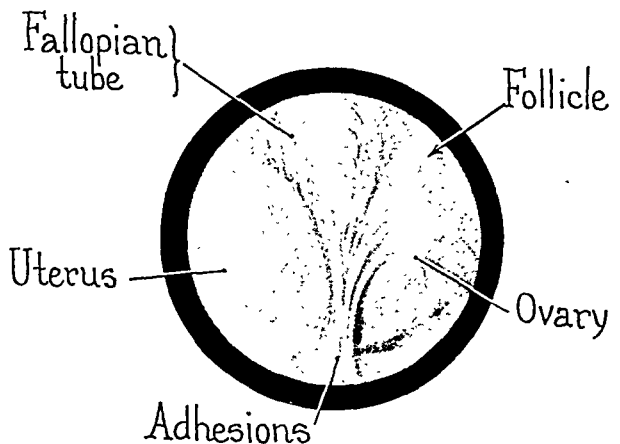


Fig. 5.—Culdoscopic view of an adherent tube and ovary.

pelvis. When it is desired to substitute carbon dioxide for air, the valve is attached to a bag containing carbon dioxide before it is opened. When the inrush of air is not heard or when the carbon dioxide is not drawn into the pelvis promptly, it is obvious that the peritoneal sac has not been entered. Failure to puncture the cul-de-sac results from improper selection of the point of puncture, loosely attached peritoneum with considerable intervening areolar or fatty tissue, or adherent struc-

3. Te Linde, R. W., and Rutledge, F.: Culdoscopy: A Useful Gynecologic Procedure. *Am. J. Obst. & Gynec.* 55:102, 1948. Rock, J., in discussion on Te Linde, p. 115.

tures within the cul-de-sac. The last two conditions can usually be apprehended before the examination by a careful pelvic examination and by a preliminary needle puncture. When some doubt is entertained concerning the ability to enter the cul-de-sac in a particular case selected for culdoscopy, preliminary puncture should be employed. On the clinic or office examining table the patient is placed in knee-chest position. The vaginal vault

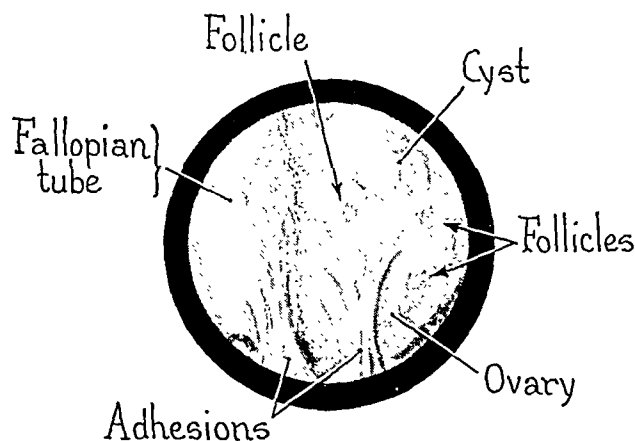


Fig. 6.—Culdoscopic view of adhesions about a cystic ovary and chronically inflamed tube.

is punctured with a $4\frac{1}{2}$ inch (11 cm.) 19 gage needle attached to a 2 cc. syringe with the plunger drawn out two-thirds its length. Anesthesia is not required. When the needle point enters the peritoneal cavity the plunger of the syringe will be drawn down sharply. The needle is removed without allowing air to enter the abdomen. Inability to demonstrate intra-abdominal negative pressure by this means should usually exclude the patient from further attempts at puncture. In a few instances, when the peritoneum was loosely attached and rode ahead of the tip of the trochar, it was possible to immobilize it by means of a clamp inserted through the mucous membrane wound, while the trochar was reinserted through the same wound, or at another point for a successful puncture.

Our experience warrants the conclusion that cul-de-sac puncture for any purpose, when the pouch is not distended with fluid or blood, should be made in the knee-chest position. When a flexible cannula is used, the dorsal position may be assumed after puncture for removal of fluid, blood or cellular debris.

Culdoscopic Visualization.—After puncture has been accomplished and the selected type of pneumoperitoneum produced,

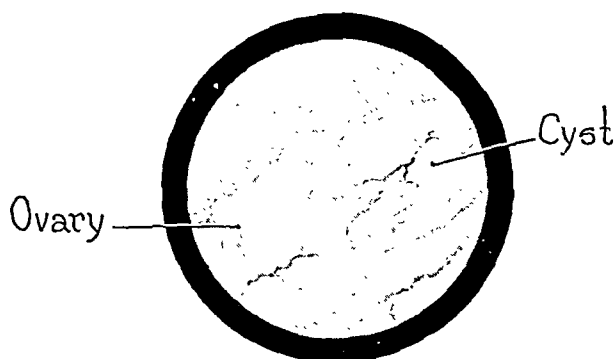


Fig. 7.—Culdoscopic view of the ovary with follicular cyst.

the trochar is removed while the cannula is held in place. The perineum may be relaxed, but the retractor kept in place. The sterile culdoscope, with dry warm lenses, is inserted into the pelvis through the cannula and locked in place. The illuminated end of the culdoscope will rarely come in contact with any structure. The nature of the septum and the construction

of the cannula allow a wide range of motility of the culdoscope in every direction. It can be freely rotated so that the uterus, ovaries, tubes, broad ligaments, uterosacral ligaments, infundibulopelvic ligaments, anterior rectal wall, pelvic peritoneum, and occasionally the appendix and loops of bowel that do not fall out of the pelvis in this position, can be inspected. The viscera can be manipulated by movement of the vulsellum or by suprapubic manual pressure. The novice will require a little practice to orient himself on viewing the pelvic organs for the first time from this direction.

When detailed information concerning the tubes is desired 10 to 15 cc. of sterile indigo carmine solution may be injected through the self-retaining cervical cannula. A completely obstructed tube shows distention proximal to the point of obstruction. A partially obstructed and adherent abdominal ostium shows extravasation of the fluid under the adhesions. Patent tubes are demonstrated by the dripping of the dye from the fimbria.

When a specially designed culdoscope is employed, material for biopsy may be recovered. The contents of small cysts and follicles can be aspirated and thin adhesions interrupted. Material for smear, culture, biopsy or cytologic examination may be recovered through the puncture wound. The pelvic organs have been successfully photographed through the instrument.

Removal of the Cannula.—When the examination is concluded, the culdoscope is removed, but the cannula is held in

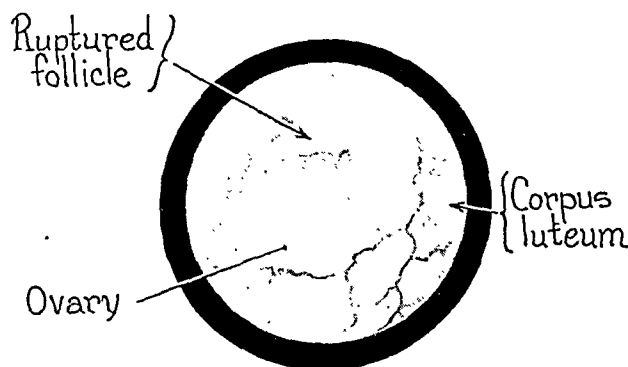


Fig. 8.—Culdoscopic view of the ovary with a recently ruptured graafian follicle.

place. A pillow is placed under the abdomen. The shoulder braces and thigh straps are removed, and the patient is allowed to lie on her abdomen on the table over the pillow. The head of the table may be lowered. The air or carbon dioxide will be heard to rush out of the abdomen, through the cannula, as the abdomen is compressed. When carbon dioxide has been introduced, little concern about removal is necessary. Oxygen is absorbed slowly, and appreciable amounts may remain for several days.

Postexamination Care.—The wound in the posterior vaginal vault is not sutured. Many patients walk from the table. Intra-peritoneal air may give variable amounts of distress on standing, but, as in tubal insufflation, it is not prohibitive of ambulation.

The patient is instructed not to douche for one week. Assumption of the knee-chest position before the puncture is healed may result in a spontaneous pneumoperitoneum. The instrument may be reintroduced through the puncture wound before it is healed. There is no contraindication for repeated punctures.

EXPERIENCE WITH CULDOSCOPY AND SELECTION OF CASES

In a previous report,⁴ in 1946, I discussed a large group of patients examined over a period of three and one-half years. Some of the patients included

4. Decker, A.: Pelvic Culdoscopy, in Meigs, J. V., and Sturgis, S. H.: Progress in Gynecology, New York, Grune & Stratton, Inc., 1946, pp. 95-105.

in that report were examined during the time the instrument and technic were being developed.

It is the purpose of this report to relate the experience with 77 cases selected because they presented diagnostic problems that could be placed in one of four groups.

The diagnostic indications for culdoscopy may be summarized as follows:

Group A—Emergency surgical conditions, differential diagnosis of tubal pregnancy, acute appendicitis, acute salpingitis and the like.

Group B—Problem cases of long duration, when pelvic disease is suspected or cannot be excluded; e. g., pelvic tuberculosis, endometriosis, chronic pelvic inflammatory disease and neoplasms.

Group C—Menstrual disorders, such as dysmenorrhea, menometrorrhagia and amenorrhea.

Group D—Infertility study, when visualization of the tubes and ovaries is desired.

Group A, the Emergency Surgical Group.—These are cases in which emergency surgical treatment was being considered for suspected tubal pregnancy or appendicitis. When the symptoms and signs are atypical the differential diagnosis may be difficult.

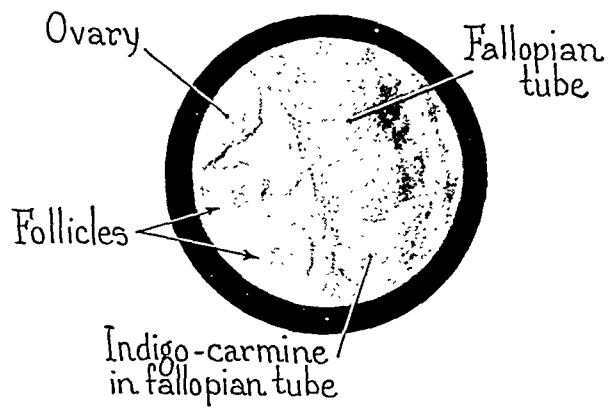


Fig. 9.—Culdoscopic view of cystic oophoritis, showing distention of the tube with indigo carmine proximal to the point of obstruction.

Prior to the employment of culdoscopy, tubal pregnancy in its atypical form accounted for a large percentage of the diagnostic errors in this category. Hemoperitoneum can usually be diagnosed by cul-de-sac needling without visualization when the needle is introduced into the rectovaginal pouch, with the patient in the knee-chest position, by the described technic.⁵ Blood elements, when present, will practically always be recovered by this method. In the absence of appreciable amounts of free blood and when the history and physical observations are suggestive of atypical tubal pregnancy, culdoscopy should precede laparotomy.

Among the cases here reported, there were 11 instances when the possibility of tubal pregnancy existed and a correct diagnosis appeared desirable. The culdoscopic examination established the following diagnoses in this series: salpingitis (4 cases), early intra-uterine pregnancy (1 case), cystic oophoritis (1 case), normal pelvis (1 case), tubal pregnancy (2 cases) and ruptured follicle cyst (1 case). In 1 instance the culdoscopic examination was impossible. Salpingitis was found at operation.

Atypical salpingitis may at times be difficult to differentiate from acute appendicitis without too much delay.

The acutely affected tube may be readily visualized and smears or cultures may be obtained from the inflamed region.

In 10 instances the differential diagnosis was between acute appendicitis and salpingitis. In 2 such cases a normal pelvis was encountered at culdoscopic examination, so that a diagnosis of appendicitis was made in

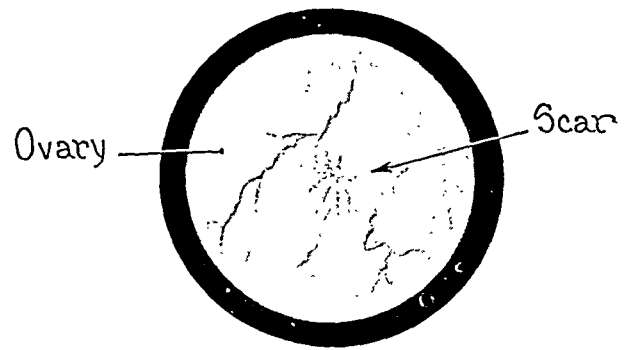


Fig. 10.—Culdoscopic view of the scar of a healing ruptured follicle.

1 case by exclusion of pelvic disease and the other by visualization of the diseased appendix. Subsequent operations verified the diagnosis in both cases.

In 6 instances tubal inflammation was the diagnosis made after cul-de-sac puncture. The puncture was unsuccessful in 2 cases.

It is a fair assumption that a few nonoperative patients in this group would have had laparotomies if a preliminary culdoscopic diagnosis had not been made. The operative diagnosis in 1 of the cases of unsuccessful puncture was salpingitis. At any rate, the diagnostic problem with few exceptions was quickly solved.

Group B, Problem Cases of Long Duration.—In this group lower abdominal pain and various symptoms referable to the lower part of the abdomen and pelvis occurred without demonstrable pathologic changes. They are of interest because their problems were in several instances brought to the gynecologist by the medical and surgical staff. Several cases had remained unsolved after thorough diagnostic study in the clinic and hospital and after various therapeutic measures had been tried without success. When the presumptive diagnosis was either psychoneurosis, residual pelvic

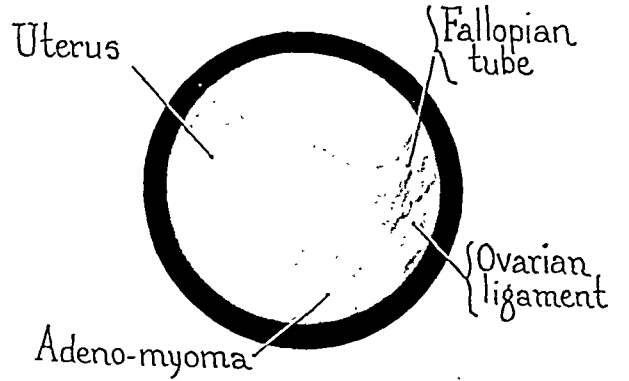


Fig. 11.—Culdoscopic view of a small adenomyoma—posterior surface of the corpus.

inflammatory disease, pelvic adhesions, early endometriosis or tuberculosis, I have frequently applied culdoscopy. The information gained has often made it

5. Decker, A.: Posterior Colpotomy for Diagnosis of Pelvic Diseases, *Am. J. Surg.* 73: 313, 1947.

possible properly to evaluate the indications for or against surgical intervention.

There were 23 such cases. A brief summary of 3 cases follows.

CASE 1.—I. C., a 31 year old tripara, was admitted to the medical service on Dec. 22, 1947, with pyelitis and an enlarged spleen. After control of the urinary infection the patient had a moderately febrile course for thirty-two days before culdoscopic examination. The exact cause of the temperature, which ranged from 99 to 101 F., was not determined after thorough clinical study. Bimanual pelvic examination and pelvic pneumograms were not illuminating. Culdoscopy revealed subacutely inflamed tubes and two small intramural myomas. Sufficient pelvic fluid was obtained for guinea pig inoculation and paraffin block preparation. The fluid contained many polymorphonuclear cells but no tumor cells. Results of guinea pig inoculation were reported negative for tuberculosis.

CASE 2.—Mrs. A. M., a white bipara aged 54, was admitted to the hospital on Sept. 12, 1947, complaining of pain in the right lower quadrant of the abdomen. The onset was three weeks before admission and followed an attack of diarrhea. The pain was aggravated by her standing or walking and radiated to the right groin and suprapubic region. Twenty-four hours after admission there was pain in the right subcostal region.

The history revealed that a right radical mastectomy had been performed twelve years previously, with a pathologic diagnosis of medullary carcinoma, grade 3. Operation was followed by radiation therapy to the chest. In 1939, a right intraligamentous benign cyst was removed. In 1940, the patient was sterilized with roentgen rays for functional bleeding.

She was well nourished and did not appear acutely or chronically ill. A complete clinical study, including physical and laboratory examinations, as well as roentgenograms of the chest and gastrointestinal tract, did not permit a positive diagnosis. The right side of the diaphragm showed slight elevation and very little motility. Results of the bronchoscopic examination were normal. There was no clinical evidence of ascites.

Cul-de-sac puncture with the patient in the knee-chest position resulted in an air pneumoperitoneum and was followed by a roentgenogram of the upper part of the abdomen and the chest with the patient in the upright position. The presence of subphrenic air outlined the upper border of the liver and revealed encapsulated material above the liver. At the time of puncture about 8 cc. of fluid was aspirated from the pelvis. Paraffin block prepared from the sediment of this fluid revealed cancer cells. This diagnosis was subsequently verified by biopsy of the omentum by surgical exposure which revealed metastatic breast carcinoma.

CASE 3.—P. P., a 26 year old childless Negro housewife, was admitted by ambulance to the surgical ward on March 11, 1948, complaining of pain in the right lower quadrant of the abdomen, nausea and epigastric distress.

A similar but less severe attack had occurred one year previously. Menses began at age 14 and, except for moderate menstrual pain for one day, were regular and normal. The last menstrual period had been on February 23. There were no urinary symptoms or vaginal discharge.

In appearance, the patient was well nourished but acutely discomforted by pain in the right lower quadrant of the abdomen. The abdomen was tender in this region, with slight rebound tenderness and voluntary muscle spasm. Pelvic palpation revealed as the only abnormality some tenderness on motion of the cervix.

The temperature was 99 F., pulse rate 90, respirations 22 and blood pressure 130 systolic and 90 diastolic. Sedimentation rate was 14 mm. in one hour; hemoglobin was 11 Gm. (75 per cent), erythrocytes 3,900,000 and leukocytes 12,000, with 75 per cent polymorphonuclear cells. The urine contained no sugar or albumin, and results of microscopic examination of the sediment was not remarkable.

On the day of admission, the appendix was removed through a McBurney incision. Results of palpation of the pelvic organs at this time were reported normal. No histologic changes of significance were found in the appendix.

The postoperative course was uneventful until the sixth postoperative day. While sitting in a chair the patient had a sudden attack of severe abdominal pain with fainting. The temperature was 98.6 F., pulse rate 88 and blood pressure 120 systolic and 80 diastolic. No change of significance had occurred in the blood cell count. The lungs were clear, and the heart presented no abnormalities.

The abdomen was tender in the left lower quadrant. Thorough pelvic palpation was unsatisfactory because of acute tenderness. The uterus was normal in size and very tender on attempt at motion. There was a soft baggy painful mass (4 cm. in diameter) in the cul-de-sac. The cul-de-sac was needled in the dorsal position, and about 4 cc. of blood-stained fluid was recovered. Smear of the fluid disclosed red blood cells and many leukocytes. *Staphylococcus aureus* was cultured from the fluid. The diagnosis was changed from tubal pregnancy to pelvic inflammatory disease. The acute symptoms subsided.

Culdoscopic examination was advised in order further to confirm the diagnosis before the patient's discharge and because she desired an opinion as to the cause of three and one-half years of infertile marriage. Culdoscopic examination on March 25 revealed the uterus to be normal in size and position. The left ovary was normal in appearance, free from adhesions, and contained a ripening follicle. The left tube presented evidence of acute inflammation, and the fimbria was adherent to the posterior surface of the left broad ligament. The right ovary was adherent and contained a follicle cyst 3 cm. in diameter. The right tube was acutely inflamed. A loop of intestine was adherent at the brim of the pelvis on the right side. Small amounts of fluid removed contained innumerable polymorphonuclear cells and a moderate number of mononuclear cells. Culdoscopy was a distinct aid in the quick solution of this surgical problem.

My co-workers and I have, on other occasions, applied culdoscopy for indications a short time after laparotomy when it was believed that visualization at the time of operation was not complete because of the type of incision. On one occasion small endometrial implants were observed that were not included in the laparotomy observations.

Two patients in this group were examined preoperatively because there was a difference in opinion concerning the exact diagnosis and the advisability of operation. An ovarian cyst was visualized in one, and in the other chronically thickened and adherent tubes. The culdoscopic diagnoses were confirmed at surgical exposure.

Another patient had an undiagnosed febrile hospital course of thirty-eight days on the medical service before culdoscopy was employed. Unsuspected serosal tubercles of the bowels were visualized. The pelvic organs were normal. No previous evidence of tuberculosis had been obtained. The diagnosis was subsequently further confirmed by positive microscopic observations in cervical glands.

Three patients treated in the hospital for acute pelvic inflammatory disease were examined by culdoscopy before discharge to the clinic. These were patients in whom persistent symptoms or signs created a suspicion of tuberculosis, endometriosis and cystoma. These conditions were ruled out in each instance.

The puncture was unsuccessful in 1 instance. In the remaining cases of this problem group, the visual diagnosis was a valuable aid in the selection of the proper therapy.

Functional disturbance of the nervous system with symptoms referable to the pelvis is a common problem that confronts the gynecologist with increasing frequency. One cannot arrive at a conscientious diagnosis of psychosomatic disease without positively excluding actual disease. It is possible that this group accounts for a large percentage of the unnecessary elective opera-

tions and exploratory laparotomy. Our experience leads us to believe that mistakes are also made in the other direction, and the patient with a real but nonpalpable pathologic condition is at times classified as neurotic.

In 4 such cases, culdoscopic visualization warranted the removal of the patient from the surgical to the psychosomatic group. Three patients had been considered psychosomatic after a long period of clinic attendance. Culdoscopic visualization demonstrated pelvic inflammatory disease and adhesions in amounts sufficient to account for the symptoms in 2 cases. Endometriosis was the visual diagnosis in the third patient.

Group C, Menstrual Disorders.—In this group the symptoms were amenorrhea, dysmenorrhea or other previously unexplained menstrual abnormalities. Seventeen cases comprise this group. The symptoms were present in nearly all cases for a long time. Many of the patients had been subjected to various diagnostic procedures and had received therapy of several types for extended periods without relief of the symptoms. The following case is illustrative.

CASE 4.—G. C., a 31 year old English war bride, sought relief in December 1947 for primary amenorrhea and sterility. There were no other complaints. This 128 pound (58 Kg.) white woman was well nourished and apparently in excellent health and regularly employed as a secretary. She had until recently engaged in competitive swimming events. There was no physical evidence of endocrine disturbance. Endocrine therapy of various types had been employed for several years. The most frequent previous diagnosis had been endocrine amenorrhea, primarily ovarian.

The results of the physical examination were essentially normal. Roentgenograms of the chest and pituitary did not reveal any evidence of disease. The endometrial biopsy diagnosis was atrophic endometrium. There was no evidence of extensive pelvic disease. A cystic mass, 3 cm. in diameter, was palpable in the left ovarian region.

On culdoscopic examination, a grayish white area, 1.5 cm. in diameter and slightly elevated, was observed on the uterine serosa at the fundus. The right tube was thickened and fixed and presented two small serosal tubercles. There was a serosal cyst 3 cm. in diameter on the posterior surface of the left broad ligament. The ovaries appeared white and sclerotic. There was no evidence of follicular activity. The culdoscopic diagnosis of pelvic tuberculosis was confirmed at operation.

There were 3 cases of severe dysmenorrhea. The condition in 1 was primary and in 2 acquired. Their problems were unsolved after thorough clinical study and extensive trial of therapeutic measures by several gynecologists. The culdoscopic diagnoses in these cases were: adenomyosis of the uterus, endometriosis of the ovary and chronic salpingitis. The diagnosis was confirmed in each instance by laparotomy. Abnormal menstrual bleeding was present in 3 other cases, brief descriptions of which follow.

CASE 5.—There was postmenopausal bleeding in a 62 year old white woman. Curettage was done on two occasions, at eight month intervals, and the diagnosis was hyperplastic endometrium. An ovarian tumor was suspected but was not palpated. Culdoscopic visualization disclosed the left ovary transformed into a solid white smooth surface tumor 3 cm. in diameter. Laparotomy confirmed the culdoscopic impression of granulosa cell tumor.

CASE 6.—A white multipara, aged 32 years, had irregular menstrual flow lasting from five to as many as forty days during the three years prior to examination. This complaint was unrelieved after extensive diagnostic and therapeutic measures. She was admitted to the hospital for removal of a cystic ovary. Culdoscopic examination revealed a normal pelvis without evidence of disease.

CASE 7.—A 25 year old married housewife had lower abdominal pain in recurring attacks for fourteen months. She

experienced severe dysmenorrhea and irregular bleeding. This was the second hospital admission in less than a year. The diagnosis at discharge eight months previously was acute pelvic inflammatory disease, and the patient was referred to the clinic for treatment. Regular clinic attendance for eight months did not result in relief. She was again referred to the ward for surgical treatment with the diagnosis of tubo-ovarian disease. Culdoscopic examination after admission revealed an entirely normal pelvis with normal-appearing tubes and ovaries. She was not operated on.

Nine patients (aged 23 to 28) had as their chief complaint abnormal bleeding with irregular intervals and increase in duration of the flow. Variable amounts of menstrual pain were also present. In each instance the symptoms had been of several months' duration and the exact cause was not determined. Salpingitis with adhesions was the unsuspected diagnosis in 2 instances. In 2 cases the pelvic organs were normal in appearance. In 3 cases the presence of suspected pelvic inflammatory disease was confirmed, and the exact extent of the disease noted. Two punctures were unsuccessful.

Group D, Infertility Problems.—The cases that I choose to report here were examined after long periods of infertile mating. The routine investigations were made previous to culdoscopic visualization by competent investigators.

In 16 instances, the visualization was for the purpose of answering one of two questions. Is this particular pelvis entirely free of disease as the routine investigators indicated? If so, what is the functional appearance of the ovaries? In the second instance, the problem has been presented as follows. There is evidence of pelvic disease—tubal, ovarian or uterine. Can the actual extent and location of the disease be determined in detail so that a more conscientious opinion can be given concerning further therapy or the chances for surgical relief?

In 13 cases I was able to answer that question in detail, in the more recent cases by photographs in color. I have found disease when the pelvis was believed to be free from disease. Adhesions causing various types of derangement of the ovarian tubal relations have been disclosed when the investigation before culdoscopic examination indicated more extensive disease. Endometriosis was visualized in 2 cases in this group. In 1 instance it was an unsuspected observation.

In 3 cases puncture was unsuccessful—visualization was not possible. In another group of cases of sterility there was a large percentage of failures, so that at present, in order to avoid the unnecessary preparation for the procedure, I resort to preliminary needle puncture, before arranging for culdoscopic examination.

COMMENT

Pelvic pain, menstrual irregularities and dysmenorrhea, as well as sterility, may be produced by many types of pelvic lesions that are not readily palpable. Frequently their presence is suggested by the history, but occasionally such evidence is absent or misleading.

Endometriosis is a frequent cause of these complaints. The severity of the pain may not bear any relation to the extent of the disease. Endometriosis can be seen before it can be felt. The appearance is distinctive and would rarely be confused with other pathologic changes. Arrest of this disease in young women without castration requires a diagnosis while the disease is still resectable. I have recognized these small lesions on the peritoneum, broad ligament, uterus and ovary on several occasions during culdoscopic examination. Fal-

lon⁶ has aptly stated that to the eye endometriosis is as unmistakable as chickenpox.

When tuberculosis appears as serosal tubercles on the uterus, tubes, bowel or peritoneum, it also presents a distinctive appearance. One may also recognize caseous material as it exudes from the fimbrial end of a thickened tube. The recognition by culdoscopic visualization of this condition when neisserian infection or endometriosis is suspected is particularly gratifying.

Many gynecologists have experienced the chagrin that results from failure to diagnose tubal pregnancy after employing all the usual diagnostic methods. The visual diagnosis is distinctive and readily obtained.

The exploratory laparotomy has a definite place in pelvic surgery. Some critics are of the opinion that pelvic organs containing only a minimal amount of disease are too frequently removed when surgically exposed. Diagnosis by culdoscopy in such cases frequently permits further deliberation to temper the judgment.

SUMMARY AND CONCLUSION

With the patient in the knee-chest position, the rectovaginal pouch may be punctured by needle or trocar by a technic that is simple and safe. Endoscopic visualization of the female pelvis was attempted in 77 cases, when the diagnosis made by other means was indefinite or doubtful. The examination was successful and of diagnostic value in 88.3 per cent of the cases selected. The puncture was unsuccessful in 9, or 11.7 per cent, of the cases. When the puncture was possible, detailed information was obtained concerning the pelvic disease present.

The procedure was particularly useful in disclosing 2 cases of tuberculosis, 4 cases of endometriosis and 1 each of adenomyosis and ovarian neoplasm.

The culdoscopic diagnosis was verified at operation or by subsequent events in all cases. On occasions exploratory laparotomy in suspected surgical emergencies was avoided. A more prompt diagnosis has in some instances resulted in reduction of days of hospitalization and in the number of clinic visits. The procedure has been useful in the solution of problems of menstrual abnormality. In 13 selected infertility problems detailed information was gained concerning the condition of the tubes and ovaries.

There were no serious complications or accidents in these cases. Culdoscopic visualization is a useful and harmless diagnostic procedure that allows a prompt and positive diagnosis in a large variety of gynecologic problems not readily diagnosed by the usual methods.

ABSTRACT OF DISCUSSION

DR. R. W. TE LINDE, Baltimore: It was Dr. Decker's cleverness in seeing the advantage of the knee-chest posture that has made culdoscopy a successful and practical procedure. My co-workers and I have been interested in visualization of the pelvic organs, and we used extensively the ordinary transabdominal peritoneoscopic approach. We found it useful, but not nearly as useful or practical as culdoscopic visualization. I attempted culdoscopic examination with the ordinary peritoneoscope with the patient in the lithotomy position. I was unsuccessful because the crowding of the intestines about the end of the peritoneoscope. Decker overcame this by the use of the knee-chest posture, and, using his technic, we have employed culdoscopic examination in 85 women in our clinic in the past two years. Culdoscopy has several advantages over transperitoneal peritoneoscopy. In ordinary peritoneoscopic

examination one has to transverse many loops of bowel to get to the pelvis. These loops of bowel may be troublesome. In peritoneoscopy one must pump air into the peritoneal cavity. In culdoscopy air rushes in spontaneously. In peritoneoscopy one runs the risk of contaminating the peritoneal cavity on withdrawal of the peritoneoscope if pus is encountered in the pelvis. In culdoscopy no harm is done if one encounters pus, and even drainage may be derived from the cul-de-sac puncture. In peritoneoscopy abdominal adhesions may prevent the end of the peritoneoscope from reaching the pelvis. Cul-de-sac adhesions and tumor occupying the cul-de-sac are the only mechanical contraindications to culdoscopy, and careful pelvic examination will usually detect these before culdoscopic visualization is attempted. Our indications for culdoscopy have corresponded with those of Dr. Decker. We have used it oftenest in cases of suspected tubal pregnancy, and we have no reason to suspect that the information obtained by culdoscopy has been fallacious. One of the most constant sources of worry to the gynecologist is the slight ovarian enlargement which may be due to a retention cyst, which does not require removal, and a neoplastic cyst or tumor, which does. Culdoscopic visualization usually enables one to decide this promptly. Concerning the woman with pelvic symptoms and normal or minimal observations on pelvic examination, is she to be treated for organic pelvic disease or on a psychosomatic basis? Mistakes are made in both directions, but fewer will be made if the culdoscope is used to visualize the organs. There is one point in technic that I want to emphasize. In his fear of injuring the rectum the novice is apt to puncture too close to the cervix, dissect up the peritoneum as it is reflected onto the cervix and thus fail to enter the peritoneal cavity. The thinnest point of the septum is usually 2 to 3 cm. from the reflexion of the vaginal mucosa onto the cervix. The rectum has been punctured only once on our service. This puncture was extraperitoneal and healed spontaneously without even temperature elevation.

DR. W. D. BEACHAM, New Orleans: I agree with Dr. Decker that in suspected hemoperitoneum, cul-de-sac aspiration is a valuable diagnostic procedure. I ordinarily place the patient in a dorsal position. Needling of the cul-de-sac with the patient in the knee-chest posture should be performed prior to attempted culdoscopic visualization in cases in which the advisability of endoscopic examination through the rectovaginal pouch is doubtful. I have not found it necessary to employ culdoscopic examination in patients for whom the diagnosis was narrowed down to appendicitis or ectopic pregnancy. Also, I do not deem it advisable in the differentiation of acute salpingitis from acute appendicitis. Group B cases, as pointed out by Dr. Decker, form the largest category in which culdoscopy is most useful. In these cases one may gain information which makes it possible to evaluate the indications for or against operation. Next in my experience are cases in classification D. The essayist has been overmodest in mentioning the simplicity of this procedure. However, even in his expert hands the puncture was unsuccessful in 11 per cent of his cases. My co-workers and I have investigated the subjects of analgesia and position. In some nulliparous patients we have resorted to preoperative medication, consisting of seconal[®] sodium (sodium 5-allyl-5-[1-methylbutyl] barbiturate, meperidine hydrochloride and scopolamine, and employed pudendal block and local infiltration anesthesia. Now we are checking on the feasibility of intrathecal anesthesia. In our more recent cases we have used a position which requires an operating room table with a kidney elevator. With the patient well sedated we place her in a dorsal lithotomy position, aseptically catheterize the urinary bladder and then thoroughly prepare the vulva and vagina with soap and water followed by the application of benzalkonium chloride or merthiolate[®] solution (sodium ethylmercurithiosalicylate). The patient is then turned over into a prone posture. With her thighs resting on the kidney elevator the anterior abdominal wall hangs in such a manner as to cause the required negative pressure for easy local anesthetization of the area to be punctured and for good visualization with the culdoscope. Even though the patient is well analgized, thigh straps and leg holders are not needed. The table alone supports her. This position is easy on both patient and culdoscopist.

6. Fallon, J.; Brosnan, J. T., and Moran, W. G.: Endometriosis: Two Hundred Cases Considered from Viewpoint of the Practitioner, New England J. Med. 235: 669, 1946.

DR. IRVING F. STEIN, Chicago: At Michael Reese Hospital, Chicago, we have employed gynecography for pelvic diagnosis in the past twenty-five years, in preference to culdoscopy. As in culdoscopy, pneumoperitoneum is utilized; however, we rely on visualization on the roentgenogram for diagnosis. All of the evidence which can be obtained by culdoscopic visualization can likewise be recorded on the roentgenogram except for color of the organs. Gynecography is a far less formidable procedure and is of particular value for consultation purposes. Unlike culdoscopy, in which only the examiner interprets the observations, pneumoperitoneum presents a permanent record which is available for numerous opinions.

DR. ALBERT DECKER, New York: It is gratifying to hear that others have found culdoscopy valuable. I want to thank Dr. Te Linde and Dr. Beacham for their discussion and for their contribution to this subject. I have been asked the reason for the unsuccessful punctures among the cases reported. Puncture cannot be accomplished in all cases. This is either because of loose attachment of the peritoneum, so that it rides ahead of the trocar, or because of the presence of a pelvic mass or adhesions. It is my practice to make a preliminary puncture in the office or clinic in doubtful cases. If I can measure intra-abdominal negative pressure with a small needle, I am certain that the pelvis can be punctured with the trocar.

NEEDLE BIOPSY OF THE LIVER

R. C. COGSWELL, M.D.

L. SCHIFF, M.D.

S. A. SAFDI, M.D.

D. F. RICHFIELD, M.D.

C. W. KUMPE, M.D.

and

E. A. GALL, M.D.

Cincinnati

During the past four years needle biopsy of the liver has been carried out at the Cincinnati General Hospital 403 times on 345 patients. There has been no fatality or hemorrhage severe enough to require blood transfusion. In 1947, we reported experiences with 195 biopsies made on 170 patients.¹ The present report serves to describe our experience to date, since, during the past year, 208 additional biopsies have been performed on 175 patients.

The patient is prepared for the procedure by the administration of 50 to 100 mg. of mepéridine hydrochloride N. N. R. (demerol®) hypodermically approximately one-half hour before the biopsy.² A liver extending 5 cm. or more below the right costal margin may be approached anteriorly or transpleurally. A smaller liver is approached transpleurally in the right anterior or midaxillary line. In our group of patients, the transpleural route was used 328 times and the anterior approach, 75 times.

METHOD

In the transpleural method the upper limit of liver dullness is suitably marked during ordinary respiration, usually in the anterior axillary line. The area chosen is sterilized with

iodine tincture U. S. P. and alcohol and draped with sterile towels. The operator wears sterile rubber gloves. The skin, subcutaneous tissue, intercostal muscle, pleura, diaphragm, Glisson's capsule and hepatic substance are infiltrated with 2 per cent procaine hydrochloride solution, care being taken to penetrate beyond the intercostal space only while the patient is holding his breath at the end of full expiration. Approximately 8 cc. of procaine hydrochloride solution is used. A small incision is made in the skin over the procaine bleb with a no. 11 Bard-Parker blade to permit easy entry of the biopsy needle. The Vim-Silverman needle³ is introduced into the incision, with the forked obturator inserted in such a position that its tip is just visible at the distal end of the carrier needle. Then, after the patient inhales and exhales deeply two or three times, he is instructed to hold his breath at the end of expiration and the needle assembly, in the position described previously, is inserted a distance of approximately 6 cm. (2 to 3 cm. into the substance of the liver). The obturator is then pushed firmly the final 2.5 cm. into the needle, while the latter is held steady, after which the obturator tip is held steady while the carrier needle is advanced over the obturator, bringing the assembly back to its original relations, but advanced 2.5 cm. farther into the liver. This cores a fragment of hepatic tissue 1 to 2 mm. in diameter and 1 to 2 cm. in length and grasps it tightly in the obturator fork. The entire assembly is rotated approximately 120 degrees, breaking the terminal attachments of the fragment to the liver, and is then withdrawn from the patient. (The average time elapsing between entry of the Vim-Silverman needle into the substance of the liver and its removal is five to ten seconds.) A simple dressing is applied, and the patient is instructed to remain quietly in bed for twenty-four hours. A synthetic vitamin K preparation, 10 mg., is administered parenterally immediately after the biopsy is accomplished, and codeine is used to control any postbiopsy pain. One half of the biopsy specimen is fixed in a 10 per cent solution of formaldehyde U. S. P. (formalin®); the other half is fixed in acetone for special stains. As described in a previous paper,¹ if hepatic tissue is not obtained on the first attempt, additional attempts are made at the same site. This practice has decidedly reduced the number of failures and has resulted in no demonstrable harm to the patient.

INDICATIONS

The following are considered proper indications for needle biopsy of the liver:

1. Hepatomegaly of undetermined cause.
2. Need for distinction between parenchymal and extrahepatic obstructive jaundice. The changes characteristic of infectious hepatitis, the most frequent form of parenchymal jaundice, were well described by Dible, McMichael and Sherlock⁴ and by Mallory,⁵ and those of obstructive jaundice by Roholm and Krarup,⁶ Popper and Franklin⁷ and McMichael.⁸
3. Primary or metastatic neoplasm of the liver. Our experiences with cases of neoplasm of the liver will be published elsewhere.⁹ In this entire study, primary or secondary neoplasm of the liver was demonstrable by means of needle biopsy in 41 of 53 cases. In the case of an enlarged and nodular liver, it is theoretically desirable to insert the needle anteriorly into a nodule.

The study was aided by a grant from the Henry Meiss Fund. Dr. Cogswell, Dr. Safdi, Dr. Richfield and Dr. Kumpe were Fellows of the National Cancer Institute, 1947 and 1948.

Dr. W. E. Molle and Dr. H. H. Steinberg performed some of the biopsies and Dr. Ben Friedman compiled some of the data included in this report.

From the Departments of Internal Medicine and Pathology, College of Medicine, University of Cincinnati, and the Gastric Laboratory of the Cincinnati General Hospital.

Read in part before the Section on Gastroenterology and Proctology at the Ninety-Seventh Annual Session of the American Medical Association, Chicago, June 23, 1948.

1. Kumpe, C. W.; Gall, E. A.; Schiff, L.; Molle, W. E.; Safdi, S. A., and Steinberg, H. H.: Needle Biopsy of the Liver: I. General Considerations, *Gastroenterology* 9: 672, 1947.

2. We have been carrying out this practice as advocated by Volwiler and Jones (The Diagnostic and Therapeutic Value of Liver Biopsies with Particular Reference to Trochar Biopsy, New England J. Med. 237: 651, 1947) since January 1948. Prior to that time, no sedative was given before biopsy.

3. Manufactured by the MacGregor Instrument Co., Needham, Mass.
4. Dible, J. H.; McMichael, J., and Sherlock, S.: Pathology of Acute Hepatitis: Aspiration Biopsy Studies of Epidemic Arsenotherapy and Serum Jaundice, *Lancet* 2: 402, 1943.

5. Mallory, T. B.: Pathology of Epidemic Hepatitis, *J. A. M. A.* 134: 655 (June 21) 1947.

6. Roholm, K., and Krarup, N. B.: Histopathology of the Liver in Obstructive Jaundice, Examined by Aspiration Biopsy, *Acta med. Scandinav.* 108: 48, 1941.

7. Popper, H., and Franklin, M.: Diagnosis of Hepatitis by Histologic and Functional Laboratory Methods, *J. A. M. A.* 137: 230 (May 15) 1948.

8. McMichael, J.: Disease of the Liver: A Review of Some Clinical and Biochemical Problems as Reviewed by Systematic Biopsy Studies, *J. A. M. A.* 137: 234 (May 15) 1948.

9. Safdi, S. A.; Gall, E. A.; Kumpe, C. W., and Schiff, L.: Needle Biopsy of the Liver: II. Experience with Malignant Neoplasm, *Gastroenterology* 11: 93 (July) 1948.

4. Hepatic cirrhosis. The type of cirrhosis present may be elucidated by liver biopsy. Rarely, a nodule of hyperplasia may be entered by the needle, in which case the increased fibrosis and other structural abnormalities characteristic of cirrhosis may be missed. Because of the fibrosis, it is somewhat more difficult to take biopsy specimens of cirrhotic livers than of those which are the site of hepatitis or neoplasm. In the presence of ascites, it is necessary to drain off as much ascitic fluid as possible in order to keep the liver from floating away from the needle.

5. Determination of progress of hepatitis. Biopsy is of particular value in patients with minimal or equivocal laboratory evidence of hepatic damage or in those with the "posthepatitis syndrome."¹⁰

6. Evaluation of therapy. In certain instances of hepatic disease, histologic improvement may occur in the absence of corresponding improvement in the results of laboratory tests or vice versa. Microscopic examination of serial biopsy specimens in these cases may demonstrate correction of the cytologic or structural derangement following treatment. In fatty infiltration of the liver, diminution in the extent of the lesions may be demonstrated in the absence of demonstrable laboratory or clinical change.

7. Unrecognized systemic disease. Pathologic changes in the liver may be demonstrated in many diseases in the absence of signs of hepatic involvement. The lesions, when correlated with other clinical and laboratory findings, may make the diagnosis clear. Included among such diseases are miliary tuberculosis, brucellosis, sarcoidosis and infectious mononucleosis.

CONTRAINDICATIONS

Although the contraindications to needle biopsy of the liver are few, the following represent those to which we have adhered:

1. Uncooperative patient. As emphasized by Sherlock,¹¹ the uncooperative patient is not a suitable candidate for this procedure, since a certain ability and willingness to follow instructions is essential to success. This statement should be construed to include stuporous and comatose patients, as well as children, unless the anterior subcostal approach can be used.

2. A low blood prothrombin content or other evidences of aberrations in the coagulating mechanism. These indicate a real danger of hemorrhage. We have taken a prothrombin concentration of 50 per cent of normal (Quick method) as the minimum below which a biopsy should not be done. As recorded previously, no hemorrhage sufficient to require blood transfusion has occurred in more than 400 biopsies.

3. Infection in the lower lobe of the right lung or right pleural cavity. Biopsy during such infection is inadvisable, because of the possibility of spread to contiguous structures, including the liver.

4. Ascites. Because ascites permits some degree of mobility of the liver, it increases the difficulty of obtaining a satisfactory biopsy specimen, especially in the presence of cirrhosis. For this reason, an abdominal paracentesis should be done before the biopsy is made. Some of the failures to obtain satisfactory specimens in the present series resulted from failure either to observe this precaution or to remove sufficient ascitic fluid at the time of paracentesis.

5. Chronic passive congestion of the liver. Some observers have not hesitated to take a biopsy specimen from a liver congested with blood as the result of cardiac failure. Inasmuch as it would seem that the increased vascular engorgement would make the risk of hemorrhage considerably greater, we have empirically included this condition as a contraindication.

REACTIONS

We have observed the following types of reaction, none of which has proved to be serious:

1. Pain at the site of entry with radiation to the right shoulder. This occurs at the time the biopsy is performed. It is mild and transient and has been noticed by approximately 30 per cent of the patients. A similar reaction occurring after the local anesthesia has dissipated has been observed in a somewhat higher proportion of the patients. This is readily counteracted with codeine and acetylsalicylic acid. It rarely lasts longer than twelve hours and presumably results from local trauma and diaphragmatic irritation.

2. Epigastric discomfort or pain. This is experienced during the time the needle assembly is within the hepatic substance. It is moderately severe on occasion and should be anticipated, since the patient may take a sudden breath if not previously warned.

3. Friction rub. Developing in the region of the biopsy site, this is probably due to fibrinous perihepatitis. The rub is usually of short duration, but in 1 case it persisted for several weeks.

4. Intra-abdominal hemorrhage. This represents the most feared complication, since it was the principal cause of the disasters which have occurred in other series. To date, no serious postbiopsy hemorrhage has been observed in our patients. Close observance for evidences of bleeding should be maintained for twenty-four to forty-eight hours following the biopsy. Blood transfusions may be necessary, and, in the event the hemorrhage continues, operative intervention may be required.

5. Hemorrhage into the pleural cavity or pleural effusion. Penetration of an intercostal vessel or injury to the pleura at the time of penetration may result in hemothorax or transitory pleuritis. Although an effusion was initially attributed to the biopsy in 1 patient in our group, examination at autopsy demonstrated the presence of bilateral effusion resulting from other causes. Injury to the intercostal vessels can be avoided by keeping the needle close to the rib bounding the lower margin of the interspace.

6. Pneumothorax. This was observed in 2 patients. In 1 instance a blunt scalpel blade used in making the incision through the skin penetrated the parietal pleura. The other was associated with pronounced edema of the wall of the chest. In neither instance did the associated pulmonary collapse exceed 10 per cent, nor were there other than mild symptoms.

7. Severe apprehension associated with various nervous and hysterical manifestations. In 1 patient with auricular fibrillation, extreme agitation and impending syncope were observed. There was also an increase in pulse rate. Another patient, who was both agitated and depressed at the prospect of biopsy, developed what appeared to be hysterical apnea lasting approximately ninety seconds. During the apneic period, the pulse rate increased only slightly, blood pressure was maintained and no cardiac lesion could be demonstrated.

10. Sherlock, S., and Walshe, V.: Post-Hepatitis Syndrome, *Lancet* 2: 482, 1946.

11. Sherlock, S.: Aspiration Liver Biopsy: Technique and Diagnostic Application, *Lancet* 2: 397, 1945.

later. The patient had annesia for this period but showed no ill effects.

It should be emphasized, in perusing this list of observed reactions that the majority of patients suffer little or no abnormal response. Although they cannot be said to be eager to have repeated studies, patients do not refuse subsequent biopsies.

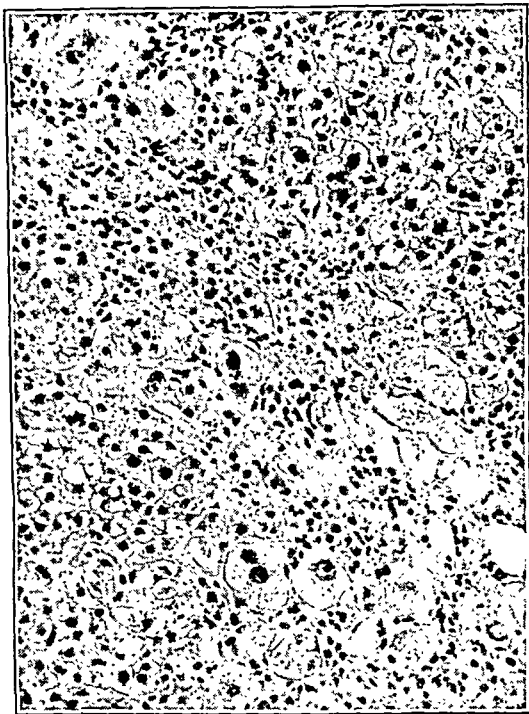


Fig. 1 (patient G. C.).—Infectious hepatitis (low power). There is loss of lobular structure with "ballooning" of polygonal cells and focal cellular disintegration evidenced by stromal collapse and lymphocytic clusters. Occasional binucleated cells may be seen.

VALUE OF LIVER BIOPSY

Under the categories listed as indication for liver biopsy, the following cases have been selected to demonstrate the value of the procedure:

Evaluation of Presumptive Hepatomegaly.—R. C. was a well developed, well nourished 8 year old white girl who was found, five months previously, to have hepatomegaly without evident cause or complaint. Four of 5 siblings presented a similar finding. The results of hepatic function tests on all 5 were normal, but 2 of the 5 siblings and the patient had positive reactions to skin tests with histoplasmin. Physical examination revealed slight lymphadenopathy. The liver was palpable 1½ fingerbreadths below the right costal margin. It was smooth, soft and nontender. Results of thymol turbidity, thymol flocculation, cephalin-cholesterol flocculation and serum bilirubin tests were all within normal limits. As no diagnostic abnormalities were recognized in the biopsy specimen, we dismissed the probability of hepatic disease. Our experience with liver biopsy in general has convinced us of the frequency with which a normal liver may be palpable 1 to 2 fingerbreadths below the right costal margin.

Differential Diagnosis of Jaundice.—G. C., a 63 year old white man, was admitted to another hospital because of jaundice. He had had a subtotal gastrectomy five and one-half months previously for gastric ulcer. At the time of operation he received one blood transfusion. One week before his present admission, he noted frontal headache, a "jittery feeling" and dark urine. The following day he observed yellow discoloration of his skin and eyes. Two days before admission diarrhea developed, the stools being whitish. On physical examination, the liver was found to extend 4 fingerbreadths below the right costal margin. It was soft and nontender, save for a tender

nodule on the inferior border in the midclavicular line. Dependent edema (1 plus) was noted. Thymol turbidity of 1 unit was observed, with 3 plus cephalin-cholesterol flocculation in twenty-four and forty-eight hours. Serum alkaline phosphatase measured 13.2 Bodansky units per hundred cubic centimeters. Because of the patient's age, the tender nodule and the increased serum alkaline phosphatase, a diagnosis of jaundice due to neoplasm was made by his physician and the patient was scheduled for exploratory laparotomy. A liver biopsy (fig. 1) revealed the presence of subacute hepatitis, thus averting an unnecessary operation.

H. S., a 54 year old Negro man, was admitted to the hospital with jaundice and an eighteen month history of weakness, intermittent abdominal pain and loss of weight of undetermined amount. The pain had become worse two weeks before admission. Acholic stools and dark urine were said to have been present for one week, and vomiting for three days. The abdomen was slightly distended. The liver extended 5 fingerbreadths below the right costal margin. The gallbladder was not palpable on admission. Thymol turbidity was 2 units. The thymol flocculation test gave negative results. Cephalin-cholesterol flocculation was normal in twenty-four to forty-eight hours; serum alkaline phosphatase was 20.8 Bodansky units per hundred cubic centimeters. Serum bilirubin measured 11.5 mg. prompt and 17.3 mg. total per hundred cubic centimeters. The liver biopsy revealed pronounced bile stasis and acute cholangitis (fig. 2). At operation, a carcinoma of the ampulla of Vater was found. There was no hepatic metastasis.

Diagnosis of Neoplasm of the Liver.—A. R., a 39 year old white woman with a known gastric ulcer, had experienced weakness and fatigue for two weeks before her admission. There were generalized aches and pains with headache, dark urine and moderate pain in the right upper quadrant of the



Fig. 2 (patient H. S.).—Bile stasis (high power). An area adjacent to a central vein showing a large plug of inspissated bile filling an intercellular canal. Polygonal cells here are essentially normal in appearance.

abdomen. For ten years the patient had had intolerance to fatty foods, with bouts of nausea, vomiting and abdominal pain radiating about both costal margins. Jaundice was present. The liver extended 4 fingerbreadths below the right costal margin and was firm and tender. The gallbladder and spleen were not palpable. Thymol turbidity was 2 units. Cephalin-cholesterol flocculation was negative in twenty-four and forty-eight hours. Serum alkaline phosphatase measured 3.4 Bodansky

units per hundred cubic centimeters. On the prompt reaction serum bilirubin was 10 mg. and the total reaction was 12 mg. per hundred cubic centimeters. The patient was thought by some examiners to have infectious hepatitis, possibly of the cholangiolitic type, with antecedent gallbladder disease. In the opinion of others she had a stone in the common duct. Liver biopsy revealed metastatic adenocarcinoma, the primary site of which was not determined.

On occasion one may anticipate considerable difficulty in confirming the presence of hepatic tumor by liver biopsy when the clinical diagnosis appears obvious. In 1 patient with a large nodular liver, the transpleural biopsy specimen showed nothing abnormal. A subsequent needle biopsy was made over a nodule through the anterior subcostal approach. Although four pieces of tissue were removed, evidence of hepatoma was seen in only a small area of one of these fragments.

Determination of the Degree of Progress and the Extent of Hepatic Damage in Cirrhosis.—J. H., a 47 year old white man who had chronic alcoholism, was admitted to the Cincinnati General Hospital in 1942 with hematemesis and ascites. A

was seen to decrease progressively with a hospital diet and rest in bed.

Progress of Hepatitis.—J. D., a 14 year old white girl, experienced fatigue, anorexia and mild nausea ten days before



Fig. 3 (patient J. H.).—Nutritional deficiency cirrhosis (low power). Lobular structure is distorted by narrow, relatively acellular strands of connective tissue. Parenchyma exhibits heavy fatty vacuolization with occasional individual cellular degeneration.

large liver and dilatation of the veins of the abdominal wall were observed. Following his discharge from the hospital, he remained indifferently temperate until two and one-half months prior to his admission in 1947, when he indulged in a prolonged drinking spree, neglecting the while to consume adequate food. Eight days prior to his admission dependent edema and abdominal swelling developed, for which he finally came to the hospital. Physical examination revealed the presence of pectoral alopecia, slight icterus, palmar erythema, numerous spider telangiectases and moderate ascites. The liver was palpated at the level of the umbilicus. Thymol turbidity measured 2 units; thymol flocculation was normal. The cephalin-cholesterol flocculation test showed a 3 plus reaction in twenty-four hours and a 4 plus reaction in forty-eight hours. Serum bilirubin was 1.5 mg. on direct reaction and 2.5 mg. per hundred cubic centimeters on total reaction. Bromsulphalein retention was 29 per cent in forty-five minutes. Three liver biopsies (fig. 4) in a period of seven weeks demonstrated the presence of micronodular cirrhosis, heavy lymphocytic infiltration and fatty vacuolization. The amount of fatty vacuolization



Fig. 4 (patient J. M.).—Fatty infiltration before therapy (low power). The section shows a massive coarse, fatty vacuolization of the parenchyma.

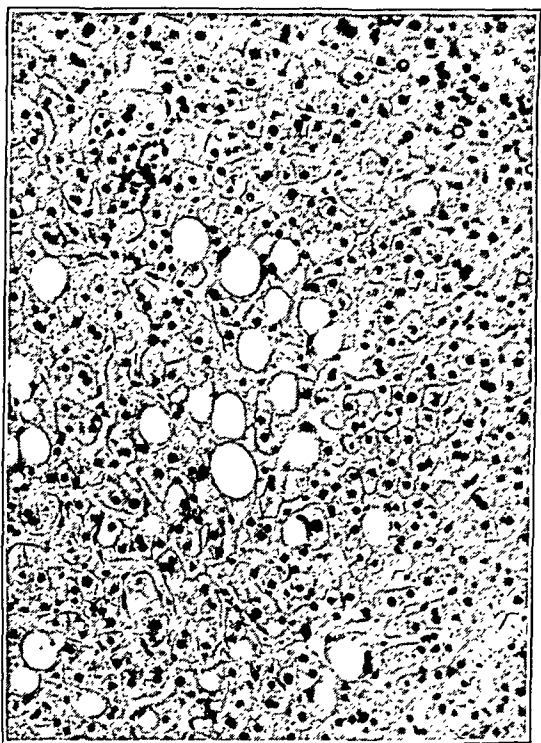


Fig. 5 (patient J. M.).—Fatty infiltration after therapy (low power). Repeat biopsy after ten months of therapy demonstrates notable diminution of the fatty infiltration.

admission. Icteric scleras and mild, dull pain in the epigastric region and right upper quadrant appeared one week before

her admission. Clay-colored stools and dark urine were noted for three days. Physical examination demonstrated the presence of icterus and spider telangiectases. The liver was just palpable below the right costal margin and was tender to both palpation and fist percussion. Thymol turbidity was 12 units; the thymol flocculation test showed a 4 plus reaction. Cephalin-cholesterol flocculation was 3 plus in twenty-four and forty-eight hours. Serum alkaline phosphatase measured 11.6 Bodansky units per hundred cubic centimeters. The first biopsy specimen taken showed little cellular damage, save in the vicinity of the central veins, where a scant lymphocytic reaction obtained. Inflammation of portal islets was particularly prominent, and there was moderate bile stasis confined to the periphery of the lobules. A second biopsy specimen obtained two weeks later revealed the parenchyma to be in the main intact with no bile stasis, in contradistinction to the previous specimen. The portal islets revealed pericholangitis of moderate severity, and in the region of the central vein some disintegration of the hepatic cells was associated with a lymphocytic infiltrate. The third biopsy specimen, procured seven weeks after the onset of the illness, revealed no recognizable abnormality of the hepatic parenchyma. Several portal islets were widened and showed persistence of moderate chronic inflammatory infiltrate. The

TABLE 1.—Changes in Clinical Diagnosis as a Result of Liver Biopsy (51 Cases)

No. of Cases	Clinical Diagnosis	No. of Cases	Diagnosis on Biopsy
14	Acute hepatitis	6	Cirrhosis
		4	Obstructive jaundice
		1	Fatty vacuolization
		1	Intracellular bile stasis
		1	Metastatic adenocarcinoma
		1	Normal liver
17	Portal cirrhosis	5	Fatty vacuolization
		4	Normal liver
		3	Metastatic adenocarcinoma
		2	Obstructive jaundice
		1	Biliary cirrhosis
		1	Hepatoma
		1	Alcoholic hepatitis
4	Obstructive jaundice	4	Hepatitis
4	Intra-abdominal neoplasm	1	Hemochromatosis
		1	Infectious hepatitis
		1	Portal cirrhosis
		1	Biliary cirrhosis
12	Miscellaneous	12	(See text)

persistent portal inflammatory reaction represented continued low grade activity of the hepatitis.

Evaluation of Therapy in Diffuse Hepatic Disease.—J. M., a 55 year old white woman, experienced recurrent episodes of pain and tenderness in the right upper quadrant for twenty-eight years. Cholecystectomy and appendectomy were done in 1935. On physical examination in 1947, the patient was noted to be very obese. The liver was palpable 2 fingerbreadths below the right costal margin and was smooth and nontender. Results of hepatic function tests were within normal limits. A biopsy specimen of the liver (fig. 4) revealed the presence of fatty infiltration. The patient was placed on a regimen including 16 cc. (4 Gm.) of choline¹² dihydrogen citrate N. N. R. daily. A second biopsy specimen obtained three months after the inception of therapy showed no improvement, nor did the third specimen taken three months later. The dosage of choline dihydrogen citrate was increased fourfold, and four months later (fig. 5) there was considerable diminution in the degree of fatty vacuolization.

Recognition of Hepatic Disease.—Table 1 reveals that liver biopsy was of particular value in correcting clinical misconceptions. This was particularly the case in acute hepatitis and portal cirrhosis, and less frequently in obstructive jaundice and intra-abdominal neoplasm. In all, biopsy resulted in a change in diag-

nosis in 51 of 345 cases, or approximately 15 per cent. In 12 miscellaneous cases liver biopsy caused the following changes in clinical opinion:

Biliary cirrhosis to fatty vacuolization—2
Nontropical sprue to metastatic carcinoma
Rheumatoid arthritis to acute hepatitis
Psychoneurosis to portal cirrhosis—2
Chronic passive congestion to portal cirrhosis
Hemochromatosis to portal cirrhosis
"Fatty liver" (with diabetes mellitus) to moderate portal cirrhosis
Chronic glomerulonephritis to portal cirrhosis
Sickle cell anemia to miliary granuloma
Ultimate establishment of sarcoid by lymph node biopsy

Table 2 lists the errors in biopsy diagnosis which have been made in the entire series. As is to be expected, the majority of incorrect diagnoses occurred in the presence of focal lesions which were not included in the biopsy specimen.

There were 16 biopsies reported as failures in our first paper covering 195 biopsies, resulting from lack of adequate material for examination. This figure has now been increased to 24 in a total of 403 biopsies. Although some of the failures occurred early in our experience when only a single attempt at biopsy was made regardless of the adequacy of the material obtained, the most frequent cause of failure was found to be inexperience on the part of the operator. The

TABLE 2.—Errors in Diagnosis on Biopsy (13 Cases)

Case No.	Diagnosis on Biopsy	Final Diagnosis	Comment
16	NDAR* (2 biopsies)	Banti's disease; mild portal cirrhosis	Autopsy (last liver biopsy 6 months before death)
40	Severe bile stasis; acute cholangitis	Carcinoma of head of pancreas, with 3 small hepatic metastases	Autopsy
49	NDAR	Moderate portal cirrhosis	Autopsy
77	NDAR	Banti's disease, with "slight" cirrhosis	Splenectomy with liver biopsy
83	NDAR	Possible Chiari's syndrome; polycythemia vera	Laparotomy with liver biopsy
94	Portal cirrhosis	Portal cirrhosis with hepatoma	Autopsy
98	Severe bile stasis; acute and chronic cholangitis	Carcinoma of the head of pancreas with few small hepatic metastases	Autopsy
133	NDAR	Metastatic carcinoma of liver	Laparotomy; biopsy
171	NDAR	Carcinoma of the stomach with numerous hepatic metastases	Laparotomy with liver biopsy
186	NDAR	Metastatic carcinoma from lung; large and smooth liver, with questionable metastases	No autopsy
199	NDAR	Carcinoma of the stomach, with 3 small hepatic metastases	Autopsy
220	Bile stasis	Carcinoma of the head of pancreas, with numerous hepatic metastases	Autopsy
283	Biliary cirrhosis	Toxic cirrhosis (portal), with recent hepatic infarcts	Autopsy

* NDAR means "no diagnostic abnormalities recognized," with the specimen presumably representing normal liver.

presence of cirrhosis accounted for some of the failures, by reason of the increased consistency of the liver and concomitant ascites. Biopsies made in apprehensive patients occasionally were unsuccessful because of lack of cooperation after the procedure was begun. The attempt was immediately discontinued if the patient

¹² Syrup choline dihydrogen citrate was supplied by Flint, Eaton & Company, Decatur, Ill.

took a breath when told not to do so and no further trials were made. In a few instances, as a result of error in selecting the site of entry, it was evident that hepatic tissue was not being reached when the carrier needle was inserted to its usual depth. A second site was then chosen, treated in the usual manner, and an adequate biopsy specimen obtained without causing undue discomfort to the patient.

It is our opinion that experience with this biopsy technic is now sufficiently large to warrant wider application. Because of the danger of hemorrhage, the procedure should be carried out only by persons who have been trained in centers where this method is extensively employed. It is essential that the pathologist interpreting the biopsy material have great interest in and experience with the method in order to appreciate its advantages and limitations. We believe that the major value of needle biopsy of the liver lies in its simplicity. Although hospitalization is mandatory because of the danger to the patient, confinement need be for only a day or two.

SUMMARY

A method of performing punch biopsies of the liver using the Vim-Silverman needle is described. The indications, contraindications, reactions, failures and examples of cases demonstrating the value of the procedure are given. The safety of needle biopsy of the liver is attested by the absence of any serious reactions in 403 biopsies on 345 patients when the patients were carefully selected and carefully followed.

ABSTRACT OF DISCUSSION

DR. FREDERICK W. HOFFBAUER, Minneapolis: Modern application of the technic of needle biopsy of the liver, stimulated by the studies of Iversen and his associates in 1939, has advanced the clinical study of hepatic disease. Needle biopsy often permits one to establish a definite diagnosis. This is particularly true in certain medical disorders in which the physical findings are not revealing and the biochemical evidences of hepatic dysfunction do not conform to any particular pattern. In the differential diagnosis of the common forms of jaundice, however, needle biopsy of the liver is necessary only in selected cases. The separation of medical from surgical cases can usually be made by clinical and biochemical studies. There are exceptions, but in the main this has been true in my experience.

DR. HANS POPPER, Chicago: The material of Dr. Schiff and his co-workers is, to my knowledge, larger than anyone else's in this country and matches what has been reported by investigators from England and Scandinavia. After sufficient histologic experience has been gained, liver biopsies may provide great help in the differential diagnosis of hepatic diseases. So far, my associates and I have encountered difficulties in histologic differentiation of early hepatic damage produced by extrahepatic biliary obstruction from toxic hepatitis. The flocculation tests did not necessarily help in this situation because, in our experience, they showed nothing abnormal in a not insignificant percentage of cases of toxic hepatitis, similar to surgical jaundice. Following jaundice of two weeks and longer, the histologic differences became clearer and the differentiation between the toxic and the surgical types of hepatitis was far easier; that was usually the time when the question of surgical intervention rendered the differential diagnosis significant. In older cases, little difficulty was encountered in the differentiation of the intrahepatic medical from the extrahepatic surgical biliary obstruction. Study of biopsy specimens of the liver has been intriguing, not only from the practical, diagnostic point of view, but also from the academic point of view of general understanding of hepatic disease. Liver biopsy may facilitate

a classification of the different types of acute hepatic damage. It provides an opportunity to correlate the results of hepatic function tests with morphologic alterations and thus offers an opportunity to evaluate the function tests. Finally, it may improve the rather hazy correlation between clinical picture and pathologic changes of the liver. At present, one is often unable to decide at the autopsy table whether hepatic insufficiency was present or not. Liver biopsy may, therefore, in the future not only enable the pathologist to be of added diagnostic help to the clinician but also permit him to learn more about hepatic disease.

DR. SHEILA SHERLOCK, London, England: My colleagues and I started doing needle biopsies of the liver in 1942; since then we have performed 450 biopsies on 380 patients. Our technic was modified from that of Iversen and Roholm; we, therefore, use a trocar and cannula introduced intercostally. I do not really think there is anything to choose between this method and the use of the Vim-Silverman needle. Provided the biopsy is done after the first week or so, the distinction of obstructive from parenchymatous jaundice is usually clarified by study of the biopsy section. Supplementary evidence for the diagnosis of Hodgkin's disease, the leukemias, sarcoidosis and other such conditions can be obtained by this means. At the Postgraduate Hospital in London we do not perform a splenectomy without preliminary liver biopsy; in this way we save many persons with leukemia, myelosclerosis and hemochromatosis from unnecessary operation. As to mortality, in the first 200 biopsies we had 2 deaths. Since then we have modified our technic and taken more precautions and have had no further fatalities. Recent scrutiny of the literature shows more than 3,000 biopsies on record with 9 deaths. I do not think we ought to regard needle biopsy of the liver as an entirely safe procedure. I doubt that it ever will be, however one modifies it. It is a method one must use in well appointed institutions on carefully selected patients with personal supervision by the physician for twenty-four hours after the puncture and with facilities available for transfusion if necessary. With these provisos, it is a reasonably safe and justifiable procedure.

DR. IRVING B. BRICK, Washington, D. C.: For the past eighteen months my associates and I have done these needle biopsies without sequelae; however, I have noticed gross bleeding through the needle in some cases. Four of every 5 we performed were successful biopsies. I should like to know your average.

DR. LEON SCHIFF, Cincinnati: The Section has been fortunate in having Dr. Hoffbauer, Dr. Popper and Dr. Sherlock discuss our presentation. They are all outstanding in this field and their contributions have been a stimulus in our own studies. In answer to Dr. Brick's question, when we first started doing liver biopsies, our failures were approximately 40 per cent. Our failures now are 5 or 6 per cent, and Dr. Sherlock tells me that her experience coincides with ours. Another means of decreasing the percentage of failures is taking more than one piece of tissue at the time of biopsy. If one fails to obtain a specimen on the first attempt, a second or third attempt should be made at the time of the original biopsy. I might add that, contrary to theoretic expectations, we have noted no increase in frequency of reaction following repeated attempts at biopsy, but that probably is a matter of luck. Is there a "safest" procedure from a technical point of view? Is there a safest approach? I presume the answers to these questions will be forthcoming. One note of caution regarding the anterior approach: I have seen 2 patients who presented what was thought to be a large liver due to the presence of neoplasm. Through blissful ignorance a biopsy specimen was obtained through the transpleural approach, only to find at operation that we were dealing with a tumor of the proximal portion of the transverse colon adherent to the liver instead of neoplasm of the liver! Had we taken the biopsy specimen through the anterior approach, we might have perforated the colon. In regard to the question of bleeding at the site of the incision of the skin, we have done only a few biopsies with the Iversen-Roholm technic; with the Vim-Silverman needle we have noted it on rare occasions.

AUREOMYCIN IN PRIMARY ATYPICAL
PNEUMONIA

A Controlled Evaluation

GORDON MEIKLEJOHN, M.D.
Berkeley, Calif.

and

CAPTAIN ROBERT I. SHRAGG
Medical Corps, Army of the United States

Several reports have already appeared presenting evidence that aureomycin is an effective therapeutic agent in primary atypical pneumonia.¹ All have described the course of the disease in relatively small groups of patients treated with aureomycin. None have presented data on comparable numbers of patients ill during the same period of time who did not receive aureomycin. While the remarkable uniformity of the therapeutic response constitutes a strong argument for the effectiveness of the drug, a certain amount of doubt persists because the course of the disease is exceedingly variable.

Primary atypical pneumonia is exceptionally well suited for controlled evaluation of therapeutic agents. In certain population groups cases may occur in large numbers. The febrile course is long enough in a proportion of the patients to permit the demonstration of a definite shortening of the disease. The fatality rate in young persons is extremely low, making it justifiable to withhold specific therapy from a portion of the patients. No previously available therapeutic agent had been found effective. In view of these considerations, when a suitable opportunity arose, it seemed highly desirable to conduct a study of parallel groups of patients, one of which received aureomycin while the other did not. The present report presents the results of such a study carried out at Fort Ord, California, during the winter of 1948-1949.

MATERIAL AND METHODS

Selection of Patients.—Starting Dec. 5, 1948, all patients with acute respiratory disease admitted to wards at the Station Hospital, Fort Ord, who met all of the following criteria were included in the study group: (a) The clinical course and physical observations suggested that the patient had primary atypical pneumonia rather than bacterial pneumonia²; (b) the roentgenogram of the chest showed unequivocal evidence of pneumonia; (c) the patient's temperature was 102 F., or higher, during the twenty-four hours

prior to institution of treatment; (d) the white blood cell count was less than 12,750, and (e) the patient did not appear to be showing significant improvement. Adherence to these criteria necessitated exclusion of slightly more than half the patients admitted to the hospital during the study period whose course suggested that they had primary atypical pneumonia.

General Plan for Selection of Therapy.—Patients meeting all the criteria outlined were included in the study group. Alternation was accomplished with 30 patients, half of whom received aureomycin and half penicillin. Elimination of certain patients because they failed to meet certain criteria (e. g., roentgen observations were considered equivocal) on occasion disturbed the strict alternation, but the selection remained, as nearly as possible, a random one. In this group of 30, 15 patients on a fixed aureomycin schedule were compared with a similar group on a fixed penicillin schedule.

During the same period 5 additional patients received penicillin shortly after admission to the wards and

TABLE 1.—Comparison of Aureomycin-Treated and Penicillin-Treated Groups Prior to Therapy

Age	Number of Patients	
	Aureomycin	Penicillin
17-20.....	12	14
21-30.....	6	6
Duration of fever, days		
1-4.....	7	8
5-7.....	9	10
8-11.....	2	2
Maximum temperature (F.)		
102-104.....	10	12
104-106.....	8	8
Admission white blood cell count		
5,000-10,000.....	16	14
10,000-13,000.....	2	6
Positive observations in roentgenogram of chest.....	18	20
Total number of patients.....	18	20

were subsequently found to meet all criteria for inclusion in the study group. These were balanced in part with 3 similar patients who were given aureomycin, in 2 instances by the intravenous route. Since the inclusion of these patients did not appear to alter the similarity of the groups treated with the two drugs (table 1), results obtained with these 8 patients are presented together with those obtained in the 30 previously described.

A final group of 4 patients consisted of persons who at the start received penicillin and then were given aureomycin. This was done when, after at least forty-eight hours' treatment with penicillin, the patient's condition had obviously become worse and was moderately alarming.

Penicillin was selected for use in the control group for two reasons. First, it was considered desirable to administer some preparation and, prior to the study, penicillin had been generally used in the hope of shortening the course of the disease. Second, it was reasoned that, if patients with bacterial pneumonia were inadvertently included in the series, any therapeutic response obtained with aureomycin would tend to be

This study was carried out under the auspices of the Commission on Influenza, Army Epidemiological Board.

The aureomycin used in this study was supplied by the Lederle Laboratories, American Cyanamid Corporation.

Dr. Meiklejohn is Assistant Professor of Medicine, University of California Medical School, and Consultant in Virology, California State Department of Public Health.

From the Viral and Rickettsial Disease Laboratory, California State Department of Public Health, Berkeley; the Division of Medicine, University of California Medical School, San Francisco; and the Medical Service, Station Hospital, Fort Ord, California.

We received assistance from Dr. E. H. Lennette, Chief, Viral and Rickettsial Disease Laboratory, and Associate Member of the Commission on Influenza; Dr. T. Francis Jr., Chairman, Commission on Influenza; Col. A. L. Gorbey, 6th Army Surgeon, Presidio, San Francisco; Col. J. L. Murchison, Major W. G. Thalmann Jr., Capt. E. Stratton, Capt. A. J. Castagno, Miss Claudine Conway, R.N., Mrs. Phyllis Sands, and other personnel at Fort Ord; and from Col. F. E. Council and Capt. D. L. Weiss at the 6th Army Medical Laboratory, Fort Baker.

1. Schoenbach, E. B., and Bryer, M. S.: Treatment of Primary Atypical Non-Bacterial Pneumonia with Aureomycin. *J. A. M. A.* 139: 275-280 (Jan. 29) 1949. Kneeland, V. Jr.; Rose, H. M., and Gibson, C. D.: Aureomycin in Treatment of Primary Atypical Pneumonia. *Am. J. Med.* 6: 41-50 (Jan.) 1949. Finland, M.; Collins, H. S., and Wells, E. B.: Aureomycin in the Treatment of Primary Atypical Pneumonia. *New England J. Med.* 240: 241-247 (Feb. 17) 1949.

2. Meiklejohn, G.: Viral Pneumonia. *M. Clin. North America* 31: 1442-1456 (Nov.) 1947.

canceled out if penicillin were used in the alternate group. This would not be the case if no therapeutic agent were used in the control group. It was our opinion, on the basis of previous experience with penicillin, that the drug was not an effective therapeutic agent in the treatment of primary atypical pneumonia.

Dosage.—Aureomycin therapy was instituted with an intravenous injection of 50 mg. of aureomycin hydrochloride in 5.0 milliliters of a leucine diluent, which contained 131 mg. of L-leucine in 5.0 milliliters, and an oral dose of 1.0 Gm. Thereafter, patients received 1.0 Gm. of drug by mouth every six hours until their temperatures had been normal for at least forty-eight hours. In a number of instances treatment was continued for a longer period. In a small number of cases, when the orally administered drug was poorly tolerated, one or more intravenous injections of 50 mg. of aureomycin were given along with the customary oral doses. At the conclusion of the study a small number of patients were treated on a regimen of 100 mg. intravenously each six hours during the day and a single oral dose of 1.0 Gm. during the night. Penicillin was administered by the intramuscular route in doses of 100,000 units of aqueous penicillin every six hours.

TABLE 2.—Comparison of Duration of Fever After Commencement of Treatment with Aureomycin and Penicillin

Therapy.....	Febrile * Course (Days)						
	<1	1-2	2-3	3-4	4-5	5-10	10 or More
Aureomycin.....	8	5	2	2	1	0	0
Penicillin.....	3	3	2	3	2	3	4

*Defined as day with oral temperature in excess of 99 F.

Laboratory Procedures.—Complete blood cell counts, urinalysis and roentgenograms of the chest were routine procedures. These were repeated for the most part at weekly intervals. In most patients stained sputum smears were examined, and sputum and blood cultures were taken prior to treatment. The latter were uniformly sterile. It is worthy of comment that bacterial pneumonias were uncommon during this period.

Blood specimens were collected after admission and at weekly intervals thereafter for at least two weeks. Cold agglutination tests were done immediately at the Station Hospital Laboratory. Serums were then shipped to the 6th Army Laboratory at Fort Baker, where agglutination inhibition tests for influenza A and B were performed. Subsequently, complement fixation tests for influenza A and B, psittacosis and Q fever were run at the Viral and Rickettsial Disease Laboratory in Berkeley.

Aureomycin Serum Levels.—Two sets of serum were collected for the determination of aureomycin levels from 7 of the patients treated with aureomycin. The first set was collected one, two, four and six hours after the institution of therapy and the second set forty-eight hours later, when specimens were taken two, four and six hours after an oral dose of 1.0 Gm. Serum was removed from the clot as soon as possible and immediately placed in a carbon dioxide ice chest. Specimens

were stored at temperatures below —45 C. until tested by methods described elsewhere.³

Clinical Study.—All patients were examined by, and followed by, one of us (R. I. S.) as well as by the medical ward officers. Complete records were kept of clinical response and of any evidence of aureomycin toxicity.

Dating the onset of illness caused considerable difficulty, because many persons gave a history of respiratory symptoms, especially cough, from the time of arrival on the post. The date of onset (first day of disease) was interpreted as the day on which symptoms of feverishness or chilliness and exacerbation of previous symptoms were noted.

Patients are identified in the text with one of three prefixes followed by a serial number. Thus, A-1 indicates patient 1 in the aureomycin-treated series; P-1, the same in the penicillin-treated group; and P-A 1, the first in the group started on penicillin and shifted to aureomycin.

Comparability of Aureomycin-Treated and Penicillin-Treated Groups.—Since the validity of any conclusion reached as a result of a controlled study such as this rests on the premise that the two groups are truly comparable, at the conclusion of the study an analysis was made of various factors present at the time of institution of treatment. No significant differences were found with respect to the duration of the disease when treatment with the drug was started, or the maximum temperatures prior to therapy. In the aureomycin-treated group a slightly larger proportion of persons fell in the age group over 20 years, while in the penicillin-treated group a somewhat larger proportion of persons had admission white blood cell counts in excess of 10,000. Roentgen observations defied quantitative analysis, but appeared to be in general similar. A summary of these data is presented in table 1. It was concluded that the two groups were remarkably alike in composition.

RESULTS

Penicillin-Treated Group.—Decided variation in the time required for symptomatic improvement and deferescence was observed in this group of patients. Six of the 20 became afebrile within forty-eight hours after penicillin therapy was started. The febrile courses of the remainder continued for longer periods. In 2 patients fever persisted for as long as twenty-two and twenty-three days, respectively. A summary of the duration of the febrile course is presented in table 2. Symptomatic improvement and clearing of physical and roentgen observations tended to lag behind the drop in temperature. In many instances cough, anorexia and weakness of pronounced degree persisted after the patient became afebrile.

Several patients obviously became worse while receiving penicillin, with rise in temperature, extension of pneumonia and appearance of, or increase in, dyspnea and cyanosis. In 4 of these patients there developed a picture sufficiently alarming to cause discontinuance of penicillin and administration of aureomycin. These patients are discussed in a subsequent section. More frequently, while the patient received penicillin, little

3. Brainerd, H. D.; Bruyn, H. B.; Meiklejohn, G., and Scaparoni, M.: Assay of Aureomycin in Body Fluids: Observation on Individuals Receiving Aureomycin, *Proc. Soc. Exper. Biol. & Med.* **70**: 318-321 (Feb.) 1949.

immediate change was noted in the course of the disease, which dragged on at a somewhat lower level of severity for a considerable number of days.

In summary, while approximately one third of the patients treated with penicillin recovered within forty-eight hours, the courses in the remaining two thirds argue strongly against the drug's being an effective therapeutic agent. In a disease as variable as primary atypical pneumonia a similar distribution has been observed in untreated patients⁴ and might well be observed in any group of patients treated with drugs lacking specific effects. It may be noted that the overall picture in the penicillin-treated group would probably appear even more unfavorable if the 4 most seriously ill patients had not been removed from this group and given aureomycin.

Aureomycin-Treated Group.—In contrast to the penicillin-treated group, all patients treated with aureomycin showed definite symptomatic improvement within three days; in most instances sooner. Twelve of the 18 patients became afebrile within forty-eight hours after therapy was started, and an additional 3 patients within seventy-two hours. Two of the remaining 3 became afebrile within ninety-six hours, and the third was afebrile within one hundred and twenty hours. In other words, 15 of the 18 persons were afebrile within three days after treatment with the drug was begun, and in no instance did fever persist during administration of drug for as long as five days (table 2).

Aureomycin therapy was discontinued in 4 patients between forty-eight and seventy-two hours after the temperature became normal, in 6 between seventy-two and ninety-six hours, in 5 between ninety-six and one hundred and twenty hours and in 2 more than one hundred and twenty hours after defervescence. All patients appeared to be well on the road to recovery when treatment with the drug was stopped, and in 15 of the 18 convalescence continued in an uneventful way. It was the impression of the attending physicians that the clearing of the physical signs and roentgen observations was somewhat more rapid than expected, though these lagged behind the symptomatic improvement of the patient.

The remaining 3 persons (A-11, A-12 and A-15) showed definite evidence of clinical relapse from three to six days after aureomycin therapy was discontinued. Each of the 3 began to have a low grade fever. More important, roentgenograms of the chest, which had in each instance begun to show evidence of clearing, showed evidence of recurrence or extension of the pneumonic area. This suggested a flare-up of the original disease rather than the acquisition of a new disease while the patient was in the ward for disease of the respiratory tract. Two of the patients, because they had white blood cell counts of 15,200 and 29,100, respectively, were given penicillin. Fever persisted until aureomycin was substituted for penicillin. Both these

patients and the third, who had not received penicillin, became afebrile within twenty-four hours after aureomycin therapy was reinstituted. Recovery was uneventful thereafter. A summary of the history of case A-12 is presented as an example of this sequence.

CASE 1 (Fig 1).—Patient A-12, a 17 year old boy, was admitted to the hospital with a hacking cough of ten days' duration. Three days prior to entry the cough had become severer and occasionally productive of bloody sputum and was accompanied with pain under the upper part of the sternum. He had also noted dyspnea on exertion, feverishness, chilly sensations, occasional transitory aches in the legs, slight sore throat, nausea, decided malaise, weakness and watery diarrhea.

On admission, physical examination revealed a slight degree of cyanosis of the lips and nail beds, scattered sibilant rhonchi with dullness and crepitant rales at the left base, and a slightly enlarged left anterior cervical lymph node. The white blood cell count was 6,600. Urinalysis showed a trace of albumin and 4 to 6 white blood cells and 1 granular cast per high power field. Sputum smear and culture showed occasional gram-positive diplococci. No growth was observed in a blood culture.

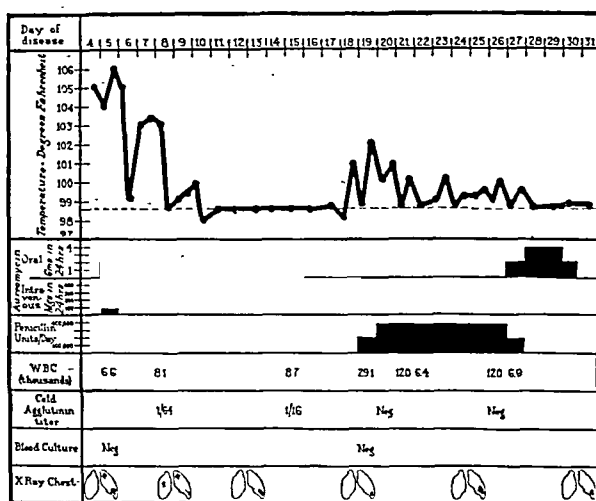


Fig. 1 (case A-12).—Illustration of relapse at discontinuation of aureomycin therapy.

On the second hospital day, after the temperature had reached 105.8 F. (oral), the patient was given aureomycin, 50 mg. intravenously and 1.0 Gm. orally, followed by 1.0 Gm. orally every six hours. Although the patient vomited about two hours after the first dose, he was able to retain succeeding doses and showed a precipitous drop in temperature within twenty-four hours. However, there ensued persistent vomiting of his medication, so that he was unable to retain any for about twenty-four hours. This was associated with another rise in temperature to a maximum of 103.6 F. (orally) on the morning of the eighth day of illness. Thereafter the temperature fell gradually to normal on the tenth day of disease. Aureomycin determinations on the fifth and seventh days of disease showed serum levels of 5.0 micrograms per milliliter.

Convalescence thereafter progressed satisfactorily, and the aureomycin therapy was discontinued on the twelfth hospital day, after the patient had been afebrile for six days. The patient still complained of weakness with exertion and a slight degree of anorexia, but otherwise had no untoward complaints. Pulmonary observations were minimal and consisted of crackling rales at both bases. Roentgenograms, which had revealed a pneumonic process in the left base on admission, had shown steady and progressive clearing, so that by the fifteenth hospital day only a minimal amount of ragged, increased density in the left cardiophrenic angle was observed.

4. (a) Dingle, J. H.; Abernethy, T. J.; Badger, G. F.; Buddingh, G. J.; Feller, A. E.; Langmuir, A. D.; Rueggesser, J. M., and Wood, W. B., Jr.: Primary Atypical Pneumonia, Etiology Unknown, *Am. J. Hyg.* 39: 67-128 (Jan.) 1944; 197-268 (March); 269-336 (May) 1944. (b) Young, L. E.; Storey, M., and Redmond, A. J.: Clinical and Epidemiological Features of Primary Atypical Pneumonia of Unknown Etiology Among Hospital and Medical School Personnel, *Am. J. M. Sc.* 206: 756-769 (Dec.) 1943. (c) Finland, M.; Peterson, O. L.; Allen, H. E.; Samper, B. E., and Barnes, M. W.: Cold Agglutinins: II. Cold Isohemagglutinins in Primary Atypical Pneumonia of Unknown Etiology, with a Note on the Occurrence of Hemolytic Anemia in These Cases, *J. Clin. Investigation* 24: 458-473 (July) 1945.

Seventy-nine hours after the aureomycin therapy had been discontinued and associated with the patient's first ambulation, there was a recurrence of fever (temperature was 100.6 F., orally) along with increased cough productive of mucopurulent sputum, constricting sensation across lower right side of the chest, malaise, chilliness and slight sore throat.

The white blood cell count on the second day of this febrile episode was 29,100 per cubic millimeter, with 90 per cent polymorphonuclear cells. Smear of the sputum revealed mixed flora with a predominance of organisms resembling streptococci. Culture of the sputum yielded only gram-negative diplococci, and blood culture was subsequently reported as being sterile.

Because of the leukocytosis and high proportion of polymorphonuclear cells in the differential count, it was thought that the patient might be suffering from a bacterial complication. Penicillin, 100,000 units of the aqueous solution, was given every six hours. However, the patient continued to have a low grade fever, associated with aggravation of symptoms and physical signs as well as roentgen evidence of a reinvolvement of the previously clearing left base.

After seven days of penicillin therapy, aureomycin therapy in the dosage previously outlined was reinstituted, with return of the temperature to normal levels in twelve hours. Aureomycin therapy was again discontinued after sixty-eight hours.

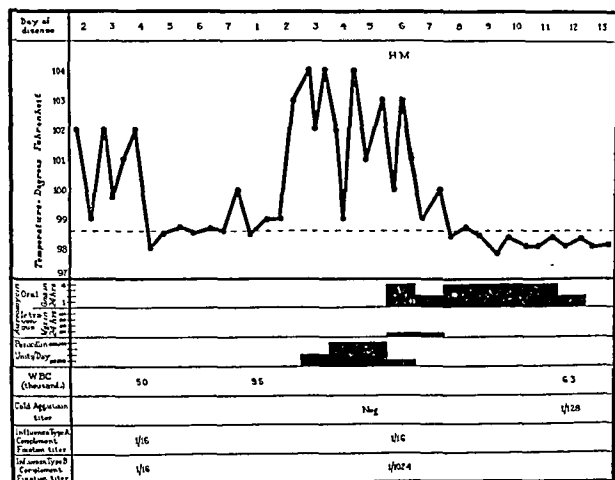


Fig. 2. (case P-A 2).—Illustration of initial attack of influenza B followed by primary atypical pneumonia, failure of the patient to improve with penicillin therapy and the prompt response to aureomycin.

Although the physical signs of pulmonary parenchymal involvement were slow in clearing, the patient claimed definite subjective improvement soon after the reinstitution of aureomycin therapy. The cold agglutinin titer was 1:64 on the eighth day of illness and fell off thereafter.

Comment.—This patient's course illustrates exceptionally severe primary atypical pneumonia in which the response to aureomycin, though slow, was satisfactory. Treatment during the first three days was difficult because of repeated vomiting. Despite the fact that aureomycin was continued for five days after the temperature returned to normal, recurrence of fever and evidence of reactivation of the pneumonia occurred within three days after treatment with the drug was stopped. This was accompanied with a leukocyte count of 29,100 with a differential count of 90 per cent polymorphonuclear cells. Fever persisted for seven days while penicillin was given and disappeared within twenty-four hours when aureomycin was given for the second time.

Patients Treated First with Penicillin and Then Aureomycin.—Four patients fell in this group. All had

failed to show evidence of improvement after forty-eight to ninety-six hours of treatment with penicillin and were then given aureomycin because they appeared seriously ill. In each instance decided symptomatic improvement and drop in temperature to normal followed within forty-eight hours after the institution of aureomycin treatment. A résumé of the course of patient P-A 2 is presented as an example of this type of case.

CASE 2 (Fig. 2).—Patient P-A 2, an 18 year old male patient, was admitted with a history of having had a mild nonproductive cough for three weeks. On the day prior to admission he noted increased cough, feverishness, chilly sensations, generalized myalgia, sore throat and intermittent headache and coryza. Results of the physical examination on admission were essentially negative apart from fever (102 F., oral), slight congestion of the palpebral conjunctivas and moderate congestion of the pharynx. The white blood cell count was 5,000.

The patient was treated with symptomatic drugs. On the fourth day of the disease he became afebrile. Complaints of slight coryza, sore throat and cough persisted. Serum specimens collected on the fifth and thirteenth days of disease were tested against influenza A and B viruses, and a diagnosis of influenza B was established by both complement fixation and agglutination inhibition tests.

Five days later the patient's temperature rose sharply to 103 F. There were no complaints, other than the sensation of being feverish, or abnormal physical observations. The white blood cell count had been 9,500 on the previous day. Sputum studies failed to disclose any preponderant organism. The following day the patient suffered from decided malaise, generalized aches and pains, anorexia and recurrence of nonproductive cough. The pharynx was injected, and dulness to percussion was noted over both bases, with occasional crackling rales at the right base. A roentgenogram of the chest on Jan. 13, 1949, revealed a homogeneous density overlying the lateral half of the right hemidiaphragm.

Treatment with aqueous penicillin, in doses of 100,000 units intramuscularly every six hours, was begun. During sixty-six hours on this regimen the patient's condition appeared to become worse, with continued temperature elevations to 103 and 104 F. A second roentgenogram, on January 15, showed infiltrations at both bases. Penicillin therapy was then discontinued and aureomycin therapy started, with 50 mg. given intravenously and 1.0 Gm. orally at the start followed by 1.0 Gm. every six hours. Because of persistent headache and slight meningismus, lumbar puncture was done. Spinal fluid observations were within normal limits. Rapid subjective improvement was noted, and the patient was afebrile within thirty-six hours after aureomycin therapy was started. Convalescence was uneventful.

Comment.—It is of interest that a patient admitted with influenza B became ill with primary atypical pneumonia before discharge from the hospital. The case illustrates well the lack of effect of penicillin in the latter disease and the dramatic response which is often noted with aureomycin therapy.

Comparison of the Course of Aureomycin-Treated and Penicillin-Treated Patients.—Differences between the two groups are brought out most readily by comparison of the duration of the febrile course of one group with that of the other after treatment was begun. For this analysis any oral temperature reading in excess of 99 F. was considered to indicate an active infectious process, since even low grade fever was occasionally associated with recrudescence or a protracted convalescence. When data from the two groups are presented in tabular form (table 2), the difference is striking. The bulk of the aureomycin-treated patients fell in the groups which became afebrile within three

days. In contrast, the majority of the penicillin-treated patients continued to be febrile for three days or more, and 7 of the 20 remained febrile for more than five days. Arithmetic means were not calculated because the excessive duration of the course in a few patients was considered to invalidate any figure obtained in groups as small as these.

TABLE 3.—Maximum Cold Hemagglutinin Titers in Aureomycin-Treated and Penicillin-Treated Groups

Therapy	No. of Pa- tients	Number of Patients with Titers of				
		8 or Less	16	32	64	128 or More
Aureomycin.....	18	6	6	3	2	1
Penicillin.....	20	6	2	1	6	5

Because the type of presentation used herein fails to take into account any difference between a temperature of 99 or 106 F., a more complete record was prepared in the form of miniature temperature charts of each patient before and after treatment (fig. 3). This method has the advantages of showing the course of the disease more accurately and of making clear the time relationship of the response, or lack of response, to the administration of drug. Again the relative uniformity of response with aureomycin is brought out, while the varied response to penicillin is apparent.

Cold Hemagglutination Tests.—In the penicillin-treated group, cold agglutinins were demonstrated in significant titer (32 or more) in serums from 12 of the 20 subjects. In the patients with a more protracted course, a greater proportion of persons had cold agglutinins in significant titer. Thus, only 3 of 9 patients with febrile courses of less than seven days had titers of 32 or more, while 9 of 11 patients with a course longer than eight days had similar titers. This is in line with earlier observations.⁵

TABLE 4.—Aureomycin Serum Levels in 7 Patients

Patient	Aureomycin Serum Level * Following Initial Dose † After				Aureomycin Serum Level * 48 Hours Later ‡		
	1 Hr.	2 Hr.	4 Hr.	6 Hr.	2 Hr.	4 Hr.	6 Hr.
A-7.....	5.0	...	...	3.0	5.0	2.5	2.5
A-9.....	...	5.0	10.0	5.0	5.0	...	1.25
A-11.....	1.25	5.0	2.5	1.25	10.0	2.5	1.25
A-12.....	2.5	2.5	5.0	3.0	3.0	3.0	5.0
A-14.....	0.3	0.15	0.6	1.5	10.0	1.25	1.25
A-15.....	...	2.5	0.6	0.6	5.0	2.5	2.5
A-88.....	...	1.25	0.6	...	1.25	1.25	0.6

* Micrograms per milliliter.

† The initial dose was 50 mg. given intravenously and 1 Gm. orally.

‡ After 1.0 Gm. given orally.

§ This patient was treated with 100 mg. intravenously for six hours during the day with a single night dose of 1.0 Gm. The drug was not given orally during twelve hours preceding the second series.

The results in the aureomycin-treated patients were somewhat different. Only 6 of the 18 were found to have titers of 32 or more. In the persons with an illness of less than seven days the picture was similar to that of the other group in that 4 of 11 had elevated

titers. However, in the patients with a longer course, only 2 of 7 had titers above 32. There was a further difference between the groups treated with the two drugs in that considerably fewer titers as high as 64 and 128 or more were encountered in the aureomycin-treated group (table 3).

Serologic Tests for Influenza, Psittacosis and Q Fever.—With the exception of 1 patient, P-A 2, significant rises in antibody to these agents were not observed in any subjects.

Leukocyte Response.—In the whole study group (42 patients) there were 6 who showed elevation of total white cell count. These ranged from 17,000 to 29,100, with differential counts showing that the bulk of the increase was due to the polymorphonuclear cells.

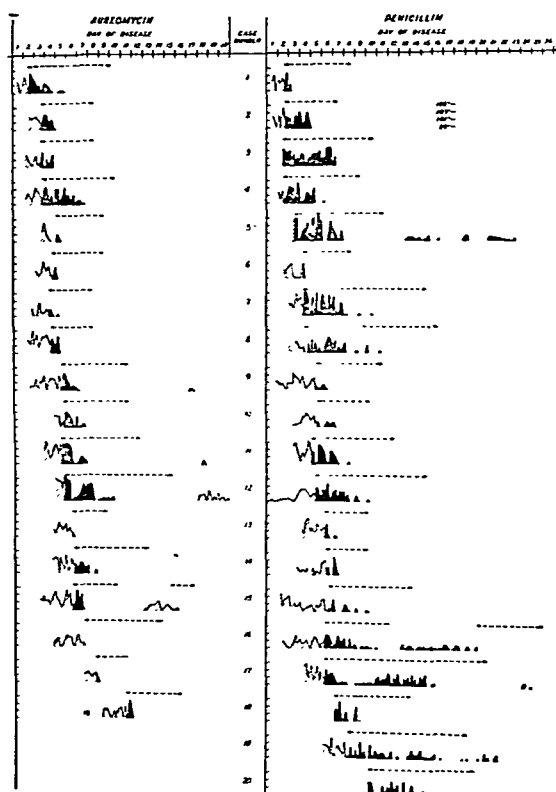


Fig. 3.—Comparison of temperature charts of aureomycin-treated group and penicillin-treated group. The shaded area represents the temperature record before treatment, and the black areas after treatment. The arrows indicate the period during which the drug was given.

It will be recalled that white cell counts at the time of admission had in all instances been below 12,750. The leukocytosis occurred during the third and fourth weeks after onset. There was nothing to suggest secondary bacterial infection as a cause of this response. Two of the patients were treated with penicillin during this phase without effect, and then responded promptly to aureomycin. This late leukocytosis has been noted before⁶ and is of practical importance, since it should be realized that, in a patient with pneumonia seen two weeks or more after onset, a high white cell count does not necessarily favor the diagnosis of a bacterial as against a viral pneumonia.

5. Finland, Peterson, Allen, Samper and Barnes.¹⁶ Meiklejohn, G., and Hanford, V. L.: Agglutination Tests with Streptococcus No. 344 in Primary Atypical Pneumonia, Proc. Soc. Exper. Biol. & Med. 57: 356-358 (Dec.) 1944.

6. Young, Storey and Redmond.¹⁷ Meiklejohn, G.; Eaton, M. D., and van Herick, W.: A Clinical Report on Cases of Primary Atypical Pneumonia Caused by a New Virus, J. Clin. Investigation 24: 241-250 (March) 1945.

Aureomycin Serum Levels.—A summary of the serum levels obtained with two sets of specimens from each of 7 patients is presented in table 4. It will be noted that measurable levels were in all instances present within two hours after treatment was started. The initial 50 mg. intravenous dose, coupled with the oral dose of 1.0 Gm., thus appeared to avoid any appreciable lag in achievement of readable serum levels. While most levels fell between 1.25 and 10.0 micrograms per milliliter, there was considerable individual variation. No data are available which permit any statement regarding levels desirable for therapeutic response. Since a good response was observed in all these patients, and, since others have reported favorable therapeutic responses on smaller dose schedule, it is reasonable to assume that a lower level might be sufficient in primary atypical pneumonia.

Aureomycin Toxicity.—By far the most troublesome manifestation of toxicity due to the drug was the occurrence of nausea and vomiting. This was observed in 9 of the 20 patients who received the drug orally on a schedule of 1.0 Gm. every six hours. A tenth patient had severe nausea without vomiting. With one possible exception (patient A-12) there was no evidence that this interfered with the therapeutic effect. After intravenous administration of the drug no nausea or vomiting was observed. Alteration in the character of the stools, ranging from abnormal bulkiness to watery diarrhea, was observed in 5 patients. In 2 instances the patients appeared abnormally drowsy. It was difficult to ascribe this to the drug rather than to the illness. In 1 patient cheilitis and a smoothness of the tongue were noted four days after aureomycin therapy was begun.

COMMENT

The present study deals with the results of aureomycin therapy in a group of young adults who were suffering from primary atypical pneumonia of more than average severity. In this situation, aureomycin appeared to be uniformly effective in the 22 treated persons. Defervescence was extraordinarily rapid in the majority of patients.

Comparison of these results with those obtained in a control group treated with penicillin brings out two points: first, that a substantial proportion of patients treated with the latter drug recovered soon after institution of therapy; second, that proof of aureomycin effectiveness rests largely on the fact that the protracted type of course observed in a number of the penicillin-treated patients was eliminated. Stated in another way, with patients of the type included in this study, prompt recovery occurred in almost half of the control group. Results with aureomycin could thus be compared only with results in the other half. The actual test of the drug lay in our determining whether, instead of obtaining prompt recovery in only half of the patients, it would be possible to obtain prompt recovery in all. This test appears to have been met.

One point which should be stressed is that relapse apparently may occur in aureomycin-treated patients even when treatment with the drug is continued for several days after the temperature has returned to normal. There was no evidence of reactivation of the disease while patients were receiving the drug, but 3 of the treated patients appeared to relapse after treatment

with the drug was stopped. This is not surprising in view of previous experience with aureomycin in Q fever.⁷ It is reassuring that aureomycin appeared to be as effective in treating the relapse as the initial episode.

The reappearance of cases of primary atypical pneumonia at a military induction center is of some interest. The relatively high incidence of the disease is brought out by the fact that almost one fifth of the patients admitted to the wards for diseases of the respiratory tract during the period of the study were ill with primary atypical pneumonia. The clinical picture was in virtually all respects similar to that observed during epidemics in the early years of World War II.

Cold agglutinins in significant titer were found in substantially the same proportion of patients who were treated with penicillin as in previously studied groups of comparable severity. Agglutinin titers were less frequently above the normal range and tended to be lower in the subjects treated with aureomycin. Since the two groups were similar prior to therapy, it seems not unlikely that treatment with aureomycin suppressed the formation of the cold hemagglutinins. If this proves to be true, the usefulness of the cold agglutination test as a means of confirming the diagnosis of primary atypical pneumonia may be reduced.

A few words might be added in conclusion about the necessary dose of drug and about toxicity. It seems likely that smaller doses may prove adequate. With the oral dosage used in this study, 4.0 Gm. per day, nausea and vomiting occurred with distressing frequency. Both smaller oral dosage and parenteral administration of the drug may offer more satisfactory therapeutic regimens.

SUMMARY

Prompt therapeutic response was observed in 22 patients with primary atypical pneumonia treated with aureomycin. Definite variation in the duration of the disease was observed in a control group of 20 patients treated with penicillin. Comparison of the duration of fever in the two groups indicates that penicillin is not an effective drug and that aureomycin is highly effective in primary atypical pneumonia. Apparent clinical relapse was observed in 3 patients after aureomycin therapy was stopped. Each responded rapidly when treatment with the drug was resumed. Cold agglutinins in significant titer were demonstrated in 12 of 20 patients in the control group and in a smaller proportion of the aureomycin-treated group.

7. Lennette, E. H.; Meiklejohn, G., and Thelen, H. M.: Treatment of Q Fever in Man with Aureomycin, *Ann. New York Acad. Sc.* 51: 331-342 (Nov. 30) 1948.

Excessive Deaths in Chicago from Air Pollution.—Based on the low rates prevailing in its clean suburbs, Chicago each year has an excess of 258 deaths from pneumonia among white males in its dirtier districts, 241 from tuberculosis and 69 from buccal and respiratory tract cancers—a total of 568 deaths among white males each year from these three respiratory diseases alone in excess of the death rates these diseases show in the city's cleanest districts. Add to this one-tenth as many deaths for white females and for Negro males, and a grand total is obtained of roughly 700 deaths each year, which represents a measure of the respiratory hazard of living in Chicago's dirtier districts.—Clarence A. Mills and Marjorie Mills-Porter, M.D., *Occupational Medicine*, June 1948, page 633.

D-TUBOCURARINE IN OIL-WAX SUSPENSION
IN RHEUMATOID SPONDYLITIS

Its Use as an Adjuvant

BERNARD M. NORCROSS, M.D.

HAROLD M. ROBINS, M.D.

and

L. MAXWELL LOCKIE, M.D.

Buffalo

Rheumatoid spondylitis is a chronic progressive disease of unknown causation, involving the sacroiliac joints, the posterior intervertebral (apophyseal) joints, the costovertebral and costochondral junctions and the longitudinal spinal ligaments. This disease is characterized by pain and limited motion of the spine, spasm of the paravertebral muscles, frequent flexion deformity of the spine, limited chest expansion and systemic manifestations of fatigue, loss of weight and strength. Fortunately, proper treatment will relieve the majority of the patients. This treatment consists of roentgen therapy to the spine (which will benefit 90 per cent [plus or minus]), systemic therapy, physical therapy and measures to correct and maintain proper posture (such as spinal brace, postural exercises, bed rest and bed boards). This regimen will relieve pain and prevent deformity in most patients, so that if ankylosis occurs, the spine will be in a position of extension and the chest in full expansion.

The few persons who are not relieved of pain and muscle spasm, and in whom flexion deformity develops, require prolonged, expensive and uncomfortable hospital treatment. Absolute bed rest, firm mattress with bed boards or a Bradford frame and orthopedic measures, such as body casts or skeletal traction, are needed to correct the deformity and produce extension of the spine. One of the most impressive manifestations of the disease in the latter group of patients is the obvious spasm of the paravertebral muscles (extensors of the spine). Since motion is limited in all directions and flexion deformity is frequent, the flexor muscles of the spine are necessarily involved in a similar state of contraction. Consequently, successful treatment of the muscle spasm will be of great benefit to the patient.

Muscle spasm is a state of involuntary muscle contraction which is characterized by pain and resistance to attempted stretching. In rheumatoid spondylitis, it is a reflex protective mechanism to produce splinting and prevent motion of the involved vertebral structures. While it is true that muscle spasm is caused by the pain, we feel that much of the pain (and also the limited motion) is in turn produced by the muscle spasm, thus establishing a vicious cycle of pain. Not only does this cycle become self-perpetuating, but the threshold of the neural arc is lowered and the response becomes abnormally active (stimuli outside the normal range of frequency will elicit muscle response). In an attempt to interrupt this vicious cycle, we have resorted to many measures, among them, intensive physical therapy, procaine hydrochloride injections, neostigmine (prostigmin®) injections and injections of the aqueous solution of curare. Unfortunately, none of these methods have been very efficacious or practical in rheumatoid spondylitis. It is true that the aqueous solution of

curare did produce muscular relaxation, but it was necessary to inject an amount sufficient to produce the unpleasant side effects of curarization (diplopia, generalized muscular weakness, inability to lift the head, difficulty in swallowing and even breathing). Muscular relaxation was transient and persisted only for three to four hours, and maintenance of this level was impractical. However, the preparation of an oil-wax suspension of d-tubocurarine chloride by Schlesinger,¹ which produced prolonged muscular relaxation devoid of the usual side effects of curarization in a group of patients with "acute low back syndromes,"² suggested its use in patients with rheumatoid spondylitis.

The mechanism of muscular relaxation by curare requires some explanation of its action on the myoneural junction. Tubocurarine (the pure crystalline compound isolated from curare) has the ability to block neuromuscular transmission at the junctional region. The exact mechanism of the myoneural junction is still unexplained, but it is probably a combined electrochemical action induced by acetylcholine. Tubocurarine probably acts by interfering with the normal action of acetylcholine on the myoneural membrane or by increasing the threshold for acetylcholine above the available concentration of the drug. Schlesinger³ expressed the opinion that the degree of curare block can be controlled by the concentration of the drug at the myoneural junction. This fact forms the basis of curare therapy—that a partial or critical block can be established which will prevent transmission of abnormal stimuli and thus reduce the abnormal muscle activity (spasm) while normal stimuli will not be blocked and will produce normal muscular contraction. In this manner, muscle spasm can be reduced or abolished without any loss of voluntary muscle response.

This preparation of curare contains 3 per cent d-tubocurarine in a mixture of 4.8 per cent wax in peanut oil (175 units of standard curare per cubic centimeter of suspension). This product has been injected intramuscularly and has resulted in prolonged curare action, lasting from twenty-four hours to more than one hundred and twenty hours in some cases. The dosage has been carefully adjusted, with a low initial dose and increase of the dose gradually at intervals of twenty-four to forty-eight hours until muscular relaxation occurs. Subsequent doses are then administered at whatever interval (usually seventy-two to ninety-six hours) subjective or objective evidence of muscle spasm begins to reappear. Dosage has been an individual problem and is related to the degree of motor acceleration rather than to age or body weight.³ Dosage is lowest in conditions (muscle spasm) where the degree of motor acceleration is the least. As this drug is potentially dangerous (because we are establishing a depot in the body of about twice the normal therapeutic dose of the drug), we have observed certain precautions to prevent toxicity:

1. Begin with a conservative initial dose and increase gradually at intervals of not less than twenty-four hours until muscular relaxation is obtained.

2. Use of dry heat in melting the suspension (and shaking vigorously to insure thorough mixing) and use of dry needle

1. Schlesinger, E. B.: Use of Curare in Oil in Treatment of Spasticity Following Injury of the Spinal Cord, *Arch. Neurol. & Psychiat.* 55: 530-534 (May) 1946.

2. Schlesinger, E. B., and Ragan, C.: "Muscle Spasm" in *Acute Low Back Pain and Similar Syndromes*, *Am. J. Med.* 1: 621-627 (Dec.) 1946.

3. Schlesinger, E. B.: Recent Advances in the Use of Curare in Clinical Practice, *Bull. New York Acad. Med.* 22: 520-529 (Oct.) 1946.

and syringe in administering the drug, to prevent introduction of moisture into the product.

3. Inject the drug intramuscularly in one site only and do not massage the site of injection.

4. Initial determination of dosage in the hospital where patient's activity can be restricted and observation is possible for eight hours after injection.

5. Discard the product if it shows signs of fluidity or separation at room temperature.

6. Use of this drug is contraindicated when there is evidence of respiratory disease, renal disease, hepatic disease or myasthenia gravis.

If toxicity should result despite these precautions, injection of 1 to 2 cc. of neostigmine (prosgimin®) (1:2,000), which is very effective as a myoneural antagonist, will relieve mild toxic symptoms. In cases of prolonged or serious toxicity (respiratory difficulty), further injection of neostigmine is not beneficial and injections of ephedrine and/or ergotamine tartrate should be administered; an intratracheal airway should be inserted, and artificial respiration and supportive measures should be administered. Ice packs to chill the site of injection will delay further absorption.

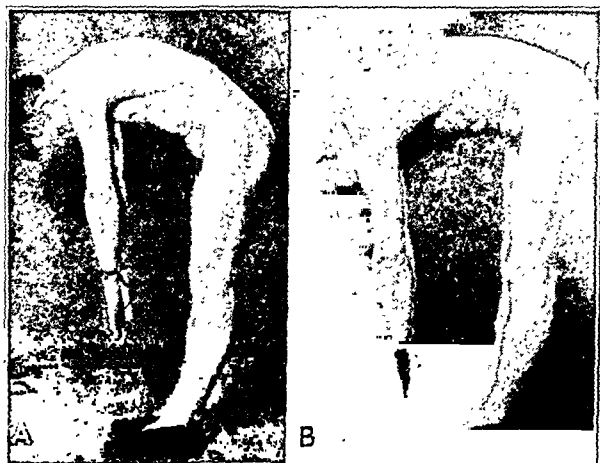


Fig. 1 (case 1).—Early rheumatoid spondylitis. A, photograph demonstrating the maximum range of motion before d-tubocurarine therapy. B, photograph showing the increased range of motion after the fourth injection of d-tubocurarine.

However, if the aforementioned precautions are observed, we believe that there will be no serious toxicity. Over two hundred injections were administered to this group of 6 patients with rheumatoid spondylitis, and only two mild reactions (blurring of vision, diplopia) were encountered. No treatment was required.

D-tubocurarine chloride in oil-wax suspension was employed in this group of 6 patients, when the usual treatment regimen for rheumatoid spondylitis (roentgen therapy, physical therapy, spinal supports, bed rest and postural training) failed to relieve their pain, muscle spasm, limited motion and flexion deformity of the spine. Spasm of the extensor (paravertebral) muscles and the muscles of the thighs was an outstanding observation in all 6 patients, and 3 patients had significant spasm of the flexor muscles of the spine. To evaluate the results objectively as well as subjectively, measurements of the range of motion, photographs and electromyographic studies were made before and after administration of d-tubocurarine. The electromyography

measures the electrical activity of the muscle. A normal muscle at rest shows no evidence of electrical activity, but a muscle in spasm exhibits "bursts" of abnormal electrical activity. Needle electrodes were inserted into various muscles, especially the erector spinae group, and in some cases into the muscles of the thigh (hamstring, quadriceps, adductor). After d-tubocurarine administration, the electromyographs showed a decided diminution of the abnormal "bursts" of electrical activity.

Three of the 6 patients treated had relatively early disease (involvement of the lower part of the spine only), 2 patients had moderately advanced disease (involvement of the entire spine, but no ligamentous calcification or ankylosis) and 1 patient had far advanced disease (typical "bamboo" spine, pronounced destructive arthritis of hip joints and a range of only 10 per cent motion of the knee joints). Abstracts of the histories of the 6 patients are reported in order of severity.

REPORT OF CASES

CASE 1.—J. Z., a white boy aged 19, complained of gradually increasing pain and limitation of motion of the lower part of the back for about one year. Previous treatment, consisting of sacroiliac support, roentgen therapy, postural exercises and extensive physical therapy, had not relieved the pain or limited motion of his spine. Physical examination revealed flattening of the normal lumbar curve, loss of 30 per cent motion of the lumbosacral part of the spine in all directions, pronounced spasm of erector spinae and hamstring muscles and considerable pain in the lower part of the back on motion. Roentgenologic examination showed haziness and narrowing of the sacroiliac joints and similar changes in the apophyseal joints of the lower lumbar vertebrae. There was definite evidence of abnormal motor activity on the electromyograph tracings, obtained with needle electrodes in the erector spinae and hamstring muscles. D-tubocurarine was administered, beginning with an initial dose of 0.75 cc. intramuscularly and repeated at twenty-four to forty-eight hour intervals for six doses. After the second injection, the dose was increased to 1.0 cc. (175 units). Following the fourth injection, this patient was able to touch his toes with his finger tips and there was only slight discomfort in the lower part of the back. There was a decided decrease in the degree of muscle spasm at this time. The fifth injection was increased to 1.25 cc., and after this injection the patient complained of blurring of vision, diplopia and a sensation of flushing in the face and head. No treatment was administered since the complaints were very mild. At this time, the patient had a full range of motion of his spine and there was no evidence of muscle spasm either on clinical or electromyographic examination. Dosage was maintained at 1.0 cc. at intervals of four days, for ten more injections. As the patient continued to have a full range of motion of the spine, without pain or muscle spasm, it was decided to discontinue treatment after fifteen injections. At the time of writing this patient had remained asymptomatic for one year with no further treatment.

CASE 2.—R. L., a white man aged 23, had rheumatoid spondylitis involving the sacroiliac joints and the lumbar part of the spine for three years. In the year prior to examination he had noticed a definite increase in pain and a decided impairment of motion of the spine. Examination of the spine revealed the characteristic loss of the normal lumbar curve, loss of 60 per cent of the motion of the lower part of the spine in all directions, moderate decrease in chest expansion and pronounced spasm of the paravertebral muscles and the muscles of the thighs (quadriceps, hamstrings). Roentgenograms showed well advanced arthritic changes in the sacroiliac and all the lumbar apophyseal joints. Electromyographs were obtained of the lumbar paravertebral muscles and the quadriceps group and showed abnormal motor activity. This patient was treated with the usual regimen (which has been described previously),

but experienced only minimal relief of pain and no improvement in the range of motion or the amount of muscle spasm present. After an interval of four months with no change in his symptoms, he was given d-tubocurarine in oil-wax suspension. An initial dose of 0.75 cc. was administered and was increased to 1.25 cc. at forty-eight hour intervals. After the fifth injection there was a definite decrease in the amount of muscle spasm (on clinical and electromyographic study), less pain on motion and a 25 per cent increase in the range of spinal motion. D-tubocurarine therapy was continued in the same dosage (1.25 cc.) at intervals of four to six days until a total of twenty injections was given. At that time, patient had obtained a range of motion 80 per cent of normal and was free of pain and muscle spasm. There was no complaint of toxicity during treatment. At the time of writing he had remained asymptomatic for a year with no other treatment except a Taylor brace.

CASE 3.—A. K., a white man aged 22, had had rheumatoid spondylitis for three years. In the nine months prior to examination, pain in the lower part of the back and left hip had become progressively worse and he had been unable to work. Examination of his spine revealed the lumbar part of the spine to be flat, with loss of 75 per cent normal range of motion, decided impairment of chest expansion, moderately severe pain in the back and left hip region on motion and pronounced spasm of the paravertebral muscles and muscles of the left thigh (quadriceps, adductors). Roentgenograms showed moderately advanced arthritis of the sacroiliac joints, the apophyseal joints of the lumbar part of the spine and mild rheumatoid arthritis of the left hip joint. Since there was little relief of pain, muscle spasm or limited motion after intensive treatment (including bed rest, roentgen therapy, physical therapy and spinal brace), d-tubocurarine therapy was instituted after an interval of three months. The initial dose was 0.5 cc. given intramuscularly; this treatment was repeated at forty-eight hour intervals for four doses. The fifth injection was increased to 0.75 cc. and was given every three days for six doses. At this time, there was a 50 per cent increase in the range of motion of the spine and practically all pain and muscle spasm in the lower part of the back and left thigh were relieved. Injections were repeated at intervals of four to five days for the next five months and then discontinued because he was free of all complaints, except for mild "stiffness and tightness" of the lower part of the back and hip region. This patient received a total of forty-five injections and showed no evidence of tolerance or habituation. The only complaint of toxicity was slight blurring of vision on one occasion, which required no treatment. This patient was able to resume his former occupation after d-tubocurarine therapy was instituted and at the time of reporting had been almost completely asymptomatic for eight months with no treatment except postural exercises and a Taylor brace.

CASE 4.—W. R., a white man aged 41, had had rheumatoid spondylitis for eighteen years. For a year prior to examination there had been a gradual progression of the pain and limited motion of the back and neck and some pain in both hips. Examination revealed decided limitation of motion of the neck and back (20 per cent of normal range of motion), a moderate flexion deformity of the cervical and dorsal parts of the spine and pronounced spasm of the paravertebral muscles of the neck and back. Rotation of both hip joints was limited to 50 per cent, with some pain on rotation and abduction. The quadriceps and adductor muscles of both thighs exhibited a moderate degree of spasm on clinical and electromyographic examination. Roentgenograms showed fusion of both sacroiliac joints, involvement of the intervertebral joints of the entire spine, mild decalcification of the vertebrae and moderate arthritic changes of both hip joints. As this patient had previously been treated with roentgen rays, physical therapy, spinal support and, finally, bed rest, without any improvement of the flexion deformity or muscle spasm and pain, combined neck and leg traction was instituted. Because of the degree of discomfort and the slow progress, traction was discontinued and d-tubocurarine was administered. The initial dose was

0.75 cc. given intramuscularly, and the same dose was given twenty-four hours later. The amount was increased to 1.25 cc. and injection repeated at forty-eight to seventy-two hour intervals. After the fifth injection, it was observed that the patient was able to stand erect and that little spasm of the paravertebral muscles was present. There was little discomfort at this time. Treatment with injections was continued at intervals of three to five days until a total of eighteen doses (1.25 cc.) had been administered. At the conclusion of treatment, this patient was able to stand erect and there was no pain or muscle spasm. There was a moderate increase in the range of motion of the spine (40 per cent normal range of motion). This patient required a Taylor brace, some physical therapy and one subsequent course of roentgen therapy, because of recurrence of a moderate amount of pain, for a period of four weeks. However, at the time of writing there had been no recurrence of the flexion deformity and he had retained



Fig. 2 (case 5).—Moderately advanced rheumatoid spondylitis before treatment. The photographs demonstrate the flexion deformity of the spine, the patient's inability to hold his head erect and the muscle spasm (abdomen).

the improvement in motion. He had been performing his regular occupation, which entailed heavy physical exertion, with minimal discomfort for a year.

CASE 5.—C. H., a white man aged 24, had had rheumatoid spondylitis for five years prior to examination. There had been continuous progression of the disease with involvement of the entire spine, thorax and right hip. There had been increasingly severe pain in the back, neck, chest and right hip; progressive loss of motion of the neck and back; loss of chest expansion, and loss of strength and 40 pounds (18 Kg.) in weight. Examination revealed the dorsolumbar part of the spine to be rigid and decided restriction of all motions of the neck (only 20 per cent normal range of motion of the neck). There was a pronounced flexion deformity of the cervical and dorsal part of the spine and practically no chest expansion. One of the outstanding observations on examination was the

very pronounced spasm of the muscles of the neck, spine, thighs and the abdomen. The electromyograph showed decidedly abnormal motor activity when needle electrodes were inserted into the neck, back and thigh muscles. Roentgenograms revealed typical well advanced involvement of the sacroiliac joints and the entire spine and beginning calcification of the longitudinal spinal ligaments. This patient had been treated several times in the hospital, with an intensive regimen consisting of body casts, traction, physical therapy, roentgen therapy, postural exercises, prolonged bed rest, neostigmine (prostigmin®) and procaine hydrochloride injections, without relief of the pain, muscle spasm or flexion deformity. Treatment with d-tubocurarine in oil and wax was begun with an initial dose of 0.75 cc., which was subsequently increased to 1.25 cc. given at intervals of twenty-four to forty-eight hours. After the

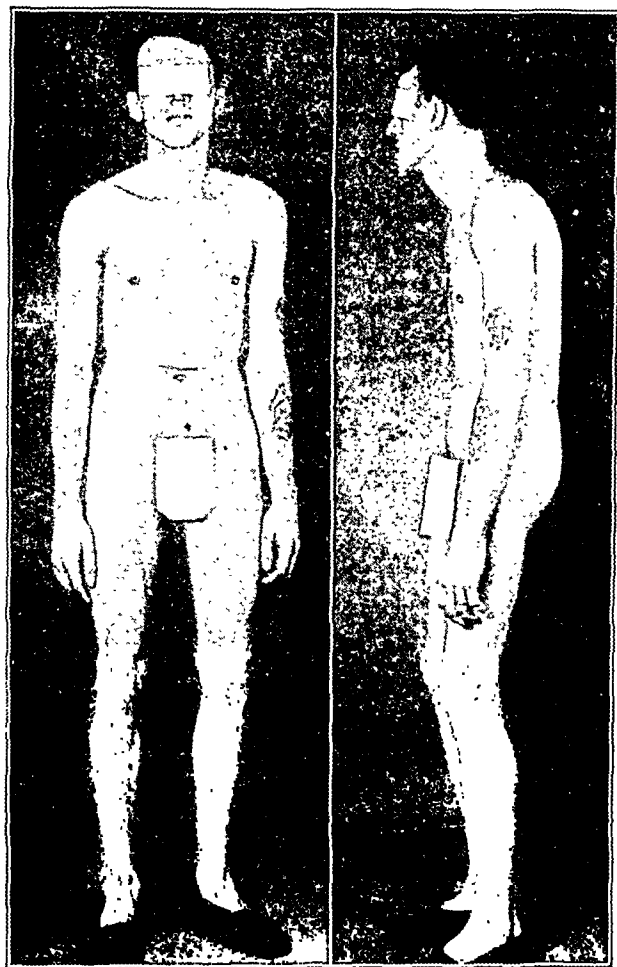


Fig. 3 (case 5).—Photographs of the patient after he had received the seventh injection of d-tubocurarine. They demonstrate the improvement in posture, correction of the flexion deformity of the spine, the patient's ability to hold his head erect and relaxation of abdominal muscles.

fourth injection the patient felt "relaxed" and more comfortable, and after the seventh injection it was noted that he was able to stand more erect and was able for the first time to extend the cervical part of the spine and hold his head erect. Injections were continued at intervals of seventy-two hours for the next month and then were administered every five to seven days for five months, during which time the patient could stand erect with no discomfort and wore a Taylor brace. There had been a 15 per cent increase in the range of motion of the neck and spine. At this time, patient voluntarily discarded his brace and discontinued the injections because he felt well. However, he soon suffered a relapse, with a return of pain, muscle spasm and flexion deformity. He was hospitalized again, and treatment with d-tubocurarine injections was reinstituted, with prompt relief of the pain, muscle spasm and flexion deformity;

an intensive program of physical therapy and muscle-building exercises was started. Improvement was maintained, and the d-tubocurarine therapy was discontinued after he had received a total of sixty injections with no evidence of toxicity or habituation. He required no further therapy, except for the physical therapy, postural exercises and Taylor brace.

CASE 6.—J. A., a white man aged 34, had had a progressive form of rheumatoid spondylitis for twelve years, involving the entire spine, hips, shoulders, thorax and knees, despite all treatment. In 1945, ankylosis of the neck, spine and hip joints was practically complete, and the patient had been confined to bed for the previous two years. Examination revealed a rigid back and neck; no motion in either hip joint could be obtained; severe spasm of the muscles of the back and thighs was present, and any attempt to produce movement of the knee or hip joints was extremely painful. Roentgenograms showed a typical "bamboo" spine and severe arthritis of both hip joints. In the twenty months that he had been hospitalized, the regimen included roentgen therapy, daily physical therapy, prolonged courses of neostigmine (prostigmin®) and procaine hydrochloride injections, with no improvement. He would make an occasional futile attempt to walk with the aid of a walker, but could take only a few steps because of the pain, decided muscle spasm and loss of practically all motion in the hip and knee joints. D-tubocurarine was administered, beginning with 0.75 cc. given intramuscularly, which was subsequently increased to 1.25 cc. at forty-eight hour intervals. After the eighth injection, the patient was able to walk a longer distance, with less discomfort, than for the previous two years. Injections were continued at four to six day intervals for the next four months. The patient continued to improve during this period and was able to walk increasing distances with less discomfort and exhaustion. There was definite evidence of relaxation of the muscles of his back and thighs and an increase of 60 per cent motion of both knee joints during d-tubocurarine therapy. There was only a slight return of motion in the hip joints (15 per cent) and no decrease in the rigidity of the spine. He was able to be out of bed the entire day and was able to walk with little discomfort with the aid of crutches. It was felt by all observers that the rehabilitation of this patient was produced by the d-tubocurarine therapy, as all previous treatment during the hospitalization period of nearly two years had failed to improve his condition in any manner. He received a total of forty-five injections of d-tubocurarine with no evidence of toxicity or habituation and at the time of reporting had maintained this improvement for six months with no subsequent therapy.

COMMENT

D-tubocurarine in oil and wax suspension was administered to a group of 6 patients with rheumatoid spondylitis, after the usual therapeutic regimen for this disease had failed to produce significant improvement. The results of treatment with d-tubocurarine in these patients were: (1) relief of muscle spasm and pain, (2) increased range of motion and strength, (3) correction of flexion deformity of the spine, (4) evidence of diminished abnormal motor activity on electromyographic study after treatment and (5) ability to take more intensive physical therapy and postural exercise. This group of patients received more than two hundred injections of this drug with no evidence of habituation and practically no toxicity. This oil-wax suspension of d-tubocurarine produced a prolonged "curare" effect, lasting up to one hundred and twenty hours in some cases.

SUMMARY

We believe that d-tubocurarine in oil and wax has a definite value as an adjuvant measure in the treatment of rheumatoid spondylitis when the usual regimen of treatment is not successful and when the patient has evidence of significant "muscle spasm."

Council on Pharmacy and Chemistry

ORGANOMERCURIAL COMPOUNDS

A report of the Council, titled "The Bacteriostatic and Bactericidal Actions of Some Mercurial Compounds on Hemolytic Streptococci," by Morton and his co-workers, was published in THE JOURNAL Jan. 3, 1948, page 36. This paper concerned the usefulness of organomercurial compounds, and, in an introductory statement, the Council emphasized that their usefulness should be further explored and defined.

Subsequently, papers by Dr. John H. Brewer and Dr. H. M. Powell on behalf of mercurochrome[®] (merbromin) and merthiolate[®] were published under sponsorship of the Council (THE JOURNAL, July 3, 1948, page 858).

Later the Council considered and commended to THE JOURNAL for publication the paper "Antibacterial Action of Commercial Nitromersol Preparations" by Dr. Hobart W. Cromwell, and the paper "The Action of Blood on Germs Presumably Killed by Antiseptics" by Dr. Lorenzo Banti. These papers and additional comments by the authors have been accepted for publication in the Council column.

The Council is gratified by the prompt response to its challenge for objective evidence of the therapeutic usefulness of the bacteriostatic action of the organomercurial compounds.

In sum, the replies seem to indicate that this bacteriostatic action may, under some conditions, render bacteria noninfective, but that the results vary in conditions that are only partly controllable, especially in clinical practice. It is pointed out that any reduction of infectivity, even though it be uncertain, is to the advantage of the patient, provided (1) that it more than offsets any direct damage to the tissues by the chemical and (2) that the operator appreciate that such reduction of infectivity does not justify any laxness in surgical technic and that asepsis and gentleness must be observed just as meticulously as if no antiseptic were used.

With reference to the paper by Banti, the Council considered that the observation that germicidal action is not merely prevented but actually reversed by blood does not greatly alter the problem, namely, whether the concentrations actually used on and in the body are sufficient to accomplish disinfection without too much toxicity. It is pointed out that this depends on individual conditions that cannot be controlled a priori and that it is still a question of one's giving the patient the benefit of the doubt, provided that the actual success in controlled *in vivo* experiments are sufficient to leave a reasonable doubt.

The Council feels that the papers on this subject published under its auspices do not represent a final answer to its challenge.

AUSTIN SMITH, M.D., Secretary.

ANTIBACTERIAL ACTION OF COMMERCIAL NITROMERSOL PREPARATIONS

HOBART W. CROMWELL, Sc.D.
North Chicago, Ill.

Morton, North and Engley,¹ in a report of their studies of the effect of three mercurials, including nitromersol (metaphen[®]), on pathogenic streptococci, concluded that the aqueous solutions of these mercurials as marketed "possess many shortcomings as disinfectants." This report, with the accompanying comments from the Council on Pharmacy and Chemistry of the American Medical Association, gives the reader the impression that all commercial mercurial preparations are of doubtful value as antibacterial agents. This impression is evident in the semipopular report in *Science News Letter* for Jan. 10, 1948.² Their experiments with nitromersol will be discussed later in this paper.

From the Abbott Research Laboratories.

1. Morton, H. E.; North, L. L., and Engley, E. B., Jr.: The Bacteriostatic and Bactericidal Actions of Some Mercurial Compounds on Hemolytic Streptococci, J. A. M. A. 136: 37-41 (Jan. 3) 1948.

2. *Science News Letter* 53: 29 (Jan. 10) 1948.

The purpose of this communication is to present experimental data on the antibacterial action of two market preparations, metaphen[®] disinfecting solution and tincture of metaphen[®] 1 to 200, which are the nitromersol products most widely used. Metaphen[®] disinfecting solution contains 1 part nitromersol dissolved in 2,500 parts of water containing sodium hydroxide U. S. P., 0.81 Gm.; sodium carbonate, monohydrated, 12.5 Gm.; ethylene glycol, 500 Gm., and benzyl alcohol, 100 Gm. It is recommended for the cold disinfection of dental and surgical instruments. Metaphen[®] tincture, 1 to 200, contains 0.5 Gm. of nitromersol in 100 cc. of an alkalized solvent consisting of alcohol, 50 per cent; acetone, 10 per cent, and water. For preoperative preparation of the skin a certified dye is added to mark the area of application, but for other topical applications the tincture without dye is available.

The experimental data presented here have been selected from studies on mercurial antiseptics made in the Abbott laboratories over the past five years and, therefore, not designed specifically to meet the challenge of the Council. However, the data on metaphen[®] disinfecting solution were accepted in January 1946 by the Council on Pharmacy and Chemistry of the American Medical Association as evidence sufficient to include this preparation in "New and Nonofficial Remedies."

METAPHEN[®] DISINFECTING SOLUTION

Morton and his co-workers,¹ Brewer³ and Powell⁴ have shown that *in vitro* culturing in thioglycollate broth approximates in sensitivity the animal inoculation method of testing viability of mercurial-treated bacteria. In the Abbott tests of metaphen[®] disinfecting solution thioglycollate broth was used for subculture; otherwise the method was the same as described by Ruehle and Brewer.⁵ To 5 cc. of the test solution at 20 C. was added 0.5 cc. of a twenty-four hour culture of the test organism, mixed by shaking. At suitable intervals one 4 mm. loopful of the mixture was planted into 10 cc. of thioglycollate broth and mixed. The cultures were incubated at 37 C. at least four days before final reading of the results.

Table 2 shows the results of sixteen tests of metaphen[®] disinfecting solution against *Staphylococcus aureus*, F.D.A. strain 209, with thioglycollate broth, Linden formula, the same as Morton and his associates used. Complete killing was obtained in all trials in five minutes' exposure at 20 C., and in 13 of the 16 trials no growth was obtained after three minutes' exposure.

In table 1 is the summary of tests against two other strains of *Staphylococcus*, three strains of *Streptococcus*, one strain of *Monilia*, a pathogenic yeast, and two strains of *Escherichia coli*. The broth used for subculture was freshly prepared nutrient broth containing 0.1 per cent sodium thioglycollate. This was used because some of the organisms grew more readily in this than in the Linden formula. Of a total of 128 subcultures made at various time intervals in this series of tests, only two produced growth, one of a *Staphylococcus* after one minute exposure at 20 C. and one of a hemolytic *Streptococcus* after two minutes' exposure.

These results indicate that metaphen[®] disinfecting solution has a definite and rapid lethal action against the organisms tested.

3. Brewer, J. H.: Reduction of Infectivity of Certain Pathogenic Bacteria by "Mercurochrome," J. A. M. A. 137: 858-861 (July 3) 1948.

4. Powell, H. M.: Antibacterial Action of "Merthiolate" Against Hemolytic Streptococci, J. A. M. A. 137: 862-866 (July 3) 1948.

5. Ruehle, G. L. A., and Brewer, C. M.: United States Food and Drug Administration Methods of Testing Antiseptics and Disinfectants, Circular 198. United States Department of Agriculture, December, 1931.

TINCTURE METAPHEN,[®] 1 TO 200

Since tincture metaphen,[®] 1 to 200, is intended primarily for use in preoperative disinfection of skin, it was tested by the in vivo method of Nungester and Kempf,⁶ with a *Pneumococcus* type 1, and a hemolytic *Streptococcus*, strain C 203. In this procedure white

TABLE 1.—Results of Tests of Metaphen[®] Disinfecting Solution Against Various Micro-Organisms at 20 C. with Thioglycollate Broth for Subculture

	Exposure (Minutes)			
	1	2	3	5
Hemolytic streptococcus (2 strains)	1	0	0	0
Positive cultures.....	7	8	8	8
Negative cultures.....	0	1	0	0
Viridans streptococcus (1 strain)	8	7	8	8
Positive cultures.....	0	0	0	0
Negative cultures.....	4	4	4	4
<i>Monilia albicans</i> (1 strain)	0	0	0	0
Positive cultures.....	4	4	4	4
Negative cultures.....	0	0	0	0
<i>Escherichia coli</i> (2 strains)	0	0	0	0
Positive cultures.....	8	8	8	8
Negative cultures.....	0	0	0	0

mice were used as test animals. The tail of the mouse was contaminated with an undiluted blood-broth culture of the organism and, after it was dry, treated with the chemical solution. After a suitable interval, three minutes in these experiments, about 8 mm. of the distal portion of the tail was snipped off and planted in the abdomen of the same mouse. If the mouse survived seven days without visible evidence of infection, the skin was considered "disinfected." Conversely, if the mouse died with morphologically typical organisms in the heart's blood, the skin was not disinfected. Those that died without typical organisms in the blood were very few, and were not included in the summary. The virulence of the test organisms varied somewhat but averaged about 5,000,000 lethal doses per cubic centimeter for 20 Gm. mice for the *Pneumococcus* blood-broth cultures and about 1,000,000 lethal doses per cubic centimeter for the *Streptococcus* cultures.

In table 3 are recorded the results of tests of metaphen[®] tincture in comparison with two competitive mercurial tinctures, M2 and M3, and three tinctures of quaternary ammonium salts, Q1, Q2 and Q3, and the vehicle alone, consisting of alcohol 50 per cent, acetone 10 per cent and water.

None of these preparations was 100 per cent effective, which is not surprising since this test is much severer than would be encountered in the usual operative procedures. The different market preparations varied considerably, which indicates that neither the mercurials nor the quaternary ammonium compounds should be approved or condemned as a class, but that the individual market preparations should be evaluated as nearly as possible for the purpose for which they are intended. Tincture metaphen,[®] 1 to 200, compared favorably with other products tested and was much better than the vehicle consisting of alcohol, acetone and water. With the *Pneumococcus*, it proved effective in 59 per cent of thirty-seven trials and, with *Streptococcus* C 203 in 95 per cent of forty-two trials. The nearest approach to this was a tincture of a quaternary ammonium compound, Q1, which showed 54 per cent

effectiveness against the *Pneumococcus* and 95 per cent against *Streptococcus* C 203. Tincture metaphen[®] was at least equal to the Q1 preparation in skin disinfection and definitely superior to the other commercial preparations.

COMMENT

The Council on Pharmacy and Chemistry of the American Medical Association has invited the manufacturers of mercurial disinfectants to present evidence of the effectiveness of their products. The experimental work of Morton and his associates dealt with aqueous mercurial solutions only, and their results are in agreement with the known characteristics of such substances, namely, their high bacteriostatic potency and slow lethal action against gram-positive organisms. In addition to the usual in vitro disinfectant testing with subcultures in thioglycollate broth, mixtures of the mercurial solutions and organisms were injected into white mice to determine infectivity of the treated bacteria. They found that the equivalent of 100,000 lethal doses of *Streptococcus pyogenes*, strain C 203 M, after ten minutes' exposure of 0.1 cc. of aqueous metaphen,[®] 1 to 500 solution, produced fatal infection in only 3 of 8 mice inoculated. In other words, 100,000 lethal doses were reduced to approximately 1 by this treatment. These results indicate that aqueous metaphen,[®] 1 to 500 solution, does have some merit as a disinfectant, although, admittedly, the authors do not define its field of usefulness.

In common with most known antiseptic chemicals, the activity of metaphen[®] is greatly reduced by contact with tissues and body fluids. A concentration lethal to unprotected organisms in culture might, in the presence of serum, blood or pus, be only bacteriostatic, particularly against gram-positive organisms. Whether

TABLE 2.—Results of Tests of Metaphen[®] Disinfecting Solution Against *Staphylococcus Aureus* FDA Strain 209 at 20 C. with Thioglycollate Broth for Subculture

	Exposure (Minutes)			
	1	2	3	5
Positive cultures.....	16	11	3	0
Negative cultures.....	0	5	13	16

TABLE 3.—Results of Skin Disinfection of Mice by the Nungester and Kempf Method (Test Organisms *Pneumococcus* Type 1 and *Streptococcus* C 203)

Test Organism Mice	<i>Pneumococcus</i> Type 1			<i>Streptococcus</i> C 203		
	Used	Survived	Percentage	Used	Survived	Percentage
Tincture "metaphen".....	37	22	59	42	40	95
Tincture M2	28	5	18	15	0	0
Tincture M3	37	8	22	36	32	86
Tincture Q1	37	21	54	37	35	95
Tincture Q2	37	11	30	36	27	75
Tincture Q3	37	6	16	36	15	42
Alcohol-acetone-water	21	2	10	24	3	12
Controls (inoculated but untreated)	22	0	0	23	0	0

the mixture would be bactericidal, bacteriostatic or entirely ineffective would depend largely on the amount of such organic matter in relation to the concentration of the mercurial. The high bacteriostatic potency should be an advantage in treatment of superficial wounds and abrasions with metaphen,[®] in comparison with other chemicals which are not highly bacteriostatic and which are equally reduced in activity by tissues and body fluids.

6. Nungester, W. J., and Kempf, A. H.: An "Infection-Prevention" Test for the Evaluation of Skin Disinfectants, *J. Infect. Dis.* 71: 174-178 (Sept.-Oct.) 1942.

Aqueous metaphen,[®] 1 to 500, is recommended by the manufacturers only for the irrigation of infected wounds and the preparation of wet dressings, conditions which assure prolonged contact.

The results of Morton's work with aqueous solutions cannot properly be used in estimation of other mercurial preparations containing substances which may have a potentiating effect on the mercurial, or an additive effect, or otherwise may enhance the germicidal properties of the solution. Since metaphen,[®] disinfecting solution and tincture metaphen,[®] 1 to 200, do contain such substances, this experimental evidence of their effectiveness is presented.

Metaphen,[®] disinfecting solution has proved rapidly germicidal against several genera of pathogenic or potentially pathogenic organisms, in tests with subcultures in thioglycollate broth. For this solution, germicidal tests in presence of serum or blood would be unimportant, since the instruments to be disinfected should first be thoroughly cleaned.

Although tincture metaphen,[®] 1 to 200, tested by the rather severe in vivo method of Nungester and Kempf, did not prove 100 per cent effective, it did compare very favorably as a skin disinfectant with five other commercial preparations recommended for that purpose, two tinctures of mercurials and three tinctures of quaternary ammonium salts. It was definitely better than all the others, except possibly one of the quaternary ammonium salts, to which it was at least equal in effectiveness.

SUMMARY

Metaphen,[®] (nitromersol) disinfecting solution has been tested for its germicidal action in vitro against three strains of *Staphylococcus*, three strains of *Streptococcus*, one strain of *Monilia*, a pathogenic yeast, and two strains of *Escherichia coli*, with thioglycollate broth for subculture. By this method the FDA 209 strain of *Staphylococcus aureus* was always killed in five minutes or less at 20 C. in a total of 16 trials. More rapid killing was obtained with the other organisms.

Tincture metaphen,[®] 1 to 200, has been tested for skin disinfection by the in vivo method of Nungester and Kempf in comparison with five other commercial tinctures offered for that purpose, two mercurials and three quaternary ammonium compounds. By this rather severe method, tincture metaphen,[®] 1 to 200, was found definitely superior to all the other preparations, except possibly one of the three quaternary ammonium compounds, to which it was at least equal in value.

The experiments of Morton and his associates on the disinfectant action of aqueous metaphen,[®] 1 to 500, solution, are discussed.

This paper was submitted to Dr. Morton, who, with his associates, wrote the original report and made the following comment:

"The report by Morton, North and Engley (*THE JOURNAL*, Jan. 3, 1948, page 37) dealt only with the aqueous solutions of metaphen,[®] merthiolate[®] and mercurochrome.[®] The replies by Dr. Brewer on mercurochrome[®] and by Dr. Powell on merthiolate[®] (*THE JOURNAL*, July 3, 1948, page 858) likewise, have dealt with aqueous solutions. This report by Dr. Cromwell presents no data on the aqueous solution of metaphen.[®] In a letter to the editor of *The Bulletin of the American Society of Hospital Pharmacists* (that journal, pages 98 and 132, May-June issue, 1948) Edgar B. Carter, Executive Director of Research, Abbott Laboratories, made the statement, 'We have known for many years that, in an aqueous menstruum, a 1-500 dilution of

metaphen[®] is right at the border of the killing range against Gram-positive cocci.' The label on metaphen,[®] 1:500 solution, carries the statement, 'An organic mercury compound of high antiseptic potency. . . .'. Our paper showed that growth of a test organism, after its exposure to a mercurial compound in thioglycollate medium, paralleled infectivity of the organism for the animal body. That has been adequately confirmed. If the micro-organisms are not killed, sepsis may not be prevented.

"Dr. Cromwell in his comments stated that the manufacturers recommend aqueous metaphen,[®] 1 to 500, only for the irrigation of infected wounds and the preparation of wet dressings, conditions which assure prolonged contact. In addition to these, it is also recommended as a first aid measure on the label.

"If the menstruum has a potentiating effect on the mercurial, such action should be demonstrated experimentally and so indicated in descriptive literature (as for example, 'New and Nonofficial Remedies') and on the label, so that users of the compounds do not get the impression that the mercurial, per se, or any other one compound in the product is the sole active ingredient. It is regrettable that Dr. Cromwell did not include in his results in tables 1 and 2 the action of the menstruum in the metaphen[®] disinfecting solution on the test organisms as he did with his work on the action of tincture metaphen[®] listed in table 3."

These comments were submitted to Dr. Cromwell, who replied in part as follows:

"The referees' report makes a point of the omission from this paper of data on the aqueous solution of metaphen.[®] I did not attempt to repeat the work of Morton, North and Engley on aqueous solutions because their experiments seemed to be adequate, and the results in agreement with the known antibacterial characteristics of mercurials, i. e., slow germicidal action against gram-positive organisms, and a powerful and sustained bacteriostatic effect.

"The report implies that the 'use on the package label of the expression 'high antiseptic potency' is an exaggerated description of the antibacterial properties of metaphen,[®] 1 to 500 solution. Possibly the term 'bacteriostatic' is more exact than 'antiseptic,' but, according to my understanding of the term, this solution is antiseptic when used, as recommended by the manufacturer, under conditions assuring prolonged contact.

"With reference to our tests on metaphen[®] disinfecting solution, it did not seem important at the time to test the menstruum alone without the metaphen.[®] Obviously, the menstruum either potentiates the action of the mercurial or has an additive effect, because it has been amply demonstrated that aqueous metaphen[®] solution alone does not kill gram-positive organisms rapidly, while the complete solution proved rapidly germicidal. Benzyl alcohol, 4 per cent solution, is a germicide, and it is listed on the label of metaphen[®] disinfecting solution as one of the active ingredients, although we may not understand completely the mechanism of its action in relation to metaphen[®] in the solution.

"Thank you for giving me the opportunity to read the referees' report and to make these comments."

Dr. Cromwell's comments were referred to Dr. Morton who replied that he had no further comment to offer.

Subsequently the following paper by Lorenzo Banti, Instituto Biologico Argentino, Florencio Varela, F.C.S., Argentina, was received by the Council's office:

THE ACTION OF BLOOD ON GERMS PRESUMABLY KILLED BY ANTISEPTICS

LORENZO BANTI

Florencio Varela, F.C.S., Argentina

A recent report by Morton, North and Engley¹ has opened an interesting controversy about the antibacterial action of some mercurial compounds. Attention has been called by these authors to the fact, already known,² that bacteria believed to be killed, because of their failure to grow in common culture mediums, may be "resuscitated" by being transferred to Linden's thioglycollate broth; they have found, moreover, that hemolytic streptococci susceptible to revival by thioglycollate are also able to infect and cause the death of mice when injected intraperitoneally into them. As the result of these findings the scope of usefulness

TABLE 1.—Results of 0.2 Cc. of Culture of *Staph. Aureus* in 4.8 Cc. of Antiseptic Solution

Material	Time	Thio- glycollate Blood		
		Broth	Medium	Broth
Mercuric chloride, 1 o/oo *.....	3 min.	+	+	+
	12 min.	±	+	+
	25 min.	—	±	±
	60 min.	—	±	±
"Merthiolate," 0.96 o/oo.....	3 min.	—	+	+
	12 min.	—	+	+
	60 min.	—	+	+
	20 hr.	—	+	+
"Mercurochrome," 2%.....	12 min.	—	+	+
	60 min.	—	+	+
Hypochlorite solution, 5.9 o/oo active chlorine ("antibacter")				
Diluted 1:11.2, 0.53 o/oo active chlorine	3 min.	—	—	+
Diluted 1:8, 0.75 o/oo active chlorine	3 min.	—	—	—
Diluted 1:5.9, 1.00 o/oo active chlorine	3 min.	—	—	—
Chloramine T, 0.5 o/oo.....	3 min.	±	+	+
1 o/oo.....	3 min.	±	+	+
2 o/oo.....	3 min.	—	±	±
4 o/oo.....	3 min.	—	±	—
Octadecyldimethylbenzylammonium chloride 0.025 o/oo.....	3 min.	+	+	+
0.050 o/oo.....	3 min.	—	—	+
0.100 o/oo.....	3 min.	—	—	—
Phenol, 1.00%.....	3 min.	±	+	+
1.20%.....	3 min.	±	±	±
1.50%.....	3 min.	—	±	—

* o/oo is parts per thousand.

of these mercurial compounds as disinfectants would seem to be limited. Brewer³ and Powell⁴ later strove to prove that the mercurials mercurochrome[®] and merthiolate[®] possess, under certain conditions, a definite antibacterial action; but the validity of their conclusions is still open to doubt.

It is already known that germs apparently killed by antiseptics other than mercurials, as phenol, hypochlorites and the like, may be revived by special methods of cultivation. Reference may be made to the papers by Flett, Haring, Guiteras and Shapiro,⁵ Mudge and

Smith,⁶ McIlwain⁷ and Valko and DuBois.⁸ The first of these papers, for instance, shows that ferric chloride or activated charcoal may counteract the effects of the exposure of germs to phenol, although this possibility is limited to concentrations of the antiseptic very little greater than those that are normally considered fatal. It appears that the antiseptic previously bound by the bacterial cells may be removed by chemical or physical action, leaving the germs free from the drug that would ultimately have led to their death. As most tissues and fluids of the animal body contain components chemically similar to components of bacterial cells, it is logical to presume that they will be able to combine similarly with the antiseptics and might even be able to remove the small amounts of them that have been bound by the germs. My co-workers and I thought, therefore, that it would be interesting to investigate this possibility, and we decided to begin by investigating whether, and to what extent, blood might have an effect similar to that of thioglycollate in reviving germs apparently killed by mercurial compounds and, also, whether this action was limited to mercurials or whether it could be observed also with other known antiseptics.

EXPERIMENTAL

The organisms selected for our experiments were twenty-four hour broth cultures of *Staphylococcus aureus*, a germ that is extensively used in performing disinfection tests. For antiseptics we selected: mercuric chloride; two organomercurial compounds, mercurochrome[®] and merthiolate[®]; two chlorine antiseptics, hypochlorite and chloramine T; one quaternary ammonium detergent, octadecyldimethylammonium chloride, and phenol.

As the number of germs used and the amount of organic matter present may alter considerably the results in disinfection tests, we performed two series of experiments. In one of them we added 0.2 cc. of the culture of *Staph. aureus* to 4.8 cc. of the antiseptic solution in each test tube; in the other one we added 1 loopful of the same culture to 5 cc. of the antiseptic solution. At intervals we transferred 1 loopful of the mixture of culture and germicide to each of three tubes containing about 10 cc. of one of the following culture mediums: 2 per cent peptone broth, Linden's fluid thioglycollate medium and blood broth containing 10 per cent fresh defibrinated horse blood in 2 per cent peptone broth. The broth was prepared in both instances by decoction of horse meat 1:2. The three tubes were always inoculated from the same culture-antiseptic mixture tube in the order mentioned, so that the intervals corresponding to the thioglycollate and to blood subcultures were, respectively, about 35" and 70" greater than the interval corresponding to the broth subculture. The growth in the blood broth tubes was not always evident by simple inspection, so that a microscopic control was often necessary; microscopic controls were also generally performed on most of the critical tubes of all mediums.

The hypochlorite solution used was a proprietary product called antibacter[®]; it contained 5.9 parts per thousand of active chlorine.

From the Research Laboratory of the Instituto Biológico Argentino, Florencio Varela, F.C.S., Argentina.

1. Morton, H. E.; North, L. L., and Engley, F. B.: The Bacteriostatic and Bactericidal Actions of Some Mercurial Compounds on Hemolytic Streptococci, *J. A. M. A.* **136**: 37-41 (Jan. 3) 1948.

2. Heinemann, B.: A Comparison of Methods Used for Evaluating the Bactericidal Properties of Mercurial Compounds, *J. Am. Pharm. A. (Scient. Ed.)* **32**: 298-301 (Nov.) 1943.

3. Brewer, J. H.: Reduction of Infectivity of Certain Pathogenic Bacteria by "Mercurochrome," *J. A. M. A.* **137**: 858-861 (July 3) 1948.

4. Powell, H. M.: Antibacterial Action of "Merthiolate" Against Hemolytic Streptococci, *J. A. M. A.* **137**: 862-866 (July 3) 1948.

5. Flett, L. H.; Haring, R. C.; Guiteras, A. F., and Shapiro, R. L.: The Revival of Organisms Presumably Killed by Phenol, *J. Bact.* **50**: 591-595 (Nov.) 1945.

6. Mudge, C. S., and Smith, F. R.: Relation of Action of Chlorine to Bacterial Death, *Am. J. Pub. Health* **25**: 442-447 (April) 1935.

7. McIlwain, H.: Nutritional Investigation of the Antibacterial Action of Acriflavine, *Biochem. J.* **35**: 1311-1319 (Dec.) 1941.

8. Valko, E. I., and DuBois, A. S.: The Antibacterial Action of Surface Active Cations, *J. Bact.* **47**: 15-25 (Jan.) 1944. The work of Valko and DuBois, however, was not confirmed by Klein, M., and Kardon, Z. B.: The "Reversal," Neutralization, and Selectivity of Germicidal Cationic Detergents, *J. Bact.* **54**: 245-251, 1947.

RESULTS

The results of the first series of experiments are summarized in table 1, those of the second series are summarized in table 2. As most of the experiments were repeated twice, we marked with $\pm$ those that showed growth in one instance and did not in the other one.

Our experiments show that for most of the antiseptics the subcultures in blood broth definitely favor the growth of germs that already fail to grow in peptone broth or even in thioglycollate medium. The thioglycollate medium is possibly more active with mercurial antiseptics than blood broth, as is shown by the results with mercurochrome⁹ in table 2; better results may perhaps be attained with a greater amount of blood. It is to be mentioned that blood broth must be freshly prepared, as it seems to lose some of its properties after a few days.

The germs selected for our experiments did not allow us to check our results by animal inoculation, as was done by Morton, North and Engley, who experimented with a virulent *Streptococcus* strain; but we have been able to show the effect of blood as an antidote on the antibacterial action of most antiseptics. This fact seems to us particularly important, as blood is always present in tissues where an infectious process may develop, so that it will always be available to germs that have not been permanently damaged by the antiseptic.

For mercurochrome⁹ and merthiolate,⁹ under the conditions of our experiments, the bactericidal properties were practically nonexistent when germs exposed to their action were subcultured in blood broth or thioglycollate medium. Even mercuric chloride is shown to be a poor disinfectant. For the remaining drugs the really bactericidal concentrations were mostly found to be higher than might have been expected from the subcultures in peptone broth; but they compare favorably with those that are generally used in practice.

Experiments not recorded here tend to show that serum has also an action similar to defibrinated blood, although it is generally less effective. It is probable that most body tissues exert a more or less similar action.

COMMENT

In 1937 Marshall and Hrenoff⁹ pointed out that the action of an antiseptic may be represented by a graphic, which they called antibacterial spectrum, that shows the properties of a given substance. In this spectrum there is a toxic zone, where the concentration of the antiseptic is too high to be of practical usefulness; a germicidal zone; a bacteriostatic zone, and mostly a zone where, at low concentrations of the drug, it will exert on the germs a stimulating action.

The concentration of the antiseptic is generally considered bacteriostatic when it will prevent the multiplication of the germs, leaving them so far undamaged that they will be able to grow if they are transferred to a medium that does not contain the antiseptic and is able to support their growth. At such concentrations the antiseptic, if harmless, may be used as a preservative.

Bactericidal concentrations are generally much higher, but it is now found that concentrations that would be considered bactericidal if assayed by the phenol coefficient method, that is by the usual method, are not really such in many instances; the germs that

seemed to have been killed may be revived if appropriately treated. Between the bacteriostatic and the bactericidal zone there is a zone, that had scarcely been considered until now, where the action of the antiseptic is reversible. At concentrations corresponding to this zone the germs will absorb enough of the drug to prevent their growth when they are transferred to a medium that would be normally able to support it; but if transferred to a suitable medium the germs will again be able to reproduce. The concept of reversibility seems to me particularly appropriate, as its mechanism appears to be similar to the reversibility of a chemical reaction; there is even here a mass action as the revival of the germs is obtained by the addition of substances capable of combining with the antiseptic; the conditions that had been attained in the culture-antiseptic mixture are reversed when the germs are transferred to a medium that is able to remove and bind the drug that the cells had previously absorbed.

In practice the limits of this reversibility zone may be restricted and distant enough from the toxic zone

TABLE 2.—One Loopful of Culture of *Staph. Aureus* in 5 Cc. of Antiseptic Solution

Material	Time	Thioglycollate Blood		
		Broth	Medium	Broth
"Merthiolate," 1 o/oo	3 min.	—	+	+
	12 min.	—	+	+
	60 min.	—	+	+
	20 hr.	—	+	+
"Mercurochrome," 2%	3 min.	+	+	+
	12 min.	—	+	+
	60 min.	—	+	—
Hypochlorite solution, 5.9 o/oo act. Cl ("antibacter")				
Diluted 1:640, 0.0092 o/oo act. Cl..	3 min.	+	+	+
Diluted 1:320, 0.0185 o/oo act. Cl..	3 min.	±	+	+
Diluted 1:160, 0.0370 o/oo act. Cl..	3 min.	—	—	—
Diluted 1:80, 0.0740 o/oo act. Cl..	3 min.	—	—	—
Chloramine T, 0.05 o/oo.....	3 min.	+	+	+
Chloramine T, 0.10 o/oo.....	3 min.	+	+	+
Chloramine T, 0.20 o/oo.....	3 min.	—	—	—
Chloramine T, 0.40 o/oo.....	3 min.	—	—	—

* o/oo is parts per thousand.

so as to leave still a margin of safety; the drug will still be useful as a bactericide. But it may happen that the reversibility zone is so wide that it overlaps the toxic zone; the drug will then have no use as a bactericide.

As to the controversy about the usefulness of mercurochrome⁹ and merthiolate,⁹ it seems to me that it cannot be solved if these drugs are considered by themselves, that is without comparison with other known antiseptics. The ideal germicide is probably still to be found; there is still some question about the usefulness of germicides in general; but if a germicide has to be used, one should logically resort to those that show higher germicidal properties and a wider safety margin.

SUMMARY

Blood is able to revive, within certain limits, germs that by ordinary standards would be considered to have been killed by antiseptics. In Marshall and Hrenoff's antibacterial spectrum, between the bacteriostatic and the bactericidal zone, a "reversibility zone" must be inserted, where germs presumably killed may be revived. The extent of this reversibility zone will in part determine the possible usefulness of the drug as a germicide. Mercurial compounds appear, by this standard, to be very poor germicides.

9. Marshall, M. S., and Hrenoff, A. K.: Bacteriostasis, *J. Infect. Dis.* 61: 42-54 (July-Aug.) 1937.

Committee on Cosmetics

The Committee on Cosmetics has authorized publication of the following statement on its rules and procedures. A copy of these rules may be obtained from the Committee office on request.

AUSTIN SMITH, M.D., Secretary.

STATEMENT BY THE COMMITTEE ON COSMETICS

The Board of Trustees of the American Medical Association recently authorized the formation of a Joint Committee on Cosmetics to study problems relating to medical interest in cosmetics and to effect a better understanding of the usefulness of cosmetics. The members appointed are:

Howard T. Behrman, M.D., Assistant Clinical Professor of Dermatology, New York University.

Morris Fishbein, M.D., Editor, JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION and *Hygeia*.

Harry R. Foerster, M.D., Assistant Professor of Dermatology, University of Wisconsin; Associate Professor of Dermatology, Marquette University.

Harry Huber, M.D., 122 South Michigan Ave., Chicago.

A. J. Lehman, M.D., Ph.D., Chief, Division of Pharmacology, Food and Drug Administration.

Mr. Herbert R. Mayes, Editor, *Good Housekeeping Magazine*.

Herbert Rattner, M.D., Associate Professor of Dermatology, Northwestern University School of Medicine.

Austin Smith, M.D., Director, Division of Therapy and Research; Secretary, Council on Pharmacy and Chemistry.

Louis C. Zopf, M.D., Professor of Pharmacy; Chief, Department of Drug Service, College of Pharmacy, State University of Iowa.

The first meeting of the Committee was held Oct. 12, 1948, at which time the immediate objectives of the Committee were defined as follows:

1. A study and classification of currently widely used cosmetics.
2. A study of the claims made for these various preparations.
3. The determination of the safety or harmfulness of cosmetic preparations.
4. The preparation of an outline of cosmetics acceptable to the Committee, and of those it now is unwilling to accept.
5. The preparation of a series of informative articles for the medical profession and the general population. (Hair and Scalp Treatments and Preparations, J. A. M. A. 139: 840-844 [March 26] 1949; Hair Dyes, *Hygeia* 27: 318 [May] 1949.)

At a second meeting of the Committee, it was voted that the word "Joint" be dropped from the name of the Committee and that it would be known henceforth as the Committee on Cosmetics and membership increased to include an allergist. At the same time, a seal of acceptance was adopted to be awarded to those cosmetics which meet the requirements of the Committee. In general, the policies in this regard will be similar to other evaluation programs of the Councils in the Division of Therapy and Research.

Manufacturers may now submit their products to the office of the Secretary of the Committee on Cosmetics in conformance with the following official rules.

Official Rules of the Committee on Cosmetics of the American Medical Association

Rules Governing the Acceptance of Cosmetics by the Committee

RULE I—COMPOSITION.—The qualitative and, where possible, the quantitative composition of cosmetics submitted to the Committee must be made known to the Committee. This information will be held in confidence except when it is necessary to reveal the information because of a health problem that arises. Working formulas also will be held in confidence.

RULE II—IDENTIFICATION AND CONTROL.—Suitable procedures for assuring control of the finished product must be supplied to the Committee by the distributor or manufacturer.

RULE III—THERAPEUTIC CLAIMS.—Therapeutic representations normally will not be accepted by the Committee, as such representations normally make the product a drug, which comes within the purview of the Council on Pharmacy and Chemistry. At times, however, there may be exemptions from this rule,

such exemptions being determined individually for the submitted items.

RULE IV—ADVERTISING.—Advertising must conform to claims or statements that can be proved by information submitted by the distributor or manufacturer or that are based on common knowledge.

RULE V—NAMES.—Trademark names for cosmetics accepted by the Committee should not be misleading, suggestive of the treatment of disease or its symptoms or in any way capable of influencing the health of the purchaser by deception.

RULE VI—PATENTS AND TRADEMARKS.—If a cosmetic is patented or trademarked, the number of such patents and the name and number of the registered trademarks should be submitted to the Committee.

RULE VII—USELESS ARTICLES.—A preparation will not be accepted by the Committee if it obviously has no value as a cosmetic.

Outline of Presentation of Submitted Product

When a product is submitted to the Committee on Cosmetics the interested distributor or manufacturer should supply three (3) trade packages of each item; twelve (12) copies of all labels, instructions and advertising material proposed for the product, and a sample of each ingredient contained in the product.

Also accompanying this material there should be a description in triplicate supplying the following:

1. The name of the product, and any synonyms that may be in use.
2. A description of the control procedures that are used to assure a product of the claimed identity, quality and purity.
 - (a) An analysis of each batch of raw materials.
 - (b) An outline of a system for checking the exact amounts of the various ingredients that go into each batch.
 - (c) A description of the record of the lots of raw materials used in each batch.
 - (d) A statement on the code system for identification of each batch.
3. A definition of the article and its complete formula.
4. A description of the physical properties.
5. A statement of any pharmacologic action that might be expected from any of the ingredients and from the final product.
6. A report from qualified experts on the value of the product for those uses for which it is recommended, provided that it differs from those in common use.
7. A report of toxicologic studies, sufficiently complete to establish the safety of the product when put to its intended use.
8. The numbers of any patents and the names and numbers of any trademarks that may have been assigned to the submitted preparations.
9. A list of the forms and sizes in which the article is made available.
10. Studies on patch tests:
 - (a) Two hundred to 1,000 subjects (the figure 200 is to be regarded as an absolute minimum).
 - (b) Method of paired comparisons is desirable, but not required.
 - (c) Control—old formula of similar nature or usage whenever possible.
 - (d) Routine 48 hour test with daily readings for three additional days.
 - (e) Technic: With liquids: Saturate a suitable substance, such as a piece of gauze $\frac{1}{2}$ to 1 inch (1.3 to 2.5 cm.) square, four plies thick; squeeze out excess liquid and apply to normal skin of arm, leg or back; cover with nonwaterproof cellophane 2 inches (5.1 cm.) square and seal with adhesive plaster 3 inches (7.6 cm.) square.

With powder: Place powder on gauze moistened with water or isotonic sodium chloride solution, and duplicate above.

With solids: These can be powdered, or, if soluble, they can be dissolved in definite concentrations and tested as above. When the solid is of a resinous character, the solution containing it may be painted on the skin and the solvent allowed to evaporate. The dry

film of resin can be covered with cellophane and adhesive plaster as indicated.

- (f) Retest in fourteen to twenty-one days following same routine at original sites.

11. Report on usage studies:

- (a) In a controlled group, preferably on the same subjects used in routine patch test studies.
- (b) Duplicate conditions of actual usage and on actual sites of expected usage for a period of from two to twelve weeks.
- (c) It may be advisable to have a control experiment with old cosmetics of similar purpose and/or formula, when claims of superiority are offered or when irritation is a possible factor. Use either on alternate series of subjects or on same subjects dividing body surface (new cosmetics on one side, old cosmetics on other). If no dermatitis occurs in 200 subjects, product is probably safe; if in more than 1, product unsafe. If only 1 case, retest a new series; if 1 or more cases in new series, product is unsafe.
- (d) It may be advisable to have a trial sale, to be carried out where control or supervision can be maintained. Over a six month period, at least one thousand units should be sold and watched. All sales persons should be instructed to report complaints.

12. The name of the firm that is responsible for the finished article as labeled.

13. The names of the manufacturers of all ingredients contained in the article.

14. A statement of the laboratory and control personnel of the firm responsible for the formulation and control of the product.

In some instances it will be unnecessary to supply in detail all data listed in the Outline of Presentation of Submitted Product, if there is sufficient information available in general knowledge pertaining to the products or their ingredients. However, each submitted product must be given individual consideration.

Decisions of General Interest

"Hypoallergenic."—The committee will permit the use of the term "hypoallergenic" when it is applied to products that will meet the Committee's definition for this term. The Committee has defined "hypoallergenic" to mean that every possible care has been taken in formulation and production to insure minimum instance of allergic reaction. In evaluation of products so labeled, the absence from the formula of common allergens and the special selection and purification of ingredients should be the basic criteria. Manufacturers of hypoallergenic products should be prepared to offer clinical data to support the claim.

Definition of "Cosmetic."—For purposes of determining what products come within the purview of the Committee on Cosmetics, a cosmetic has been defined by the Committee as "a preparation which is applied to the skin or its appendages in order to alter its appearance, to protect it, to beautify or to promote attractiveness."

Variation from Standard Formulas.—If a submitted preparation consists of a standard formula (from which minor or insignificant deviations would be permitted) it is unnecessary for the manufacturer to submit data which could be obtained only at considerable expense when it would do nothing except support facts already well known in literature or elsewhere. On the other hand, when new ingredients are included about which there is insufficient information, or when formulas vary in such a way that an entirely new response may occur, it is necessary for the manufacturer or the submitting distributor to supply adequate information to prove the usefulness and safety of the preparation and to defend the claims made for it.

Compliance with Laws.—A declaration by the Committee that submitted formulas and advertising are acceptable merely means that compliance with the Committee's rules has occurred and does not indicate that the copy has been reviewed from the legal standpoint to determine whether it conforms with state and federal laws, this being the responsibility of the interested manufacturer or distributor.

Terms and References Not Recognized.—The Committee will not recognize the use of such terms as "nonallergic," "tissue cream," "hair tonic," "scalp tonic" and "cure." Nor will it recognize a reference to ailments or symptoms of disease, appeals to fear or any other technic whereby the purchaser is misled into accrediting unusual properties or significance to cosmetic products because of stated or implied misrepresentation in advertising material.

The Committee will not recognize disparaging references to competing products. Nor will it recognize references to doctors and hospitals, unless such reference is based on work consisting of controlled scientific data and is offered with full knowledge and consent of all interested parties.

Use of Seal of Acceptance.—Articles that are accepted by the Committee will be eligible for advertising with the Committee seal as long as the claims offered for the products remain acceptable to the Committee.

The Committee seal may not be used for a line of products unless all the products in that line are accepted, nor for a house or organization; the seal must be reserved for products.

The seal or reference to the Committee on Cosmetics should not be used in any way that detracts from their dignity.

Advertising.—Since all advertising for accepted products must conform to the claims recognized by the Committee on Cosmetics, advertising should be forwarded to the office of the Secretary of the Committee, American Medical Association, for review prior to release. Submission of such copy in manuscript form frequently will prevent waste of expensive type or plates when conflicts with recognized claims are discovered.

Council on Physical Medicine and Rehabilitation

REPORT OF THE COUNCIL

The Council on Physical Medicine and Rehabilitation has authorized publication of the following report.

HOWARD A. CARTER, *Secretary.*

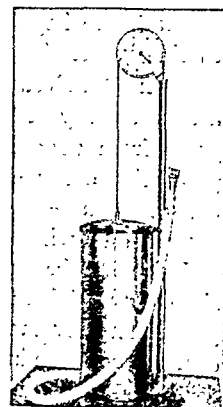
COLLINS VITALOMETER ACCEPTABLE

Manufacturer: Warren E. Collins, Inc., 555 Huntington Avenue, Boston 15.

The Collins Vitalometer is a spirometer designed for the determination of vital capacity and related respiratory measurements. It consists of the conventional metal cylinder or bell suspended over water in a slightly larger coaxial cylinder, and properly counterpoised. Readings are made on a dial directly connected with the chain and pulley of the counterpoise system. The height of the bell is 41 cm. (16 inches) and its diameter is 18 cm. (7 inches); its capacity is therefore of the order of 10 liters. The over-all height of the apparatus with the pulley arm telescoped is 61 cm. (24 inches), and with the pulley arm extended it is 86 cm. (34 inches). The apparatus weighs 4.5 Kg. (10 pounds); its shipping weight is 8.2 Kg. (18 pounds). Disposable mouth piece tips are available.

A specimen of the instrument was given a practical trial in connection with a study of spirometry in tuberculosis. No mechanical imperfections were found and the instrument was declared sturdy, practical and accurate within the limits of experimental observation.

The Council on Physical Medicine and Rehabilitation voted to include the Collins Vitalometer in its list of accepted devices.



Collins Vitalometer

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

535 NORTH DEARBORN STREET - - - CHICAGO 10, ILL.

Edited by

MORRIS FISHBEIN, M.D.

Assistant Editor, AUSTIN SMITH, M.D.

Associate Editors

JOHNSON F. HAMMOND, M.D. RICHARD J. PLUNKETT, M.D.

Editor for Current Medical Literature, GEORGE HALPERIN, M.D.

Assistant to the Editor, JEWEL F. WHELAN

Subscription price - - - Twelve dollars per annum in advance

Cable Address - - - "Medic, Chicago"

Please send in promptly notice of change of address, giving both old and new; always state whether the change is temporary or permanent. Such notice should mention all journals received from this office. Important information regarding contributions will be found on second advertising page following reading matter.

SATURDAY, MAY 28, 1949

"PREVENTABLE" ACCIDENTAL AND OTHER DEATHS

Among the many unsupported claims made by the Federal Security Administrator in his promotion of a compulsory health insurance program is the reduction of the number of accidental deaths annually in this country from 100,000 to 60,000, or by 40 per cent. Above the artist's sketch opposite page one of his report to the President ("The Nation's Health—a Ten Year Program") he states: "Goal: Keep them Living—we have the knowledge to prevent 325,000 deaths each year." Thus the Administrator claims that the number of deaths each year can be reduced from the present 1.4 million to 1.1 million, which would be less than the number of deaths in the United States in any year in the twentieth century.

Obviously this reduction cannot be accomplished in an increasing and aging population because the total number dying each year in any nation depends on the number of people, their ages and the death rate per thousand at each age; nor can the annual number of deaths be kept from actually increasing during the coming years. Twenty years ago the number of deaths was one hundred thousand less than last year and life expectancy at birth was seven years less. Twenty years from now the number of deaths in our aging population may well be 1.5 to 1.6 million, the length of life will doubtlessly be greater and the mortality rate for each age will be lower than now. Health progress and the number of deaths each successive year are simply two different ideas. The task of the medical profession over the years is to raise the average age at death, reduce the importance of the "younger" causes of death and increase the importance of the "older" causes of death. Persons who do not die from the younger causes will die later from the older causes. A consideration of the "preventable" 40,000 accidental deaths in this total of "325,000 deaths each year" must not, however, obscure the impossibility of a return to the annual number of deaths which prevailed before 1900.

If the Administrator's estimate of "preventable" accidental deaths is intended as a plea for more and better safety and accident prevention measures, every one will commend the Administrator for bringing an important matter to the attention of the public. Bulletin 64, "What Is the Leading Cause of Death? Two New Measures," by the Bureau of Medical Economic Research of the American Medical Association, has shown that accidental deaths cut off more working years from the lifetimes of the American people than any one natural cause of death. "Fatal accidents" is the number one destroyer of the working years of life. The National Safety Council, the millions of plant safety workers, the traffic policemen and even the school children on patrol duty would doubtless welcome the aid and help of the vast Federal Security Agency in the prevention of accidents. Physicians realize that a comprehensive scheme for an extensive reorganization of the nation's medical services could not eliminate 40 per cent, or 40,000, of the annual 100,000 accidental deaths.

If the accidental death reports published yearly by the Kansas State Board of Health are to be taken as representative of the country as a whole, the proposal is untenable. For 1945, 1946 and 1947, a total of 4,103 fatal accidents occurred in Kansas. Of these, 1,930 deaths, or 47 per cent, occurred instantaneously and 2,468 deaths, or 60 per cent, occurred instantaneously or within one day after the fatal accident.¹ By a strange coincidence the Administrator believes that he can save 40 per cent of lives lost in all fatal accidents. According to the Kansas statistics—the best in the United States on this point—the Administrator apparently proposes to guarantee survival to all who remain alive for twenty-four hours after an accident—or to an equivalent number. The physicians would like to know how compulsory health insurance would save those lives.

CANCERS DUE TO INDUSTRIAL TAR AND ARSENIC

In a recent editorial² on the excessive incidence of cancer of the lung among workers of American chromate plants, attention was called to the increasing significance of industrially important and widely used substances in the causation of cancer in man. Several reports of English investigators discuss the occurrence of cancer of the skin and lung in workers handling inorganic arsenicals² and of cancer of the skin in

1. Nationwide data are available for motor vehicle traffic accident fatalities only for 1945; 59 per cent died within twenty-four hours (Annual Summary of Motor-Vehicle Accident Fatalities, 1945, Vital Statistics—Special Reports, National Office of Vital Statistics, United States Public Health Service, Federal Security Agency, 1947, vol. 27, no. 6).

2. Cancer of the Lung in Chromate Workers, editorial, J. A. M. A. 138: 823 (Nov. 13) 1948.

2. Hill, A. B., and Fanning, E. L.: Studies in the Incidence of Cancer in a Factory Handling Inorganic Compounds of Arsenic, Brit. J. Indus. Med. 5: 1-2, 1948; 1. Mortality Experience in the Factory, ibid. 5: 2-6, 1948. Perry, K.; Bowler, R. G.; Buckell, H. M.; Druett, H. A., and Schilling, R. S. F.: Studies in the Incidence of Cancer in a Factory Handling Inorganic Compounds of Arsenic: II. Clinical and Environmental Investigations, ibid. 5: 6-15, 1948.

workers employed in gas and tar factories.³ The English experience in regard to occupational arsenic and tar cancers is of special interest. Available data provide ample proof as to the carcinogenic properties of tar and arsenic of American manufacture.

An analysis of the cancer mortality, corrected for age and period, among workers of an English factory making arsenical sheep dip showed a notable proportional excess of deaths due to cancer over a period of thirty-five years, as compared with the cancer incidence among farmers, general laborers and artisans and shopowners of the same vicinity. This high factory incidence of cancer among arsenic workers was found to be due solely to a high incidence of cancer of the skin and lung affecting in this occupational group mainly those members engaged in the chemical processes of arsenical manufacture and exposed to the inhalation of and skin contact with arsenical dust. Although the group studied was too small to permit firm conclusions, these epidemiologic observations are in agreement with numerous casuistic reports from various countries. Since there are on record in this country only some 20 cases of cancer due to occupational exposure to arsenic, it seems pertinent to note that in the United States during 1945 the total consumption of white arsenic from domestic and foreign sources amounted to about 38,000,000 short tons. The bulk of the arsenic was used in the production of insecticides (lead arsenate, calcium arsenate, paris green) and of wood preservatives (Wolman salts containing 25 per cent sodium arsenate, zinc metaarsenite). Smaller quantities were employed in the manu-

facture of medicinal preparations, glass, lead base alloys, dyestuffs and chemical warfare gases and in the Thylox purification of industrial gases. Arsenic contained in and deposited on the countryside from the waste fumes of copper smelters and the slag heaps of these operations as well as arsenical insecticides accumulated over a period of years in the soil of orchards and cotton fields have created a potential environmental arsenic hazard not only to the industrially and agriculturally employed population but for the people in general living in such regions. Fruits and vegetables grown in these areas and handled in intrastate and interstate commerce, moreover, carry the hazard to even larger parts of the general population. Since cancers due to arsenic usually have a rather long latent period the etiologic connection between an occupational or environmental exposure to arsenicals and the development of cancer of the skin, lung or other mucous membranes many years later may easily be overlooked.⁴

A similar situation seems to exist in the United States in regard to the recognition and reporting of cancers due to industrial exposure to tar and pitch. There are only some 75 occupational cancers of this causation on record and not a single case of cancer caused by occupational exposure to creosote and anthracene oils. The proper significance of these figures is obtained when they are seen in the light of the following facts:

The total production of gas house and coke oven tar, the most carcinogenic types of tar, stood in 1945 at 696,307,000 gallons, that of creosote oil at 27,000,000 gallons, that of tar acid oil at 13,800,000 gallons, that

THE TRUE PHYSICIAN¹

By Joseph Auslander

Who is the true physician? He
Who feels a sense of ministry;
Who knows our ills are intertwined
With tentacles of heart and mind;
Who knows that man is truly whole
Only when body rhymes with soul;
That the world's sickness will not cease
Till man is with himself at peace.

Who is the true physician? He
Who from despair and fear sets free
Vexed spirit and tormented flesh
Struggling together in the mesh
Of human passions. Undismayed,
He takes the challenge on him laid,
And from facts cruel and uncouth
Creates the cold pure terms of truth.

Physician, you it is to whom
Man's body is a treacherous room
Where day and night and breath by breath
You face infirmity and death,
Confront the furies that by stealth
Slip past the sentinels of health,
And, with no quarter asked or given,
Strive as your gallant dead have striven
To win new ground, and to obtain
Some desperate reprieve from pain,
To fight the valiant fight until
Your faith, your sacrifice, your skill
At first confound, at last confirm
Man's conquest of the Conqueror Worm.

This, true physician, is your story,
Stripped of the accidents of glory,
Beyond all title, all esteem,
Servant of a tremendous dream:
To give man back his right to be
The master of his destiny,
To rescue from the mortal clod
The bright immortal son of God.

1. Poem written for and read at the meeting of the Association of the Alumni of the College of Physicians and Surgeons of the Columbia University in Chicago, June 23, 1948.

3. Jenkins, W. D.: *Dermatoses Among Gas and Tar Workers*, Bristol, John Wright & Sons, Ltd., 1948, p. 54. Ross, P.: *Skin Lesions Due to Pitch and Tar*, Brit. M. J. 2: 369-373, 1948.

4. Hueper, W. C.: *Environmental and Occupational Cancer*, Pub. Health Rep., 1948, supp. 29, p. 69.

of light tar oils at 29,000,000 gallons and that of pitch at 556,000 tons.⁵

Of the English investigators cited, Jenkins found during a ten year period among 234 tar workers 8 epitheliomas and 13 papillomas, among 96 smokeless fuel workers 3 epitheliomas and 13 papillomas, and among 3,006 gas workers 11 epitheliomas and 60 papillomas. Ross, analyzing the incidence of skin cancer among 160 tar and pitch workers during a twelve year period, observed a total of 16 epitheliomas and 102 papillomas. In 87 members of this group the employment period exceeded twelve years. Citing data collected by the Chief Inspector of Factories, Ross noted that there were recorded in England 42 cases of cancer due to tar and pitch in 1922, 97 such cancers in 1930, 119 in 1940, 111 in 1943, 160 in 1944, 176 in 1945 and 201 in 1946.

Since isolated cases of cancer have been reported in American workers engaged in a great number of different industries producing or handling tar, pitch or arsenicals, it appears appropriate that the medical profession pay increased attention to industrial and environmental sources of human cancerigenesis and prepare by prompt and complete reporting of cases of this causation a sound basis for the future control of these preventable types of cancer.

HAZARDS OF BERYLLIUM

Public apprehension concerning the health hazards of fluorescent lights has brought another statement of facts from the Medical Advisory Committee on Beryllium.¹

The committee reiterates its assertion that there is no danger whatever from the lights when they are intact. The possible dangers come in the destruction of old lights. Recently there have been reports of children who cut themselves on broken lights; the cuts healed slowly, and swelling was frequent. Such cuts do not cause general sickness or spread throughout the body. Surgical care is necessary if the cut refuses to heal after a period of time.

Although precautions should be taken against breathing the dust from broken fluorescent lights, records have not been published of any person's suffering injury from breathing dust after the breakage of a lamp.

5. Matthews, A. F., and Bryson, R. L.: Arsenic in Keiser, H. D.: Minerals Yearbook 1945, Washington, D. C., Government Printing Office, 1947, p. 753. DeLarlo, J. A.; Corgan, J. A., and Otero, M. M.: Coke and Byproducts, in Keiser, H. D.: Minerals Yearbook 1945, *ibid.*, 1947, p. 958.

1. The committee includes Dr. James G. Townsend, Chief of the Division of Industrial Hygiene of the Public Health Service, Chairman; Dr. M. G. Carmody, Clifton Products Company, Painesville, Ohio; Dr. T. L. Hazlett, Westinghouse Electric Corporation, Pittsburgh; Dr. J. M. DeNardi, Brush Beryllium Company, Cleveland; Dr. W. H. Machle, New York; Dr. A. D. Nichol, General Electric Company, Nela Park, Cleveland; Dr. A. J. Vorwald, Director, The Edward L. Trudeau Foundation and the Saranac Laboratory, Saranac Lake, N. Y.; Mr. C. R. Williams, Industrial Hygiene Field Service, Liberty Mutual Insurance Company, Boston; Dr. B. S. Wolf, U. S. Atomic Energy Commission, New York, and Dr. Harry Tebrock, Medical Director, Sylvania Electric Products, Inc., Long Island, N. Y.

The safest way to dispose of used fluorescent lights is to break them out of doors in a waste area or in a waste container; the person who breaks them should avoid breathing the dust or vapor that arises.

Possible danger occurs also in the breaking of large numbers of fluorescent lamps, either intermittently or regularly, where hours may be occupied in the operation. Instructions in these cases follow:

(a) Break lamps out of doors in waste disposal area or in ventilated hood. To avoid unnecessary dust, the breakage is best done within the waste container.

(b) The operator should be supplied with, and required to wear, a respirator approved by the United States Bureau of Mines for toxic dusts.

(c) Ultimate disposal of broken lamps should be such that the public and others will not be unduly exposed to powders. In situations where it is necessary to break the lamps within buildings, it should be done in an isolated room and in a hood, so as to minimize escape of dusts. Sufficient exhaust ventilation should be supplied to the hood to provide an air intake of at least 125 linear feet per minute at all hood openings.

Broken lamps should not be placed in an incinerator, but either be thrown into water or in a dump where they are not likely to be disturbed with evolution of dust.

Significant amount of mercury vapor may be found in the air during the breaking of fluorescent lamps. When exposure is frequent or continuous, measurements should be made of the amounts of mercury vapor in the air during the operation. If high levels are found, protection should be provided for the operator.

PROPHYLAXIS OF OPHTHALMIA NEONATORUM

Credé, in 1879, advocated prevention of ophthalmia neonatorum by cleansing the birth canal with 2 per cent phenol solution and placing 1 drop of 2 per cent silver nitrate solution into the eyes of the newborn. The drop in the incidence of ophthalmia, following the adoption of the Credé method, according to Lehrfeld,¹ was due to the attempted cleansing of the birth canal rather than to the instillation of silver nitrate into the eye. Survey of the Department of Public Health records of Philadelphia for fifteen years (1920 to 1935), showed, according to Lehrfeld, that ophthalmia neonatorum has not materially decreased despite the general application of Credé's method.

Lehrfeld found, in an analysis of the records of 28,000 births occurring in six hospitals over a period of five years, that the incidence of ophthalmia neonatorum amounted to 2.2 per cent. Sorsby and his co-workers in England found in a recent survey (1942 to 1944) that the Staphylococcus was most frequently the causative organism, the gonococcus being second in frequency. Lazar stated that in his study 35 per cent of the nongonococcal types of ophthalmia neonatorum showed no micro-organisms of any kind; he assumed

1. Lehrfeld, L.: Limitations of Use of Silver Nitrate in Prevention of Ophthalmia Neonatorum, J. A. M. A. 104: 1468-1469 (April 27) 1935.

that the inflammations were due to chemical irritants such as silver nitrate. Apparently, then, ophthalmia neonatorum is not necessarily synonymous with gonorrheal ophthalmia. McEvoy² examined the records of 236 patients with ophthalmia neonatorum and of 87 with gonococcal conjunctivitis who were not in the newborn age group treated at the Philadelphia General Hospital during the years 1936 to 1947. Lehrfeld interprets this report as indicating that silver nitrate had failed in 236 instances, a conclusion that does not throw light on the true percentage incidence of the condition. McEvoy's comparative study indicates that local application of penicillin into the eyes of the newborn is somewhat superior to treatment with sulfonamide compounds and is much superior to the treatment of gonococcal conjunctivitis with antiseptics of the pre-sulfonamide period. This study does not throw light on the relative merits of the Credé method and the penicillin technic.

Franklin³ used the crystalline salt of penicillin in a concentration of 2,500 units to 1 cc. and, after irrigating the eyes with salt solution, instilled 1 drop of the penicillin solution in each eye, repeating the procedure on the three following days. Gonococcal conjunctivitis did not appear in the group in which penicillin was used, while 1 case occurred on the fourth day in the silver nitrate group, a fact without statistical significance. Franklin concluded that for prophylaxis penicillin compared favorably with silver nitrate and that it was to be preferred because the danger of permanent injury to the eyes was eliminated. Franklin, however, did not present evidence of permanent damage following the use of silver nitrate.

Berens and Foote⁴ expressed the opinion that there will always be cases of ophthalmia neonatorum regardless of the effectiveness of the prophylactic agent. At least two factors may be accountable: carelessness on the part of the attendant instilling the agent and introduction of infection some time after the agent has been instilled. Evidence of permanent damage resulting from the use of 1 or 2 per cent silver nitrate has not been produced. Solutions left standing may reach a concentration as high as 50 per cent. However, supplying 1 per cent silver nitrate in paraffin-lined beeswax ampules, as is done by most health departments, has overcome the danger to the eye from high concentration of the drug.

A subcommittee of the New York Academy of Medicine on Feb. 10, 1948, recommended "that no change be made in the Sanitary Code to require the use of penicillin for the prophylaxis of ophthalmia neonatorum

until there is more experience with its use." On July 20, 1948, the Council of the American Academy of Ophthalmology and Otolaryngology and the Section of Ophthalmology of the American Medical Association approved a report of a joint committee which concluded that the incomplete state of our knowledge on this subject did not justify any change in existing legislation. In full agreement with the conclusions and recommendations of the subcommittee of the New York Academy of Medicine, the group recommended that changes not be recommended now in existing laws, although possibly some form of antibiotic prophylaxis will eventually replace the present use of silver nitrate. Much further investigation of the matter is needed before any concrete recommendations can be made. Such investigations are now in progress in established clinics, and the answers may soon be forthcoming.

NATIONAL SCHOOL HEALTH SERVICES ACT

During the Eightieth Congress considerable effort was made by special groups to secure the enactment of legislation providing for federal aid in the development of school health programs. The legislation then under consideration contained a number of basic deficiencies that prevented the American Medical Association from giving unqualified approval, although the objective has had the endorsement and the active support of the medical profession for many years. The American Medical Association has encouraged periodic examinations of school children at appropriate times during advancement in school and has stimulated the early correction of defects disclosed by such examinations. The Association has collaborated in formulating a school health program now approved by some forty-five different organizations.

A pending bill, S. 1411, to enact a National School Health Services Act, which has passed the Senate, seems scheduled for enactment by the Congress. This bill provides for the general welfare by enabling the several states to make more adequate provision for the health of school children through the development of school health services for the prevention, diagnosis and treatment of physical and mental defects and conditions. Annually \$35,000,000 would be distributed to the states that have developed plans approved by the Federal Security Administrator. The bill also authorizes such other sums as may be necessary for administrative expenses. The beneficiaries of the bill will be the children in public and nonprofit nonpublic schools between the ages of 5 and 17, inclusive—more than 29,000,000 children. A state to be eligible for the federal aid must submit a plan which if it is to be accepted or approved must provide, among other things, (1) for medical and dental examinations at periodic intervals for all school children in the state, such examinations to be made, as far as practicable, at the

2. McEvoy, J. P.: Ophthalmia Neonatorum and Gonococcal Conjunctivitis, *Eye, Ear, Nose & Throat Monthly* 28: 25-29 (Jan.) 1949.

3. Franklin, H. C.: Prophylaxis Against Ophthalmia Neonatorum. Clinical Comparison of Penicillin and Silver Nitrate: Preliminary Report, *J. A. M. A.* 134: 1230-1235 (Aug. 9) 1947.

4. Berens, C., and Foote, F. M.: Penicillin or Silver Nitrate as a Prophylactic Agent Against Ophthalmia Neonatorum? *Am. J. Pub. Health* 38: 1680-1682 (Dec.) 1948.

schools which they attend (this requirement would seem at least to discourage examinations by family physicians) and (2) for treatment of such children for physical and mental defects and conditions disclosed by such examinations, whenever the parents of the children are unable to provide the treatment. However, a state plan may provide for the prevention and treatment of such physical and mental defects and conditions of all school children, irrespective of the financial status of the parents. Too, a state plan must set forth "the manner in which payments are to be made and examinations and treatment provided." Two amendments accepted by the Senate would provide specifically for the utilization of the family physician in providing school health services and would recognize the right of a state to exempt from the program children whose parents are unwilling, on account of religious beliefs, to have the children included in the program.

On a state level, the program will be administered by the state health agency or the state education agency, or both, the decision being left apparently to each state. On a federal level, the Federal Security Administrator is named as the administrative officer. He may delegate at least some of his functions in this respect to other units of the Federal Security Agency. Previous legislation has mentioned the Children's Bureau as the appropriate federal administrative unit, and nothing apparent in the pending bill would prevent the administrator from designating that bureau.

Recognizing that state laws in some jurisdictions may prevent the distribution of funds to provide health service to children attending nonpublic schools, the bill provides that in such cases the Administrator shall withhold from the allotment of such states an amount which bears the same ratio to such allotments as the number of children in average daily attendance at nonpublic schools within the state. With the funds withheld, he will "make provision" for services to children attending the nonpublic schools comparable to the services extended to children attending public schools.

A state plan must further provide for an advisory committee to include representatives of nongovernmental organizations or groups and of state agencies concerned with health, education, child welfare and the interests of the public at large. It must provide that the school health services utilize "and develop" the qualified health, medical, dental, hospital and other related facilities already established in the state. Furthermore, it must contemplate a cooperative arrangement with the medical, dental, health, nursing, psychiatric, educational and welfare groups and organizations, and working agreements, where necessary, with state or local public health agencies having authority under state law for the care of crippled or otherwise physically handicapped children, or for other necessary health services.

The bill does not indicate that a compulsory examination or treatment requirement is contemplated as a prerequisite to school attendance, except possibly as such a requirement obtains under state law. Proper parental consent would no doubt be obtained before any medical procedure on school children under this program is undertaken. This legislation, when enacted, will affect a large segment of our population. Physicians in the several states should interest themselves actively in the formulation of state plans and afterward in their proper and rational administration.

Current Comment

PROFESSIONAL PRINCIPLES AND GOVERNMENTAL CONTROL

The medical profession of the United States has been engaged now for some thirty-five years in opposing the establishment of a federal bureaucracy for the development, control and distribution of medical care. History indicates that medicine not infrequently is the first line of attack by those who favor governmental domination. Once medicine is brought under central management, other professions, industries and trades succumb. A recent issue of the periodical called *The Theatre*, distributed with programs in the theaters of New York City, considers the attempt in connection with consideration of an education bill by the present Congress to provide for the allocation of \$1,000,000 for the establishment of a national theater. Although this idea has been before the theatrical profession for almost ten years, it has now been revived after an abeyance during the last war. Commenting on this subject, Mr. Eugene Burr says:

... though the establishment of a national theatre would unquestionably be an excellent thing, two factors must be borne in mind in any planning. Some way (Thespis alone knows what it could be) would have to be found to guarantee that there would be no bureaucratic domination, that posts in the national theatre would not become political spoils, that the national theatre would be controlled by no exclusive group within the theatre itself. In the second place, jobs in the national theatre would have to be given on the basis of ability rather than need—and this, at least, is a fact whose importance is acknowledged in all of the current plans. A national theatre could not be the means of aiding incompetent amateurs to break into the professional stage. Participants would have to base their claims on ability, not on penury or political affiliation.

But how to establish such standards of ability is a problem; for there can be no absolute standards in any art, but merely evaluations according to individual taste. If somehow someone can solve that problem, without establishing a theatrical clique as the dictator of all standards—and if someone can tell how to guarantee that a national theatre will not become bureaucratic—then a national theatre will be an altogether wonderful thing.

But without those conditions it could become merely a means of disseminating party propaganda, a refuge for political henchmen, an artistic plum for a small group within the theatre itself, or a haven for needy incompetents. And having no national theatre at all is preferable to something like that.

ORGANIZATION SECTION

Official Notes

MORE INTERNS PROTEST NATIONALIZED MEDICINE

The interns of Ancker Hospital, St. Paul, have addressed the following letter to the editor of *The Interne*, a magazine said to be the publication of the interns' organization, protesting unanimsously their disapproval of the platform adopted by the Association of Internes and Medical Students at their convention in 1948 supporting a government-sponsored, national health insurance program. The Association of Internes and Medical Students apparently includes relatively few interns and residents, but claims to represent all:

"We, the internes of Ancker Hospital, St. Paul, Minnesota, have just recently received the February, 1949, issue of *The Interne* containing the report on the AIMS convention of 1948. We were chagrined to note the resolution, stating the AIMS platform in regards to a government-sponsored, national health insurance program, which was 'passed by the panel,' and 'greeted with enthusiasm and endorsed unanimously by the convention.'

"We, the internes of this 700 bed city and county Ancker Hospital, are unanimously opposed to any such government-sponsored program. We are fully cognizant of, and thankful for, the fact that the platform adopted by AIMS is certainly not supported by the vast majority of internes in the United States. We note with pride the advancements made by a free, democratic system of medicine and are confident that such a system will be well able to meet the medical needs of the American people.

Yours truly,
THE INTERNES OF ANCKER HOSPITAL.
[Signed by each intern of Ancker Hospital]

NEW COMMITTEE TO REVIEW HEALTH BILLS

A newly appointed committee, headed by Dr. Harvey Stone of Baltimore, will meet in Washington, D. C., in the near future to review and study all types of health bills introduced in Congress. The committee hopes to coordinate the medical profession's views relating to all legislation.

The bills to be studied will deal with all types of federal regulations as they pertain to medical care, especially the Hill and Taft bills as they relate to public welfare and to the medical profession.

Dr. Elmer Henderson, Louisville, Chairman of the Board of Trustees, and Dr. George Lull, Secretary and General Manager, will serve as ex officio members of the committee; other members are: Drs. R. L. Sensenich, South Bend, President of the American Medical Association; Louis H. Bauer, Hempstead, New York, Chairman of the Executive Committee of the Board of Trustees; R. B. Robins, Camden, Ark.; John W. Cline, San Francisco; Frank Borzell, Philadelphia; Frank Lahey, Boston, and James R. McVay, Kansas City.

COOPERATING WITH COOPERATIVES

The Council on Medical Service of the American Medical Association and representatives of national labor, farm and cooperative organizations representing consumers of medical care met in the Palmer House, Chicago, April 29.

The following joint statement was issued by Dr. James R. McVay of Kansas City, Mo., chairman of the Council on Medical Service, and Jerry Voorhis, executive secretary of the Cooperative Health Federation of America, representing the consumer groups:

"It is the sense of the individuals at this meeting that we are in substantial agreement that voluntary prepayment medical care plans should be developed that will assure the public of the highest quality of medical service and that full assurance

be provided for the maintenance of the quality of good medical care; and that a joint committee be appointed—three by the Council on Medical Service and three by organizations of consumers of medical care—to consider the establishment of standards in conformity with the above principles; and that such committee report back to this assembly at 10 o'clock, Saturday, June 4, in Atlantic City."

Washington Letter

(From a Special Correspondent)

May 23, 1949.

National Health Legislation Witnesses Scheduled

Representatives of more than twenty national organizations will express their views on national health legislation during the first three weeks of Senate committee hearings that were scheduled to open on May 23. Majority of them will be heard during the two week period beginning May 30, since the opening days of the extended hearing were to be devoted to testimony by members of Congress and federal officials supporting the various bills under consideration. These include the Thomas-Murray-Dingell bill calling for compulsory health insurance, the Hill and Taft voluntary assistance measures and the Lodge bill, which provides for "free drugs" to the medically indigent.

The following organizations have been invited to send representatives to testify at the hearings: American Medical Association, American Hospital Association, Congress of Industrial Organizations, Blue Cross Commission, Associated Medical Care Plans, American Federation of Labor, Association of State and Territorial Health Officers, American Public Health Association, Catholic Hospital Association, American Protestant Hospital Association, Americans for Democratic Action, American Dental Association, Cooperative Health Federation of America, Association of Land Grant Colleges and Universities, American Association of Universities, Association of American Medical Colleges, American Council on Education, National Association of State Universities, Association of Schools of Public Health, Association of American Dental Schools, National Association for Practical Nursing, American Nurses Association, National Organization for Public Health Nursing and National League of Nursing Education.

Representative Andersen: "I Pity The People of America"

Representative H. Carl Andersen (Republican, Minnesota) on May 16 delivered a speech on the House floor in which he described socialized medicine as a national calamity if the medical care available at the Capitol to members of Congress is typical of the Truman-Ewing plan. His speech was precipitated by a syndicated newspaper column (Drew Pearson) which stated that the dispensary type of services afforded to members of Congress is essentially socialized medicine.

The Minnesotan said he went to the dispensary with an injured wrist and was advised to soak it in hot epsom salts.

"Fortunately, I had occasion to go to Minnesota three weeks later and, as my wrist was still very painful, contacted my home town doctor who asked me: 'Did you have an x-ray taken of the wrist after the accident?' I answered, 'No, none was suggested.' My doctor in Tyler, Minn., then took an x-ray and found that the wrist had been broken. He said that it was extremely fortunate that the bone had knitted together properly without medical attention.

"All I have to say is that, if the medical service we have available here in the Capitol is a sample of socialized medicine, I certainly pity the people of America if that legislation is enacted into law."

Proprietary Association to Hear Ewing and Dr. Cline

The pros and cons of compulsory health insurance and of the Taft and Hill voluntary assistance plans will be discussed at the sixty-seventh annual convention of the Proprietary Association of America at White Sulphur Springs, W. Va., June 1-3. Speakers will include Federal Security Administrator Oscar R. Ewing, on "The President's Health Program; Its Scope and Objectives"; Dr. John W. Cline, former president of California Medical Association, on "Medicine's Answer to the Truman Proposal for Socialized Medicine," and John W. McPherrin, editor of *American Druggist*, who will report on observations in England while studying its National Health Service system.

To date the Proprietary Association, whose members produce an estimated 80 per cent of the packaged medicines manufactured in the United States, has not taken an official position for or against any of the national health plans pending in Congress. Its headquarters are in Washington. F. J. Cullen, M.D., is executive vice president.

Propagandizing by Federal Security Agency Criticized

Establishment of a Department of Welfare, which would give the present Federal Security Agency cabinet status, was strongly opposed in a House floor speech (May 17) by Representative Clare Hoffman (Republican, Michigan). Such action, he said, would mean surrender "to the bureaucrats in the executive department, in this instance to the Federal Security Agency." He charged the Federal Security Agency Administrator not only with disseminating propaganda but with attempting to justify such activity.

Medical Legislation**STATE LEGISLATION****Delaware**

Bill Vetoed.—S. C. Res. 20, which would have memorialized the Congress of the United States to refrain from imposing on the citizens of this nation any form of compulsory insurance or any system of medical care designed for national bureaucratic control, was vetoed by the Governor on April 28, 1949.

Maine

Bill Enacted.—H. 2076 was approved May 5, 1949. It provides that the use of electrolysis for the removal of hair is not a part of the practice of hairdressing and beauty culture and is prohibited except under the direction of a licensed physician.

Maryland

Bills Enacted.—H. 152 has become chapter 704 of the Laws of 1949. It amends the law relating to the practice of chiropractic by, among other things, providing that a license to practice chiropractic shall not include the right to practice obstetrics. S. 16 has become chapter 669 of the Laws of 1949. It creates an anatomy board to have charge of the distribution of certain dead bodies which come under its control. Such bodies shall be used only for the promotion and application of the medical sciences. S. 329 has become chapter 682 of the Laws of 1949. It amends the law relating to the practice of medicine by providing that applicants for a license who graduated from a college in a foreign country, the entrance requirements, standard of education and requirements for graduation of which are equivalent to the standard defined by the Association of American Medical Colleges or the Intercollegiate Committee of the American Institute of Homeopathy shall be eligible to take the examination for licensure in Maryland.

Michigan

Bills Enacted.—H. Res. 24 was adopted May 9, 1949. It provides for the creation of a special committee to investigate the advisability of establishing a program of rehabilitation for alcoholics. S. C. Res. 19 was adopted May 6, 1949. It memorializes the Congress of the United States not to adopt legislation relative to socialized medicine.

Ohio

Bill Enacted.—H. 308 was approved May 12, 1949. It makes it unlawful to deliver any of the barbiturates except by a pharmacist on the original prescription of a person licensed in the state to prescribe and administer drugs.

Pennsylvania

Bill Enacted.—S. 665 has become Act No. 284 of the Acts of 1949. It provides that certain property to be conveyed to the University of Pittsburgh shall be used for the extension of its Medical Center which will include the Graduate School of Public Health.

Rhode Island

Bills Enacted.—H. 906 was approved May 12, 1949. It provides for the licensing of maternity hospitals. S. 35 was approved May 3, 1949. It creates a special commission to investigate the advisability of establishing facilities for the study, treatment and care of inebriates.

Vermont

Bills Enacted.—H. J. Res. 22 was approved April 26, 1949. It authorizes the governor to appoint a committee composed of a physician and two other persons to make a study of the approximate number of persons in the state suffering from epilepsy and the feasibility of a state program for the care, treatment and rehabilitation of persons so afflicted. H. 139 was approved May 4, 1949. It authorizes the governor to appoint a committee to make a study of the treatment and rehabilitation of alcoholics. H. 338 was approved May 5, 1949. It provides regulations for the licensing of hospitals in the state.

Coming Medical Meetings

American Medical Association, Atlantic City, June 6-10. Dr. George F. Lull, 535 N. Dearborn St., Chicago 10, Secretary.

American Academy of Neurology, French Lick, Indiana, French Lick Springs Hotel, June 1-3. Dr. Joe R. Brown, 19 Millard Hall, University of Minnesota, Minneapolis 14, Secretary.

American Academy of Tuberculosis Physicians, Atlantic City, Hotel Dennis, June 4. Dr. Oscar S. Levin, P. O. Box 7011, Denver 6, Colo., Secretary.

American Association of Railway Surgeons, Chicago, Drake Hotel, June 30-July 2. Dr. Chester C. Guy, 5800 Stony Island Ave., Chicago 37, Secretary.

American College of Chest Physicians, Atlantic City, Ambassador Hotel, June 2-5. Mr. Murray Kornfield, 500 N. Dearborn St., Chicago 10, Executive Secretary.

American College of Radiology, Atlantic City, Chalfonte-Haddon Hall, June 5. Mr. William C. Stronach, 20 N. Wacker Drive, Chicago 6, Secretary.

American Dermatological Association, Hot Springs, Va., May 25-28. Dr. Louis A. Brunsting, 102 Second Ave. S.W., Rochester, Minn., Secretary.

American Gastro-Enterological Association, Atlantic City, Claridge Hotel, June 3-4. Dr. Dwight L. Wilbur, 655 Sutter Street, San Francisco 2, Secretary.

American Gastroscopic Society, Atlantic City, Claridge Hotel, June 3-4. Dr. J. Edward Berk, 255 S. 17th St., Philadelphia 3, Secretary.

American Goiter Association, Madison, Wis., Hotel Loraine, May 26-28. Dr. Thomas C. Davison, 478 Peachtree St., N.E., Atlanta 3, Ga., Secretary.

American Medical Women's Association, Atlantic City, June 4-5. Dr. Augusta Webster, 104 S. Michigan Ave., Chicago, Secretary.

American Neurological Association, Atlantic City, Chalfonte-Haddon Hall, June 13-15. Dr. H. Houston Merritt, 710 W. 168th St., New York 32, Secretary.

American Ophthalmological Society, Hot Springs, Va., The Homestead, June 2-4. Dr. Maynard C. Wheeler, 30 W. 59th St., New York, Secretary.

American Proctologic Society, Columbus, Ohio, May 31-June 4. Dr. W. Wendell Green, 1838 Parkwood Ave., Toledo 2, Ohio, Secretary.

American Radium Society, Atlantic City, June 5. Dr. Hugh F. Hare, 605 Commonwealth Ave., Boston 15, Secretary.

American Society for the Study of Sterility, Atlantic City, Hotel Strand, June 5. Dr. Walter W. Williams, 20 Magnolia Terrace, Springfield 8, Mass., Secretary.

American Therapeutic Society, Atlantic City, June 2-5. Dr. Oscar B. Hunter, 915 Nineteenth St. N.W., Washington, D. C., Secretary.

Association for the Study of Internal Secretions, Atlantic City, June 3-4. Dr. Henry H. Turner, 1200 N. Walker St., Oklahoma City 3, Secretary.

Idaho State Medical Association, Sun Valley, June 20-23. Dr. Alfred M. Popma, 220 N. First St., Boise, Secretary.

International Congress on Rheumatic Diseases, New York, Hotel Waldorf-Astoria, May 30-June 3. Dr. Philip S. Hench, Mayo Clinic, Rochester, Minn., Chairman, American Committee.

Maine Medical Association, Poland Spring, Poland Spring House, June 19-21. Dr. Frederick R. Carter, 142 High St., Portland 3, Secretary.

New Hampshire Medical Society, Newcastle, Hotel Wentworth, June 14-15. Dr. Carleton R. Metcalf, 5 S. State St., Concord, Secretary.

Society for Investigative Dermatology, Atlantic City, Ritz Carlton Hotel, June 11-12. Dr. S. William Becker, 55 E. Washington St., Chicago 2, Secretary.

Society of Biological Psychiatry, Atlantic City, Chalfonte-Haddon Hall, June 12. Dr. George N. Thompson, 1136 W. Sixth St., Los Angeles, Secretary.

Western Branch of American Public Health Association, Los Angeles, Hotel Biltmore, May 30-June 1. Mr. Walter S. Mangold, University of California, Berkeley, Calif., Secretary.

GOVERNMENT SERVICES

ARMY

USE OF WACS IN HOSPITALS

While Wacs are already being used in a variety of assignments in Army hospitals, a special effort is to be made to measure the maximum extent to which they can serve in hospital positions traditionally filled by men. The experiment, scheduled to start June 1, will run for one and a half to two years, and they will work both at Murphy General Hospital and at the Lovell Section at nearby Fort Devens.

This experiment will be a guide to determine to what extent enlisted women could be used in hospitals in the event of a national emergency and a consequent man power shortage. They will operate the hospital pharmacy, and will work as photographers, x-ray technicians, mess attendants and stewards, supply clerks and physical reconditioning instructors. Wacs already are filling most of these positions throughout the Army Medical Department, but this is the first time that all such jobs in one hospital will have been filled by enlisted women. A special board of officers, consisting of representatives of the Surgeon General's Office, Women's Army Corps and the hospital staff, will follow the progress of the experiment.

PHYSICAL MEDICINE

A conference on Physical Medicine in Army Hospitals was held April 25-29 in the Surgeon General's Office to review the regulations and policies regarding physical medicine and to propose new regulations in the light of the experiences of two years of physical medicine as a separate service in the Army. Participants included Dr. Frank H. Krusen, director of physical medicine, Mayo Clinic, Rochester, Minn.; Dr. Donald L. Rose, director of physical medicine, University Medical Center, Kansas City, Kan.; Col. Emmett M. Smith, chief, physical medicine service, Walter Reed Hospital; Col. Harold B. Luscombe, M.C., chief, physical medicine service, Fitzsimmons Hospital, Denver; Col. Arthur E. White, M.C., chief, physical medicine service, Letterman Hospital, San Francisco, and Capt. E. J. Lorenze, M.C., acting chief, physical medicine consultants division, Surgeon General's Office.

AIR FORCE

ARCTIC AEROMEDICAL LABORATORY

The Air Force Arctic Aeromedical Laboratory has completed its second winter of operations at Fairbanks, Alaska. The laboratory is attempting to collect physiologic, biochemical and psychologic data on the difficulties of living in the Arctic. Preliminary biochemical investigations conducted at the Arctic Laboratory demonstrated that blood coagulation times are prolonged under Arctic conditions, and current studies are aimed at determining the stage of the clotting process that is involved. Animal studies are in progress to determine the reasons for the greater tolerance of some species for Arctic cold than others.

Colonel Jack Bollerud, head of the Laboratory, states that living under conditions of Arctic weather and isolation carries with it a serious morale problem. Men sent to Ladd Field accordingly are being given standard psychologic tests on arrival and monthly for one year in an attempt to fathom the factors involved. It is expected that personality responses and changes thus determined will aid in the development of psychologic selection techniques for Arctic duty.

During the relatively mild Alaskan summer, the base line psychologic program is continued, but most of the cold weather

OFFICERS SELECTED FOR ADVANCED TRAINING

The following medical officers have been selected for advanced training in the civilian schools and hospitals indicated:

Officer	Institution	Subject
Raymond E. Duke, Col.	University of Minnesota, Minneapolis	Public Health
Benjamin H. Sullivan Jr., Col.	American College of Physicians, Philadelphia	Cardiovascular disease
Arthur E. H. Knox, First Lieut.	St. Luke's Hospital, New York	Medicine
Walter F. Reeves, First Lieut.	Indiana University Medical Center, Indianapolis	Intern training
Lester J. Nienhuis, First Lieut.	University Hospital, Ann Arbor, Mich.	Residency in general surgery
George W. Pogson, First Lieut.	Kansas City General Hospital, Kansas City, Mo.	Residency in internal medicine
Franklin M. Lockwood, First Lieut.	Kansas City General Hospital, Kansas City, Mo.	Residency in surgery
Irvin L. Schweitzer, First Lieut.	Mercy Hospital, Chicago	Residency in medicine
Harry J. Umlauf Jr., First Lieut.	Children's Hospital Society, Los Angeles	Residency in pediatrics
Arthur J. Moseley, First Lieut.	Grady Memorial Hospital, Atlanta, Ga.	Residency in medicine
Max W. Pegram, First Lieut.	Hospital of St. Barnabas, Newark, N. J.	Residency in plastic surgery
Kent T. Woodward, First Lieut.	Georgetown University Hospital, Washington, D. C.	Residency in medicine
Dean F. Winn Jr., First Lieut.	San Francisco Hospital, San Francisco, Calif.	Residency in surgery
William W. Tucker, First Lieut.	St. Luke's Hospital, San Francisco, Calif.	Residency in surgery
William W. Thompson, First Lieut.	Duke Hospital, Durham, N. C.	Residency in pediatrics
Edwin E. Pontius, First Lieut.	Indiana University Medical Center, Indianapolis	Residency in clinical pathology and pathology
Joseph A. Roy, First Lieut.	De Paul Hospital, St. Louis	Residency in surgery
Hugo M. Cardullo, First Lieut.	Bellevue Hospital, New York	Residency in pediatrics

research is suspended. Newly arrived personnel are being trained for their role in the active winter program for the year ahead.

INITIATE GENERAL PRACTICE BRANCH

Major General Malcolm C. Grow, the Air Surgeon, announces the initiation of a general practice branch in the Air Surgeon's office, to be charged with the development of training opportunities and careers for general practitioners serving at Air Force installations. According to current Air Force organization, about 70 per cent of physicians serving with Air Force units are general practitioners. Of the remainder, 5 per cent are staff and administrative personnel and 25 per cent are specialists. General Grow characterized the general practitioner as "the backbone of the Air Force medical service." Under the new program the general practitioner will be enabled to enter into a proposed residency program to be operated in the general hospital setup. The residency program will offer the general practitioner access to latest technical developments in medical and surgical specialties. Emphasis will be placed on internal medicine, surgical practices, pediatrics and obstetrics. The new general practice branch will work cooperatively with the Surgeon General's career program for medical officers.

VETERANS ADMINISTRATION

ELIMINATE THIRTEEN BRANCH OFFICES

The Veterans Administrator announces the selection of five key points from which medical supervision of hospitals and other medical matters will be carried on. They are Atlanta, Boston, Fort Snelling, Minn., San Francisco and St. Louis. The plan for medical supervision from these points resulted from the elimination of the thirteen branch offices of the Veterans Administration where medical activities previously were under the direction of branch medical directors. All functions of former branch office medical staffs are now centered in the office of the Chief Medical Director in Washington. The Administrator said, "In connection with medical matters handled in Washington, it is necessary that we have representatives traveling throughout the country. For the sake of reduced travel expense and other economies, certain Central Office representatives will be stationed at strategic points, to serve as the eyes and ears of the Chief Medical Director." He emphasized that "in no sense will these official stations become operating offices. They will simply be points from which Central Office personnel will travel. This change will bring supervision of the Chief Medical Director closer to hospital and other medical activities in the field, thereby assuring maintenance of the finest medical service to veterans."

RESIDENCIES IN NEUROLOGY

Several openings are available in the residency training program in neurology at the Veterans Administration Hospital, Coatesville, Pa. The program, organized by the Philadelphia Deans Committee, has been approved by the American Medical Association. This residency covers a period of three years or less, depending on the previous experience of an applicant, and is designed to prepare residents for certification in neurology by the American Board of Psychiatry and Neurology. The program includes rotation through the Veterans Administration Hospital, Coatesville, Pa., Veterans Administration Regional Office, Philadelphia, and the Philadelphia General Hospital. Applications should be sent to the Manager, Veterans Administration Hospital, Coatesville, Pa.

"THE BEST IN MEDICINE"

The Veterans Administration opened an exhibit for two weeks beginning May 2 in the Union Station Concourse, Washington, D. C., demonstrating that the Veterans Administration medical program offers veterans "The Best in Medicine."

PUBLIC HEALTH SERVICE

DR. APPLEWHITE TO RETIRE

Dr. Calvin C. Applewhite, who entered the United States Public Health Service in 1915, will retire from the service October 1. He is known in many states especially for helping to build and strengthen local health services. A graduate of Vanderbilt University Medical School, he has for the last eight years been a Regional and District Medical Director for the Public Health Service.

CANCER RESEARCH GRANTS

The Public Health Service announced April 28 additional grants amounting to \$293,452 to support laboratory and clinical research and \$79,853 for research facilities. These grants are in addition to research grants of \$671,200 announced on March 25. The grants for research facilities were \$30,385 to Meharry Medical College, Nashville, Tenn., and \$49,468 to the Institute for Cancer Research in Philadelphia. Among other grants announced is \$30,000 for work at Children's Hospital, Boston, under the direction of Dr. Sidney Farber to attempt to discover more effective chemotherapeutic treatment of leukemia; another grant was \$12,560 to the State University of Florida for work

under the direction of Dr. Francis E. Ray, who will study the experimental production of gastric cancer in animals by chemical means. These grants were recommended by the National Advisory Council at its meeting in March.

NEW MEMBERS OF MENTAL HEALTH COUNCIL

The Surgeon General announces the appointment, effective July 1, of two new members of the National Advisory Mental Health Council. They are Dr. Franz Alexander, director, Chicago Institute for Psychoanalysis, and Dr. S. Bernard Wortis, chairman, Department of Psychiatry, New York University Medical College, replacing Dr. William C. Menninger and Dr. John Romano, whose three year terms on the Council expire. Dr. Alexander received his medical training in Budapest and was director of the Berlin Institute for Psychoanalysis before coming to the United States in 1930. Dr. Wortis, a graduate of Cornell University Medical School, taught at his alma mater and at Johns Hopkins University before going to New York University Medical College in 1942.

MISCELLANEOUS

ACCIDENT RATE IN COAL MINES

The number of American coal miners killed and injured in the nation's coal mines in 1948 in relation to the total man-hours of exposure was lower than in any year except 1944 and 1945, Bureau of Mines Director James Boyd announces. In 1948 the combined fatal and nonfatal injury rate for each million man-hours of exposure to hazards during work was 63.46, the Director said. This was slightly lower than the corresponding rate of 63.62 for 1947 and the rate of 65.35 for 1946. During 1944, when production was at a high level, the combined fatal and nonfatal injury rate per million man-hours was 60.26—lowest on record. A total of 64,989 nonfatal and fatal injuries occurred in 1944 during 1,078,474,377 man-hours of work. In 1948, miners worked 867,500,000 man-hours with a total of 55,055 injuries, 1,010 fatal and 54,045 nonfatal.

On a tonnage basis, the fatal and nonfatal injury rate for 1948 was the best annual record in the statistical history of the nation's coal mining industry. This rate, according to recently revised data, was 84.56 per million tons of coal produced. Part of the improvement shown by the figures calculated

on a tonnage basis is due to higher productivity resulting from increased mechanization and strip mining.

The number of deaths occurring in Pennsylvania anthracite mines in 1948 was estimated at 140, according to recently revised figures, and the fatality rate per million man-hours at 0.92—the best on record. In bituminous coal mines, 870 men lost their lives, and the fatality rate per million man-hours was 1.22. The combined 1948 death rate for both anthracite and bituminous coal mines was placed at 1.16 per million man-hours.

Accident figures for 1948 recently revised by the Bureau also placed the number of nonfatal injuries in anthracite mines at 12,330, and in bituminous coal mines at 41,715. A total of 55,055 men were killed and injured, a 7.3 per cent drop from the number of deaths and injuries in 1947.

In 1948, six major disasters—single accidents in which 5 or more men were killed—resulted in 49 deaths in bituminous coal mines. No major disasters occurred in anthracite mines.

Injury and employment statistics are based on monthly reports received by the Bureau of Mines from bituminous coal and anthracite mines producing about 75 per cent of the coal mined in the United States. All figures are subject to revision.

Medical News

(Physicians will confer a favor by sending for this department items of news of general interest: such as relate to society activities, new hospitals, education and public health. Programs should be received at least two weeks before the date of meeting.)

CALIFORNIA

Report of Eye Bank.—The Stanford University Eye Bank supplied corneas for twenty-four eye graft operations during its second year of operation. Hospitals in San Francisco were the major source of corneas, but eyes were also supplied from Oakland, San Jose, Auburn, Burlingame, Redwood City, Stockton, Tulare and San Diego. Many of the operations performed at Stanford Hospital were on patients from out of town. All Pacific Coast eye surgeons qualified to perform the eye graft operation are eligible to use the services of the Eye Bank, which operates without cost to either patient or surgeon except for a small service fee. Persons who wish to will their eyes to the Eye Bank for use in corneal transplant operations after their deaths may do so through forms available on application to the Eye Bank, Stanford University Hospitals, Clay and Webster Streets, San Francisco.

COLORADO

Harvard Alumni Lecture.—Dr. Marius N. Smith-Petersen, Newton, Mass., gave the second Harvard Lecture at the University of Colorado Medical Center, Denver, May 19. This lectureship is sponsored by the alumni of the Harvard Medical School in the Rocky Mountain region.

Course in Regional Anesthesiology.—An intensive one week postgraduate course in regional anesthesiology will be held at the University of Colorado Medical Center, Denver, June 27 to July 1. The subject will be presented by cadaver dissections, lectures, clinical demonstrations and supervised practice in the various technics covered in the course. The guest lecturer will be Dr. Emery A. Rovenstine, New York University-Bellevue Medical Center. Admission is open to all physicians who are members of their constituent medical societies or the American Medical Association. The registration fee is \$5 and tuition will be \$45. Inquiries should be made to the Director of Graduate and Postgraduate Medical Education, University of Colorado Medical Center, Denver.

CONNECTICUT

Cancer Award to Dr. Smith.—The American Cancer Society on May 4 gave the 1949 Connecticut Cancer Award for distinguished service in cancer control to Dr. George M. Smith of Pine Orchard. The award follows fifty years of service. He has been a member of the Board of Scientific Advisers of the Jane Coffin Childs Fund, medical director of the Anna Fuller Fund and executive director of the National Advisory Cancer Council. In recent years he has helped to guide the cancer work initiated by the National Research Council. Dr. Smith received his medical degree from Columbia University College of Physicians and Surgeons, New York, in 1905. Last year he was named emeritus professor by Yale, which had granted him the LL.D. degree in 1947 largely in recognition of his contributions to the cancer problem.

FLORIDA

Graduate Course in Cardiovascular Diseases.—The Department of Medicine of the Graduate School of the University of Florida announces a special course on cardiovascular diseases, which will be presented June 14-17 at the George Washington Hotel in Jacksonville. The recognition and management of heart conditions of particular interest to physicians in general practice will be featured. Dr. R. Bruce Logue of Emory University School of Medicine, Atlanta, will present the lectures.

ILLINOIS

Camp for Diabetic Children.—A summer camp for diabetic children of the Chicago area is being opened this summer from August 18 to September 1 at Bartlett. The counselors and facilities of Sunset Camp, which is run in conjunction with the James Herrick House for children with crippled hearts, will give diabetic children summer camp experience. The Chicago Diabetes Association will furnish nurses, dieticians and resident physicians trained in the care of diabetic children. Girls from 7 to 16 and boys from 7 to 9 inclusive will be

accepted. Charges are reasonable and may be scaled down if necessary. Application blanks are available to physicians from Mrs. Robert Pennock, chairman, Summer Camp Committee, Chicago Diabetes Association, 1931 Lincoln Park West, Chicago; telephone Yards 7-5600, Ext. 234.

CHICAGO

Dedicate Cancer Exhibit.—The new cancer exhibit at the Museum of Science and Industry was dedicated April 28. Charles F. Kettering, Dayton, Ohio, was the principal speaker. The exhibit, covering 3,200 square feet and financed by the Illinois Division of the American Cancer Society, explains the problems cancer presents and is expected to help speed cancer control. The exhibit was designed and produced under supervision of Professor Thomas S. Jones and Miss Ruth Coleman of the medical illustration department of the University of Illinois. It was opened to the public May 6.

Appoint Superintendent of Tuberculosis Sanitarium.—Dr. Otto L. Bettag, Pontiac, has been appointed medical superintendent and tuberculosis control officer of the City of Chicago Municipal Tuberculosis Sanitarium. The appointment combines two offices formerly held by Dr. George C. Turner, who was medical superintendent, and Dr. Arthur W. Newitt, who resigned several months ago as tuberculosis control officer. Dr. Bettag, medical director and tuberculosis control officer of Livingston County, has been in charge of the tuberculosis section of the Illinois Department of Public Safety for ten years. He has also been thoracic surgeon at the Veterans Administration Hospital, Hines.

Dr. Richard H. Young Named Dean at Northwestern.—Dr. Richard H. Young has been appointed dean of Northwestern University Medical School to succeed Dr. J. Roscoe Miller, who becomes president of the University in July. Dr. Young, now dean of the College of Medicine of the University of Utah, Salt Lake City, is a native Chicagoan, who received his doctor of medicine degree from Northwestern in 1930. After serving an internship and residency at St. Luke's Hospital, Chicago, he did graduate study, principally in hematology, at the University of Oregon Medical School, Portland, and the University College Medical School of the University of London, England. Dr. Young was a member of Northwestern's department of medicine from 1931 to 1945, serving as head of the experimental medicine division the last seven years of that period. In 1945 he became director of the student health service of the university. He was awarded the bronze star for meritorious achievement as a member of the 12th General Hospital staff in the recent war, in which he served as a lieutenant colonel and chief of medicine.

Lay Cornerstone for Cancer Research Hospital.—The cornerstone for the seven story Nathan Goldblatt Memorial Hospital at the University of Chicago was laid May 17. The \$2,500,000 cancer research hospital was established in 1946 with a gift of \$1,000,000 to the university by the Goldblatt Brothers Foundation in memory of Nathan Goldblatt, who died of cancer in 1944. Dr. Leonard Scheele, Surgeon General, U. S. Public Health Service, spoke at the luncheon for the foundation trustees, the women's board and the Nathan Goldblatt Society for Cancer Research, and delivered the principal address at the cornerstone ceremony. Other speakers included President Ernest C. Colwell, Dr. Lowell T. Coggeshall, dean of the division of biological sciences, Maurice Goldblatt, Gov. Adlai Stevenson and Mayor Martin H. Kennelly. This, it is said, will be the first university hospital in the country with the entire staff engaged full time in cancer research and treatment. A second cancer hospital, the Argonne Cancer Research Hospital to be built by the United States Atomic Energy Commission adjacent to the Goldblatt hospital, will also be devoted to full time research treatment of cancer patients with radioactive isotopes.

The Goldblatt Brothers Foundation is a charitable trust established in 1936 by the Goldblatt family to administer their contributions for activities in the fields of social service and medical research.

IOWA

A Course in Clinical Audiometry.—An intensive two week course in clinical audiometry will be offered at the State University of Iowa, Iowa City, June 14-28. The course will include, among other things, lectures on audiometry, lip reading, speech training for the hard of hearing, psychologic problems of the acoustically handicapped and clinical otolaryngology; laboratory work; hearing aid fittings, and demonstrations by John C. Steinberg, Ph.D., of the Bell Telephone Laboratories and Mrs. Bernice Rutherford of the Rehabilitation Center, St. Paul, Minn. For information address: Professor Wendell Johnson, Director, Speech Clinic, State University of Iowa, Iowa City.

MASSACHUSETTS

Dr. Clark to Head Massachusetts General Hospital.—Dr. Dean A. Clark, associate professor of public health practice at Columbia University, has been appointed head of Massachusetts General Hospital, Boston, to succeed Dr. Nathaniel W. Faxon, who has reached the retirement age. Dr. Clark, a graduate of Johns Hopkins University School of Medicine, Baltimore, 1932, was a National Research Council fellow in neurophysiology at Cornell University Medical College; house physician at Phipps Psychiatric Clinic, at Johns Hopkins University in Baltimore, and an intern at Trudeau Sanatorium, Trudeau, N. Y. He was the first chief medical officer of the Federal Office of Vocational Rehabilitation and was on loan to the American Red Cross in 1944-1945 with the rank of surgeon in the regular corps in the U. S. Public Health Service. Since 1945 he has been on leave of absence from the service as medical director of the Health Insurance Plan of Greater New York. He will assume active direction of the hospital as soon as he is relieved of his present responsibilities in New York.

MISSISSIPPI

State Medical Meeting.—The Mississippi State Medical Association held its annual meeting in Biloxi May 10-12, under the presidency of R. B. Caldwell, Baldwin. Out of state speakers included:

Frank T. Mitchell, Memphis, Experience of a Pediatric Consultant in Public Health.

Theodore A. Watters, New Orleans, Common Psychiatric Problems and Psychosomatic Disorders in General Practice.

W. Banks Anderson, Durham, N. C., Congenital and Traumatic Vascular Lesions of the Eye and Adnexia—Kodachrome Clinic.

Lyle M. Sellers, Dallas, Texas, The Frontal Sinus—A Problem in Diagnosis and Treatment.

Jack S. Guyton, Baltimore, Surgery of Horizontal Strabismus.

Arthur J. Walker, New Orleans, Chills and Fever Versus Malaria.

Guy H. Williams and Eric Bell, Cleveland, Present Day Status of Multiple Sclerosis.

Maxwell E. Lapham, New Orleans, Suggested Program for Better Distribution of Medical Service to the Public.

Theo. H. Hanser, St. Louis, Hidden Genito-Urinary Conditions Parading as Abdominal Conditions.

The Ewing Fox Howard oration honoring Dan J. Williams was delivered by Henry Boswell of Sanatorium. The Woman's Auxiliary to the association met May 9-11.

MISSOURI

Personal.—Dr. Robert E. Schlueter, honorary librarian of the St. Louis Medical Society, was given the annual award by the society at a recent dinner meeting. The speakers on the occasion were Dr. Robert E. Kane of St. Louis and Chauncey D. Leake, Ph.D., Galveston, Texas.

Dedicate Headquarters to the Late Dr. O'Reilly.—The recently opened headquarters and clinic of the St. Louis Society for Crippled Children has been dedicated to the late Dr. James A. O'Reilly, who founded the St. Louis society and was for twenty years its president. The one story building is designed to suit specific functions. Front and rear entrances are on ground level; doors are wide enough to permit easy passage of wheel chair patients, and a hallway 35 feet long serves as an exercise corridor. There is also a large playground for the children.

NEW YORK

Graduate Education.—The Medical Society of the State of New York with the cooperation of the New York State Department of Health has arranged the following graduate lectures: Ontario County Medical Society, meeting at the Country Club, Geneva, June 14 at 8 p. m., will hear Dr. G. Gowing Broad, Syracuse, speak on "Diagnosis in Disease of the Anorectum." The Chenango County Medical Society will hear Dr. Charles L. Steinberg, Rochester, speak on "Chronic Arthritis: Its Diagnosis and Management" at its meeting in the Oxford Inn, Oxford, June 14 at 12 noon.

State Sets Up Graduate Scholarships.—For the first time in its history New York has established state scholarships for professional education in medicine and dentistry. The new law fixes the maximum as one hundred and leaves the monetary value and duration to the Board of Regents and the state budget director. The establishment of these graduate scholarships is an outgrowth of studies made by the Temporary Commission on the Need for a State University, which found that economic barriers constituted a substantial handicap for many persons desiring to enter these professions. The law also authorizes the regents with the approval of the budget director to increase the number of undergraduate awards. Formerly these were set at five for each of the one hundred fifty assembly districts of the state. Undergraduate scholarships have carried an annual stipend of \$350 for a four year period.

New York City

Residencies Available.—The Psychiatric Division of the Kings County Hospital, Brooklyn, is expanding its residency training program and has positions available particularly for residents requiring only one more year and seeking third year training. The positions pay \$1,560 with maintenance. Inquiries should be addressed to Dr. Sam Parker, Director of Psychiatry, 606 Winthrop Street, Brooklyn 3.

Personal.—Edward H. L. Corwin, Ph.D., executive secretary of the Committee on Public Health Relations of the New York Academy of Medicine since its founding in 1911, has been appointed associate professor of public health practice in the Columbia University School of Public Health, a part time appointment; Dr. Corwin continues with the academy. —Dr. Benjamin Jablons has been appointed visiting physician (peripheral vascular diseases) at Goldwater Memorial Hospital.

Dr. Bassler Honored.—On the occasion of his fiftieth anniversary in the practice of medicine Dr. Anthony Bassler was guest of honor at a testimonial dinner at the Hotel Commodore, May 1. The speakers included Dr. William Morrison, president of the National Gastroenterological Association; Dr. Martin E. Rehfuess, professor of medicine at Jefferson Medical College of Philadelphia; Msgr. John Curry, head of the Catholic hospitals of New York City, and Rev. Walsh, professor of psychology at Fordham University; Dr. Foster Kennedy, professor of neurology at Cornell University Medical College; Dr. Elihu Katz of the New York Polyclinic; Hon. Ferdinand Pecora and Hon. Peter Schmuck, Judges of the Supreme Court. Dr. Bassler was presented with a book of letters and a gold medal. He is the author of textbooks on gastroenterology.

NORTH CAROLINA

Faculty Appointments.—George O. Doak, Ph.D., chemist of the U. S. Public Health Service, has been appointed associate professor of experimental medicine at the University of North Carolina School of Public Health, Chapel Hill, effective July 1. Dr. Doak has his M.A. and Ph.D. degrees from the University of Wisconsin, Madison. Prior to becoming associated with the Public Health Service he was instructor in medicine and a research associate in bacteriology at Johns Hopkins School of Hygiene and Public Health, Baltimore.

Dr. Frederick A. Thompson Jr. will join the staff of the school of public health July 1 as assistant professor of experimental medicine. He has been assigned by the U. S. Public Health Service as chief of the biology section of the laboratory of experimental medicine. He received his M.D. degree from Duke University School of Medicine, Durham, and at the time of his appointment was serving his residency at Duke Hospital.

OHIO

Fellowships in Industrial Medicine.—The University of Cincinnati is the recipient of a new fellowship in industrial medicine at the Institute of Industrial Health of the University's Graduate School of Arts and Sciences. It was established by the Texaco Company, New York. Two similar fellowships have been granted by the Ethyl Corporation and by the university itself.

Rural Medical Scholarships.—The Ohio State Medical Association has approved a rural medical scholarship plan "to stimulate interest on the part of rural young men and women in the study of medicine, with the belief that because of their interest in rural life, they will later establish medical practice in rural communities." The scholarships will be administered by the Committee on Rural Health, with the aid of an advisory committee composed of representatives from the various rural and educational organizations. Each grant will be \$500 per school year, awarded for a four year period, subject to acceptable work on the part of the student. No obligations other than that will be attached to the scholarship. It is restricted to Ohio residents but may be used at any approved medical school in the country.

RHODE ISLAND

Tom Spies Given Chapin Award.—Dr. Tom D. Spies, professor of nutrition and metabolism and chairman of the department of Northwestern University Medical School, Chicago, received the annual Charles V. Chapin Memorial Award, presented May 11 at the annual dinner meeting of the Rhode Island Medical Society in Providence. The award was established in 1942 by the medical society in honor of the late Dr. Chapin, a native of Providence and one of the foremost public health workers. Dennis J. Roberts, mayor of Providence, presented the award, with a medal provided by a standing

committee of the City Council. Dr. Spies, who is also director of the nutrition clinic at Jefferson-Hillman Hospital, Birmingham, Ala., delivered the Chapin Lecture on "Recent Advances in Nutrition."

TEXAS

Personal.—Dr. Carl A. Moyer, professor of experimental surgery at Southwestern Medical College, Dallas, was the 1949 recipient of the Dallas Southern Clinical Society's Marchman Award for research into the fluid balance of the human body.

Gift for X-Ray Equipment.—The Sealy and Smith Foundation of Galveston has given \$22,000 to the John Sealy Hospital of the University of Texas Medical Branch, Galveston, for x-ray equipment in the Special Surgical Unit under the direction of Dr. Truman G. Blocker Jr., Galveston. The Special Surgical Unit, accommodating fifty-six beds, is devoted to plastic and maxillofacial surgery and neurosurgery.

Nobel Prize Winner Lectures.—The annual lectureship sponsored by Alpha Omega Alpha, honorary medical fraternity, at the University of Texas Medical Branch, Galveston, was given this year by Arne Tiselius, Ph.D., professor of biochemistry at the University of Uppsala, Sweden, and Nobel laureate for 1948. Professor Tiselius discussed the application of chromatographic methods to clinical problems. At the annual initiation and banquet of Alpha Omega Alpha, Professor Tiselius described the development of dextrane as a plasma substitute.

VERMONT

Course in Cardiovascular Disease.—The Cardiovascular Unit, recently established on a cooperative basis by the College of Medicine of the University of Vermont, Burlington, and the Bishop DeGoesbriand Hospital in Burlington, will conduct a refresher course on cardiovascular disease June 13-18. Guest speakers will be Dr. Paul D. White, Harvard Medical School, Boston, and a consultant of the National Heart Institute, and Dr. Mercier Fauteux, McGill University, Montreal, Canada. In addition 12 members of the University of Vermont medical faculty will take part in the program.

Study of Tendon Transplantation.—The National Foundation for Infantile Paralysis announces a one year grant to the division of orthopedic surgery of the University of Vermont College of Medicine, Burlington, for a study of the results of tendon transplantation, particularly in the lower extremities. The work will be carried out by Dr. Raymond Kuhlman, fellow in orthopedic surgery, under the direction of Dr. John F. Bell, associate professor in that division. The follow-up service of the Crippled Children's Division of the Department of Health will cooperate in the study.

WEST VIRGINIA

Personal.—Dr. Delivan A. MacGregor, of Wheeling, has been appointed by Dr. Thomas G. Reed, Charleston, president of the West Virginia State Medical Association, as a member of the advisory committee to the United Mine Workers Welfare and Retirement Fund. He will represent the Northern Panhandle. Dr. Ray M. Bobbitt, of Huntington, is chairman of the committee and the other members are Drs. Fred Richmond, of Beckley, and John P. Helmick, of Fairmont.

Licenses Revoked.—The licenses of the following doctors to practice medicine in West Virginia have been revoked: Wilkin R. Stevens, of Welch, license no. 6473, dated July 10, 1941, and Lawrence T. Browning, license no. 5394, dated Dec. 14, 1927. The orders entered by the public health council assigned as the reason for the revocation in each of these cases the doctor's conviction of a felony charge.

State Health Conference.—The annual State Health Conference, combining sessions of the State Health Officers' Conference and the West Virginia Public Health Association, will be held June 2-3 at the Daniel Boone Hotel, Charleston. At the general session Dr. Newman H. Dyer, state health commissioner, Charleston, will speak on "Public Health Forecast"; Dr. John D. Porterfield, director of health, Columbus, Ohio, on "Local Health Problems," and Dr. Russell C. Bond, Wheeling, on "The West Virginia Pediatric Study." Guest speaker at the banquet Thursday evening will be Dr. James G. Townsend of the U. S. Public Health Service, Washington, D. C., whose subject will be "Atmospheric Pollution." A panel discussion on "Integrating Services to Serve the Public" will be held Friday after section meetings. At 7:30 p. m. Friday Roy E. Dickerson, executive secretary of the Cincinnati Social Hygiene Society, will discuss "What Is Family Life Education?"

HAWAII

Territorial Medical Election.—At the annual meeting of the Hawaii Territorial Medical Association May 7 in Honolulu. Dr. Howard E. Crawford, Hilo, became president and Dr. Rogers Lee Hill, Honolulu, was chosen president elect. Drs. Irvin L. Tilden and Edwin K. Chung-Hoon, both of Honolulu, were elected secretary and treasurer respectively for three year terms.

Enlarge Blood Bank.—The Blood Bank of Hawaii, Honolulu, is to be enlarged by a 16 by 80 foot extension to the building to meet increasing demand for blood and blood products. The growing volume of service reflects expanded and improved procedures for processing and using blood rather than a rise in the number of donors, according to Dr. Forrest J. Pinkerton, director. The blood bank is now giving transfusions in its own offices to persons referred there by physicians, a practice that results in a saving to patients of time and money. The bank services twenty-eight hospitals on four islands, and the average civilian patient load has gone up from about 300 per month in wartime to nearly 1,000. During the war blood was simply turned over to the military, who prepared their own equipment for administering it. For most civilian hospitals, however, the blood bank prepares the administration sets. Rh typing, done only sporadically during the war, is now a routine process at the blood bank.

Another process developed at the bank since the war is the titration of all type O bloods. The blood bank is a nonprofit organization operating for the benefit of the community. It charges patients \$7.50 for service and requests replacement of blood by a donor, setting \$42.50 as the charge for the blood, to discourage patients from buying it outright. In 1948 the bank accepted blood of 10,186 persons. Over 90 per cent of the demand is for whole blood. When unused blood becomes outdated, it is processed into plasma. Dr. Pinkerton has recently completed arrangements with Irwin Memorial Blood Bank of San Francisco and the Blood Bank Commission of the California State Medical Association for mutual assistance in the event of war or a community disaster of catastrophic proportions. A similar agreement with the bank in Seattle is now under consideration.

GENERAL

University of Pennsylvania Class Reunion.—The 1939 class of the University of Pennsylvania School of Medicine, Philadelphia, will hold a reunion and supper in the Solarium of the Claridge Hotel, Atlantic City, N. J., June 5, from 5 to 7 p. m.

Hahnemann Medical Alumni Reunion.—An alumni reunion of the Hahnemann Medical College will be held June 8 at 6 p. m. in the Chalfonte Music Room, Chalfonte-Haddon Hall, Atlantic City, N. J. Tickets may be purchased in advance from the college alumni office.

Tuberculosis Physicians Meeting.—The American Academy of Tuberculosis Physicians will hold its annual meeting June 4 at the Hotel Dennis, Atlantic City, N. J., under the presidency of Dr. Robert A. Peers, Colfax, Calif. Presentation of awards will take place at the luncheon at 12:30 p. m.

\$250,000 for Research on Heart Disease.—Research grants totaling \$250,000 have been allocated by the American Heart Association to 26 investigators and 6 medical schools and hospitals for studies in heart and circulatory diseases. Award selections were made from among 121 requests totaling \$1,400,000. Dr. Tinsley R. Harrison, Dallas, president of the American Heart Association, stated that "All the requests were of high caliber and deserving of fulfillment."

Librarian Honored.—Mrs. Eileen R. Cunningham, librarian of the Vanderbilt University School of Medicine, Nashville, Tenn., has been chosen the first recipient of the Medical Library Association's Marcia C. Noyes Award in recognition of her achievements in medical librarianship. Mrs. Cunningham is the author of "Classification for Medical Literature," now in its third edition. She has held offices in numerous library associations and has served on many of their committees.

Electroencephalographic Society Meeting.—The American Electroencephalographic Society will hold its annual meeting at the Chalfonte-Haddon Hall, Atlantic City, N. J., June 11-13, under the presidency of Dr. Frederick A. Gibbs, Chicago. The program includes a symposium on corticothalamic pathways to be held Sunday morning under the chairmanship of Dr. A. Earl Walker, Baltimore. The symposium is being held in collaboration with the American Branch of the International League Against Epilepsy.

Meeting on Medical Missions.—All physicians and medical students are cordially invited to attend a public meeting on overseas mission medical work at 8 p. m. June 5, in the Central Methodist Church, 1213 Pacific Avenue, Atlantic City, N. J. Several outstanding medical missionaries will give accounts of their work abroad. A motion picture on medical mission work in the Congo will be shown. The meeting is sponsored by the Christian Medical Council for Overseas Work.

Awards for Rehabilitation Work.—The National Council for Rehabilitation, at a meeting at the Astor Hotel, New York, April 21, conferred 1949 awards on Lionel Barrymore, Thomas E. Millso, president of the Weirton Steel Company and Dr. Royd R. Sayers, medical director of the United Mine Workers of America, for their activities in behalf of the disabled. Dr. Henry H. Kessler, Newark, N. J., was reelected head of the council.

Meeting of Physical Therapy Association.—The American Physical Therapy Association will hold its annual conference at the Copley Plaza Hotel, Boston, June 19-24. Among the subjects to be presented are "Rehabilitation of the Hemiplegic Patient," "Neurological Aspects of Cerebral Palsy," "Polio-myelitis," "Multiple Sclerosis," "Some Research Problems in Physical Therapy," "Some Psychiatric Problems Related to Arthritis" and "Fractures." On Friday afternoon various physical therapy clinics in the Boston area will hold "open house."

Research Fellowships in Medicine.—The American College of Physicians announces that a limited number of fellowships in medicine will be available from July 1, 1950 to June 30, 1951. These fellowships are designed to provide an opportunity for research training either in the basic medical sciences or in the application of these sciences to clinical investigation. They are for the benefit of physicians who are in the early stages of their preparation for a teaching and investigative career in internal medicine. The stipend will be from \$2,200 to \$3,000. Application forms will be supplied on request to the American College of Physicians, 4200 Pine Street, Philadelphia 4, and must be submitted in duplicate not later than Oct. 1, 1949.

Award Abel Prize in Pharmacology.—At the Detroit meeting of the American Society for Pharmacology and Experimental Therapeutics, Mark Nickerson, Ph.D., assistant professor of pharmacology, University of Utah, College of Medicine, Salt Lake City, was awarded the 1949 John J. Abel Prize in Pharmacology for his research on "Pharmacology of the B-Haloalkylamines: a New Class of Adrenergic Blocking Agents." This prize of \$1,000 and a bronze medal has been donated to the society by the Eli Lilly Co., Indianapolis. The 1950 prize will be awarded at the Atlantic City meeting of the society to be held the week of April 9, 1950. Information concerning this award can be obtained from the secretary of the society, Dr. Harvey B. Haag, Medical College of Virginia, Richmond 19, Va.

World Medical Association Publishes Bulletin.—The first issue of the *World Medical Association Bulletin*, a quarterly, appeared in April under the editorship of Dr. Morris Fishbein, Chicago, and nine collaborating editors representing several other nations. The same articles appear in English, French and Spanish in corresponding columns of its 32 pages. The bulletin is not to be a medical journal; "Its purpose is wholly in the field of medicine as related to social advancement, to government, to war, and to the standards of medical care." The World Medical Association was established in Geneva in 1947 to raise the standards of medical education throughout the world and, correlated with this, the delivery of the highest quality of medical service. The \$10 World Medical Association annual fellowship dues, which should be sent to the association's address, 2 East 103rd Street, New York 29, includes subscription to the bulletin.

Recommendations on Maternal and Child Health.—A series of proposals were formulated by the World Health Organization's Expert Committee on Maternal and Child Health, which met in Geneva in January. These are to serve as the basis for discussion and action at the second World Health Assembly in Rome in June. Among the recommendations were the following: establishment of a special Health Education Service within the World Health Organization; stimulation of research and provision of information to governments in the form of monographs and bibliographies; sending of expert advisers and demonstration teams to countries requesting them; expansion of the existing fellowship program and stimulation of training of nurses, midwives; close cooperation with UNICEF in mass immunization campaigns and development of child guidance clinics, and with UNICEF and FAO in stimulating production and distribution of safe milk.

Vascular Surgeons' Meeting.—The Society for Vascular Surgery is holding its annual session June 5 at the Hotel Dennis in Atlantic City, N. J. All physicians are welcome to attend. The program is as follows:

George D. Lilly and Robert M. Lee, Miami, Fla., Complications of Anti-Coagulant Therapy.

Julian Johnson, Philadelphia, Experimental and Clinical Use of Vein Grafts to Replace Large Arteries.

Michael Radakovich and W. J. Merle Scott, Rochester, N. Y., Venous and Lymphatic Stasis in the Lower Extremities.

Richard Warren, Boston, Venous Pressures in the Lower Extremities as a Pre-Operative Study to Determine a Method of Treatment for Varicose Veins.

Thomas L. Stokes and John H. Gibbon Jr., Philadelphia, Observations on the Temporary Artificial Maintenance of the Circulation.

Emile Holman, San Francisco, President's Address: Problems in the Dynamics of Blood Flow.

Davitt A. Felder, Fiorindo A. Simeone and Robert R. Linton, Boston, Evaluation of Sympathetic Neurectomy in Raynaud's Disease.

Helen B. Taussig, Baltimore, Diagnosis and Differential Diagnosis of Cyanotic Malformations Amenable to Surgery.

Kenneth N. Campbell, Detroit; Bradley M. Harris, Ypsilanti, Mich., and Frederick A. Collier, Ann Arbor, Mich., Follow-Up Study of Patients with Thrombo-Angiitis Obliterans.

Lewis H. Bosher Jr. and Isaac A. Bigger, Richmond, Va., Study of Collateral Circulation Following Excision of Arteriovenous Fistulas.

Harris B. Shumacker Jr., Indianapolis, Study of Factors Influencing Effect of Arterio-Venous Fistulas on Size of the Heart.

Irving Leinwand, J. William Hinton and Jere W. Lord Jr., New York, Hypertensive Vascular Disease with Quadrilateral Raynaud's Syndrome Treated by Total Sympathectomy.

Dinner will be at 7 p. m.

Special Society Elections.—The American Association of Pathologists and Bacteriologists at its recent meeting in Boston elected Drs. Shields Warren, Alan R. Moritz and Sidney Farber, all of Boston, president, secretary and treasurer, respectively.—At the annual meeting of the Association of Schools of Public Health in Ann Arbor, Mich., last year's officers were reelected. They are: Brigadier General James S. Simmons, Boston, president, and Dr. Gaylord Anderson, Minneapolis, secretary-treasurer.—The Southeastern Section of the American Urological Association at its recent annual meeting installed Dr. James J. Ravenel, Charleston, S. C., as president and chose Drs. Edgar Burns, New Orleans, president elect and Russell B. Carson, Fort Lauderdale, Fla., secretary-treasurer.—At the fourth annual meeting of the Council of the New England State Medical Societies held recently in Boston, Dr. Norman A. Welch, physician in chief at Carney Hospital, Boston, was elected president and Dr. Roland E. McSweeney, Brattleboro, Vt., president of the Vermont State Medical Society, vice president. John E. Farrell, Sc.D., executive secretary of the Rhode Island Medical Society, was reelected secretary-treasurer.—The American Academy of Orthopaedic Surgeons at its meeting in Chicago in January installed Dr. Mather Cleveland, New York, as president, and chose Dr. Guy Caldwell of Tulane University of Louisiana School of Medicine, New Orleans, as president elect. Dr. H. Relton McCarroll is treasurer and Dr. Harold B. Boyd, Memphis, Tenn., secretary.—The American Society of Pharmacology and Experimental Therapeutics at its Detroit meeting April 18-22 elected Drs. Carl F. Schmidt, Narberth, Pa., as president, Harvey B. Haag, Richmond, secretary, and Ko Kuei Chen, Indianapolis, treasurer.—The American Society for Clinical Investigation at its meeting in Atlantic City May 2 chose T. Hale Ham, Brookline, Mass., as president.

Marriages

CHARLES W. HOFFMAN JR., Baltimore, to Miss Tove Poulson of Perth Amboy, N. J., in Fort Dix, N. J., April 30.

WALDRON RAYMON GARDINER JR., to Miss Jacqueline Sabina Heims, both of San Francisco, April 30.

HAROLD JACK TAUSEND, Houston, Texas, to Miss Mary Louise Nesbit of Madison, Wis., April 23.

MALACHI WILSON SLOAN II, Detroit, to Miss Jane Mayne Taylor of Allentown, Pa., April 23.

SAMUEL EARL UPCHURCH to Miss Alia Ann Samford, both of Birmingham, Ala., April 20.

HOMER CURTISS MERRICK JR., to Miss Margaret Anne Paul, both of Norfolk, Va., April 10.

HUGH MCINTYRE CALDWELL to Miss Vivian Laura Moll, both of Columbus, Wis., April 28.

ROBERT R. GILLESPIE JR. to Miss Sena Rae Matthews, both of Birmingham, Ala., April 26.

ROBERT BRAGG HAGOOD, Lowndesboro, Ala., to Miss Georgia Bell of Fayetteville, April 9.

Deaths

Eugene Hillhouse Pool • Locust Valley, N. Y.; born in New York June 3, 1874; Columbia University College of Physicians and Surgeons, New York, 1899; emeritus professor of clinical surgery at the Cornell University Medical College in New York; joined the faculty of his alma mater as assistant demonstrator of anatomy in 1901; rose through the ranks until, in 1915, he was named professor of clinical surgery, holding that post until 1938; in 1948 retired as a life trustee of Columbia University, a position he had held since 1939, after having served as an alumni representative; a member of the consulting board of cancer research at Columbia; secretary of the Section on Surgery of the American Medical Association from 1916 to 1919 and chairman in 1922 and 1923; past president of the New York Academy of Medicine, American College of Surgeons and the American Surgical Association; member of the International Surgical Association, Southern Surgical Association and the Society of Clinical Surgery; fellow of the American College of Surgeons; member of the founders group of the American Board of Surgery; decorated for distinguished service with the medical corps of the American Expeditionary Forces in France, at which time he served as a lieutenant colonel and directed surgical work in the St. Mihiel and Meuse-Argonne offensives; served as surgeon on the advisory board of the New York City committee of the American Society for the Control of Cancer; as a representative of the New York Academy of Medicine, appointed by Governor Lehman in 1933 as chairman of a committee that studied medical abuses in connection with the administration of the Workmen's Compensation Law; in 1934 was named administrative consultant in surgery for all the city hospitals in New York; formerly on the joint administrative board of the Columbia-Presbyterian Medical Center; served as senior attending surgeon of the New York Hospital and surgeon in chief emeritus of the Hospital for the Ruptured and Crippled; consulting surgeon, Presbyterian, French, Harlem and Woman's hospitals, New York Infirmary for Women and Children, the North Country Community Hospital in Glen Cove, the Elizabeth A. Horton Memorial Hospital in Middletown, N. Y., the Monmouth Memorial Hospital in Long Branch, N. J., the United Hospital in Port Chester, N. Y., the New York Eye and Ear Infirmary and Central Islip (N. Y.) State Hospital; died April 9, aged 74.

Robert Moseley Yergason • Hartford, Conn.; born in Hartford Oct. 3, 1885; Columbia University College of Physicians and Surgeons, New York, 1909; specialist certified by the American Board of Orthopaedic Surgery; member of the American Academy of Orthopaedic Surgeons; fellow of the American College of Surgeons; served during World War I; visiting orthopedic surgeon, St. Francis and Mount Sinai hospitals in Hartford, and Home for Crippled Children, Newington; consulting orthopedic surgeon, Veterans Administration Hospital in Newington, Manchester Memorial Hospital in Manchester, Windham Community Memorial Hospital in Williamstown, Meriden Hospital in Meriden, Day Kimball Hospital in Putnam, William W. Backus Hospital in Norwich, Litchfield County Hospital in Winsted and Neuro-Psychiatric Institute of the Hartford Retreat; awarded the Silver Beaver by the Boy Scouts of America; died in St. Francis Hospital March 24, aged 63, of pneumonia.

Irving Hotchkiss Pardee • New York; born in New York Jan. 26, 1892; Columbia University College of Physicians and Surgeons, New York, 1915; professor of neurology and executive officer of the department of neurology at his alma mater; member of the Association for the Study of Internal Secretions; member and formerly vice president of the Association for Research in Nervous and Mental Disease and the American Neurological Association; past president of the New York Neurological Society; served with the American Expeditionary Forces during World War I; affiliated with the Hospital for Special Surgery, New York Neurological Institute and St. Luke's Hospital in New York, Yonkers (N. Y.) General Hospital, Tuxedo Memorial Hospital, Tuxedo Park, and the North Country Community Hospital in Glen Cove; died in the New York Hospital April 10, aged 57.

Joe R. Clemmons • New York; born in Longview, Texas, Sept. 4, 1896; University of Tennessee College of Medicine, Memphis, 1924; member of the American College of Hospital Administrators, American Public Health Association and the American Hospital Association; for many years director of the Associated Hospital Service; served in France during World War I; cited by President Truman for his work as chairman of the New York State Procurement and Assignment

Service for Physicians, which recruited doctors for the armed forces in World War II; formerly assistant director of Strong Memorial Hospital in Rochester, N. Y., and medical superintendent of the Macon (Ga.) Hospital; for many years medical director and executive vice president of Roosevelt Hospital, where he died April 2, aged 52.

David Hastings Atwater • Rochester, N. Y.; Syracuse University College of Medicine, 1902; for many years county coroner; served during World War I; died in Strong Memorial Hospital February 7, aged 73, of cerebral hemorrhage.

Paul Eve Bain, Pawnee, Ill.; Barnes Medical College, St. Louis, 1899; died March 7, aged 70, of coronary occlusion and prostatitis.

Henry Lester Baker • Chicago; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1898; an Associate Fellow of the American Medical Association; died March 5, aged 79, of coronary heart disease.

George Tilman Banker • Elizabeth, N. J.; Cornell University Medical College, New York, 1911; in 1946 received a certificate of appreciation from the War Department for three or more years on the Induction Examining Board in Newark; member of the board of education; on the staff of Elizabeth General Hospital; died in Plainfield March 6, aged 66, of heart disease.

James Nelson Barger, Albany, Mo.; University Medical College of Kansas City, Mo., 1898; died in St. Francis Hospital, Maryville, March 1, aged 75, of multiple sclerosis.

Andrew Peter Barnai, Chicago; Regia Università degli Studi di Bologna. Facoltà di Medicina e Chirurgia, Italy, 1937; member of the American Medical Association; served during World War II; affiliated with the Chicago State Hospital; died April 17, aged 35.

George Calvin Berkheimer, Windber, Pa.; College of Physicians and Surgeons, Baltimore, 1905; member of the American Medical Association; past president of the Somerset County Medical Society; died in Philipsburg March 4, aged 77, of cerebral hemorrhage.

Bo Carr Howell, La Porte, Ind.; College of Physicians and Surgeons of Chicago, 1895; formerly county coroner; on the staff of Holy Family Hospital and Fairview Hospital, where he died March 2, aged 79, of cerebral hemorrhage.

Pierre Brunelle, Lowell, Mass.; McGill University Faculty of Medicine, Montreal, Canada, 1896; member of the American Medical Association; served as chairman of the city board of health; died February 11, aged 76, of cerebral hemorrhage.

Joseph Aaron Carter, Seattle; Minneapolis College of Physicians and Surgeons, medical department of Hamline University, 1898; served during World War I; died in the Veterans Administration Hospital March 8, aged 82, of cerebral hemorrhage.

James Burnett Clark, Springfield, Mo.; Kansas Medical College, Medical Department of Washburn College, Topeka, 1909; died in Kansas City, March 1, aged 78, of uremia.

Arthur Hiram Congdon • Schenectady, N. Y.; Albany (N. Y.) Medical College, 1915; on the staff of Ellis Hospital; died in Richmond, Va., March 4, aged 58, of coronary occlusion.

George Lindsay Cook • Tampa, Fla.; University College of Medicine, Richmond, 1913; specialist certified by the American Board of Pediatrics, Inc.; member of the American Academy of Pediatrics; fellow of the American College of Physicians; on the staffs of Tampa Municipal and St. Joseph's hospitals; died March 8, aged 62, of heart disease.

Ninian J. Cooper, Kramer, Pa.; College of Physicians and Surgeons, Baltimore, 1894; died March 7, aged 83, of arteriosclerosis.

Baron Francis Cornett, Bluefield, W. Va.; Atlanta College of Physicians and Surgeons, 1902; died in St. Luke's Hospital, February 18, aged 76, of carcinoma of the rectosigmoid.

Louis Ward Croke • Boston; Tufts College Medical School, Boston, 1911; formerly faculty member of the Massachusetts Institute for Technology; affiliated with the Liberty Mutual Insurance Company; died February 15, aged 63, of cardiac decompensation, amputation of right leg in April 1947, and embolism.

Donald Ray Davis • Dodge City, Kan.; University of Southern California School of Medicine, Los Angeles, 1939; served overseas during World War II; died in Wichita, March 4, aged 36, of uremia and streptococcal septicemia.

Albert Simeon Dolloff * Goshen, Conn.; Dartmouth Medical School, Hanover, N. H., 1891; an Associate Fellow of the American Medical Association; member of the New Hampshire Medical Society; died in Torrington, March 6, aged 86, of cardiorenal vascular disease.

Harry Edward Dorwart * Lexington, Neb.; Creighton University School of Medicine, Omaha, 1927; died recently, aged 45, of coronary disease.

Sim Driver * Dallas, Texas; Baylor University College of Medicine, 1920; clinical associate professor of orthopedic surgery at the Southwestern Medical College; member of the Clinical Orthopaedic Society and the American Academy of Orthopaedic Surgeons; fellow of the American College of Surgeons; served during World War I; on the staffs of the Baylor University, St. Paul's, Methodist, Medical Arts and Parkland hospitals; died in the Gaston Hospital February 27, aged 58, of mesenteric thrombosis.

Maurice Samuel Duchin, Cambridge, Mass.; Chicago Medical School, 1930; died in Peter Bent Brigham Hospital, Boston, February 5, aged 46.

James Henry Gasson, Shenandoah, Iowa; John A. Creighton Medical College, Omaha, 1898; member of the American Medical Association; died in the Iowa Methodist Hospital, Des Moines, March 5, aged 79, of myocardial infarction and coronary sclerosis.

Louis Herbert Gaus, Albany, N. Y.; Albany Medical College, 1907; served during World War I; consulting oculist to the Moses-Ludington Hospital, Ticonderoga; medical adviser for Selective Service during World War II; died in St. Peter's Hospital, March 6, aged 64, of coronary occlusion.

Joseph Enoch Gichner, Baltimore; University of Maryland School of Medicine, Baltimore, 1890; member of the American Medical Association; professor of clinical medicine and physical therapy emeritus at his alma mater; died March 8, aged 85, of gangrene of the left foot and generalized arteriosclerosis.

Joseph Goethe Graver, Cleveland; College of Physicians and Surgeons, Baltimore, 1907; member of the American Medical Association; on the staffs of the University Hospitals; died in Cleveland Clinic Hospital February 9, aged 68, of coronary occlusion.

Frank Joseph Guenther, La Grange, Texas; Medical Department of Tulane University of Louisiana, New Orleans, 1909; member of the American Medical Association; past president of the Fayette County Medical Society; county health officer; affiliated with La Grange Hospital; died March 4, aged 63, of heart disease.

Darwin Walton Hall * Kansas City, Mo.; University Medical College of Kansas City, 1896; an Associate Fellow of the American Medical Association; died March 3, aged 75, of coronary thrombosis.

Aldace Walker Hammond * Beaver Dam, Wis.; Rush Medical College, Chicago, 1920; for many years health officer; on the staffs of Lutheran Deaconess and St. Joseph's hospitals; died March 10, aged 56, of coronary thrombosis.

Louis Everett Hanisch * Omaha; University of Nebraska College of Medicine, Omaha, 1916; instructor in surgery at his alma mater; fellow of the American College of Surgeons; served in France during World War I; affiliated with the Lutheran Hospital; died March 13, aged 59, of coronary occlusion.

Clarence Edwin Harco * Newcomerstown, Ohio; Hahnemann Medical College and Hospital of Philadelphia, 1945; served during World War II; died in February, aged 29.

Isaac Carrington Harrison, Danville, Va.; University of Virginia Department of Medicine, Charlottesville, 1895; member of the American Medical Association; past president of the Medical Society of Virginia; served on the state board of medical examiners, as chairman of the school board and as a member of the police commission; on the staffs of Hilltop Sanatorium and Memorial Hospital; died in Westbrook Sanatorium, Richmond, March 12, aged 78, of pneumonia following fracture of a hip as the result of a fall.

John George Henson, Huntley, Ill.; Chicago College of Medicine and Surgery, 1908; served during World War I; on the staffs of Sherman Hospital and St. Joseph Hospital in Elgin; died February 27, aged 65, of coronary embolism.

Harry Campbell Hill * Streator, Ill.; Rush Medical College, Chicago, 1894; an Associate Fellow of the American Medical Association; died March 9, aged 79, of coronary occlusion.

Alwin Joseph Holden, Chicago; Bennett Medical College, Chicago, 1915; served during World War II; died in American Hospital February 25, aged 54, of bronchopneumonia.

Foster Miller Hull, El Monte, Calif.; College of Physicians and Surgeons, Los Angeles, 1912; died February 8, aged 60.

Donald Henry Jessop * Portland, Ore.; University of Oregon Medical School, Portland, 1909; fellow of the American College of Surgeons; on the staff of St. Vincent's Hospital; formerly chief surgeon of the Union Pacific Railroad Company; died March 9, aged 73, of cerebral accident and Parkinson's disease.

Lewis Karnopp * Wautoma, Wis.; College of Physicians and Surgeons of Chicago, 1894; served during World War I; local surgeon for the Chicago and Northwestern Railroad for many years; died March 5, aged 78, in a motor car accident.

Ronald Bradshaw Kieffer * Toledo, Ohio; Ohio State University College of Medicine, Columbus, 1937; formerly practiced in Napoleon, Ohio, where he was county coroner; served on the staff of the William W. Roche Memorial Tuberculosis Hospital; died March 1, aged 39, of tuberculosis.

Second Herbert Large, Cleveland; Trinity Medical College, Toronto, Canada, 1893; specialist certified by the American Board of Otolaryngology; member of the American Academy of Ophthalmology and Otolaryngology, of which he had been treasurer and comptroller, American Laryngological Association and American Laryngological, Rhinological and Otolological Society; on the staff of St. Vincent Charity Hospital, where he died in March, aged 76, of coronary insufficiency, Buerger's disease and glaucoma.

Jacques Lewinski, Brooklyn; Friedrich-Wilhelms-Universität Medizinische Fakultät, Berlin, Prussia, Germany, 1912; died in the Bushwick Hospital March 5, aged 61, of coronary disease.

William Bruce Lunsford, Winchester, Mass.; Vanderbilt University School of Medicine, Nashville, Tenn., 1913; served during World Wars I and II; formerly on the staffs of various Veterans Administration hospitals; died March 6, aged 58, of hypertensive encephalopathy.

Asa Calvier De McClellan, Lockland, Ohio; Meharry Medical College, Nashville, 1909; died February 4, aged 67, of heart disease.

Kenith Smith McIntyre * Hastings, Mich.; University of Michigan Medical School, Ann Arbor, 1925; served during World War II; past president of the Barry County Medical Society; affiliated with Pennock Hospital; died February 20, aged 47.

Lewis Steele McQuade, Quincy, Mass.; Tufts College Medical School, Boston, 1907; member of the American Medical Association; served during World Wars I and II; affiliated with the Veterans Administration Hospital; died in St. Margaret's Hospital, Boston, March 10, aged 66, of subacute virus hepatitis.

Charles Allen McWilliams * Gulfport, Miss.; Medical Department of Tulane University of Louisiana, New Orleans, 1913; specialist certified by the American Board of Otolaryngology; member of the American Academy of Ophthalmology and Otolaryngology; fellow of the American College of Surgeons; served during World War I; on the staff of Memorial Hospital, where he died March 9, aged 61, of cerebral hemorrhage.

Edwin Herman Maercklein, Ashley, N. D.; Milwaukee Medical College, 1903; served during World War I; died in Veterans Administration Hospital, Minneapolis, March 7, aged 68, of bronchogenic carcinoma, squamous cell, with metastases to lung and kidney.

Ralph Justin Malott * Scottsbluff, Neb.; Northwestern University Medical School, Chicago, 1920; on the staff of St. Mary's Hospital and the Western Nebraska Methodist Episcopal Hospital, where he died February 16, aged 56, of pulmonary edema.

Elviro Mancusi-Ungaro * Newark, N. J.; University and Bellevue Hospital Medical College, New York, 1917; consulting pediatrician to the Essex County Sanatorium; on the staff of St. James and the American Legion hospitals; died March 9, aged 55, of portal cirrhosis.

Kossuth A. Mayer, Lower Peach Tree, Ala.; Memphis (Tenn.) Hospital Medical College, 1900; member of the American Medical Association; member of the board of censors of the Medical Association of the State of Alabama; died March 3, aged 71, of coronary thrombosis.

Harold Abiud Miller ☉ Lansing, Mich.; University of Michigan Medical School, Ann Arbor, 1916; died in St. Lawrence Hospital March 2, aged 57, of hypertensive heart disease.

William Mitchell, Needham, Mass.; McGill University Faculty of Medicine, Montreal, Canada, 1894; died March 15, aged 76.

Neil C. Monroe, Rogers City, Mich.; Medical College of Indiana, Indianapolis, 1898; died February 26, aged 76, of cerebral thrombosis and cardiac embolism.

Lucius D. Morgan, Gladys, Va.; Medical College of Virginia, Richmond, 1903; member of the American Medical Association; died March 10, aged 78, of carcinoma of the kidney and bladder.

Byron O. Mork Sr., ☉ Worthington, Minn.; Minneapolis College of Physicians and Surgeons, medical department of Hamline University, 1907; on the staff of Worthington Hospital; died March 2, aged 81, of cerebral arteriosclerosis.

Joseph Patrick Mulhern ☉ Worcester, Mass.; Tufts College Medical School, Boston, 1918; fellow of the American College of Surgeons; served during World War I; examining physician for local board 164 during World War II; visiting surgeon, orthopedic service, St. Vincent Hospital; on the courtesy staff, orthopedics, Hahnemann Hospital; consulting surgeon, orthopedics, Worcester City Hospital, where he was president of the board of trustees, died March 6, aged 57, of aortic stenosis.

Franklin Spilman Newell, Boston; Harvard Medical School, Boston, 1896; professor of clinical obstetrics emeritus at his alma mater; member of the American Medical Association; member and past president of the American Gynecological Society; served as chief of staff and trustee of Boston Lying-in Hospital; died March 3, aged 77, of carcinoma of the stomach.

David Nussbaum, Hilltown, Pa.; Medizinische Fakultät der Universität Wien, Austria, 1906; specialist certified by the American Board of Otolaryngology; formerly on the faculty of the Graduate School of Medicine, University of Pennsylvania in Philadelphia, where he was on the staffs of Northern Liberties and Mount Sinai hospitals; died in Haver-town, recently, aged 63, of coronary thrombosis.

Madison Knox Patton, Selma, Ala.; Medical Department of Tulane University of Louisiana, New Orleans, 1891; died February 16, aged 80, of chronic endocarditis and myocarditis.

Samuel Charles Pierce, Richmond, Calif.; University of Louisville (Ky.) Medical Department, 1900; died in Martinez, February 13, aged 78, of carcinoma of the pancreas, acute cholangitis and cholecystitis.

Bradbury Norton Robinson, St. Louis, Mich.; St. Louis University School of Medicine, 1908; died in St. Petersburg, Fla., March 7, aged 65, of heart failure.

Orville Rockwell ☉ Sunnyside, Wash.; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1906; superintendent of the Nebraska Sanitarium in Lincoln from 1907 to 1913; chief surgeon, Boulder-Colorado Sanitarium from 1931 to 1936; died suddenly, March 4, aged 69, of coronary occlusion.

Cuthbert Harry Rogerson ☉ Baltimore; L.R.C.P., London and M.R.C.S., England, 1931; served as director of Seton Institute, formerly known as Mount Hope Retreat; at one time medical superintendent of Cassel Hospital, Swaylands, England; died February 10, aged 39, of glioblastoma.

Carl Webber Rosenbloom, Holyoke, Mass.; Tufts College Medical School, Boston, 1909; member of the American Medical Association; died March 2, aged 64, of bulbar paralysis.

Frank Tipton Rudy, Columbus, Ohio; Medical College of Indiana, Indianapolis, 1892; died in Grant Hospital March 2, aged 83, as the result of a fall.

William Van Buren Saul, Montpelier, Miss.; University of Louisville (Ky.) Medical Department, 1880; member of the American Medical Association; died February 4, aged 91.

Arthur Sayer ☉ New York; Columbia University College of Physicians and Surgeons, New York, 1919; associate professor of dermatology at the New York University College of Medicine; specialist certified by the American Board of Dermatology and Syphilology; served in the U. S. Navy during World War II; affiliated with the U. S. Naval Hospital in St. Albans, N. Y., Mount Sinai Hospital and Morrisania City Hospital; died February 22, aged 55, of coronary thrombosis.

Samuel Benjamin Scholz ☉ Jenkintown, Pa.; Denver and Gross College of Medicine, 1905; fellow of the American College of Physicians; veteran of the Spanish-American War; served as president of the Association of Life Insurance Medical Directors; retired medical director and formerly second vice president of the Penn Mutual Life Insurance Company in Philadelphia; died March 4, aged 70, of coronary occlusion.

John Daniel Smyser, Florence, S. C.; Maryland Medical College, Baltimore, 1912; member of the American Medical Association; served overseas during World War I; during World War II received congressional commendation for his services as regional director of Selective Service and procurement and assignment; colonel, medical reserve corps, U. S. Army, not on active duty; medical director and superintendent of Saunders Memorial Hospital; died February 15, aged 61, of coronary thrombosis.

Berton A. Souders, Cambridge, Ohio; Starling Medical College, Columbus, 1892; member of the American Medical Association; for many years member of the city school board; died March 3, aged 82, of cerebral hemorrhage.

Henry Tucker Spelman, Brooklyn; Columbia University College of Physicians and Surgeons, New York, 1907; member of the American Medical Association; on the staffs of Kings County Hospital and the Norwegian Hospital, where he died March 3, aged 64, of ulcerative colitis and heart disease.

William H. Spiller, New York; University of Virginia Department of Medicine, Charlottesville, 1894; served in the Spanish-American War, Boxer Rebellion and Philippine Insurrection; formerly superintendent of Lying-in Hospital of the city of New York; at one time affiliated with New York Hospital, where he died February 23, aged 76, of hypertensive and arteriosclerotic cardiovascular disease.

Elizabeth Sweet, Redlands, Calif.; Cornell University Medical College New York, 1901; died March 9, aged 78, of chronic myocarditis.

Adolph Emil Voegelin ☉ Detroit; Medico-Chirurgical College of Philadelphia, 1916; specialist certified by the American Board of Internal Medicine; fellow of the American College of Physicians; member of the American Heart Association; on the staff of Evangelical Deaconess Hospital; served during World War I; died February 22, aged 55, of myocardial infarction.

Allan Estes Walker ☉ Ferris, Texas; University of Texas School of Medicine, Galveston, 1933; served in British Ministry of Health from 1941 to 1942; officer during World War II; died March 3, aged 39, of thrombosis.

John Henry Wallinga, St. Paul; University of Minnesota Medical School, Minneapolis, 1919; secretary-treasurer of Samaritan Hospital; died in Belmond, Iowa, February 8, aged 58, in an automobile accident.

Ancrum Waring Jr., ☉ Sanford, Mich.; Medical College of the State of South Carolina, Charleston, 1942; member of the Medical Society of the State of Pennsylvania; served during World War II and received battle stars for Normandy, France, Northern France, Ardennes and a silver star; on the staff of the Midland (Mich.) Hospital, died in the Saginaw (Mich.) General Hospital March 7, aged 32, of injuries received when a motorcycle on which he was riding skidded.

Alfred Winslow Wheeler ☉ Norfolk, N. Y.; Columbia University College of Physicians and Surgeons, New York, 1902; died February 28, aged 74, of acute coronary thrombosis.

Roland Thatcher White ☉ Orlando, Fla.; Chicago Homeopathic Medical College, 1886; died in the Florida Sanitarium and Hospital March 5, aged 84, of carcinoma of sigmoid with widespread metastases.

Eugene Maximilian Wiedenmann, Topeka, Kan.; Albert-Ludwigs-Universität Medizinische Fakultät, Freiburg, Baden, Germany, 1914; member of the American Medical Association and the American Psychiatric Association; assistant superintendent of Topeka State Hospital; died January 29, aged 59.

DIED WHILE IN MILITARY SERVICE

Thomas Hugh Spyker, Plain City, Ohio; Ohio State University College of Medicine, Columbus, 1946; interned at the Shreveport Charity Hospital in Shreveport, La.; began active duty as a first lieutenant in the medical corps, Army of the United States, on May 15, 1947; promoted to captain; died in Tilton General Hospital, Fort Dix, N. J., March 27, aged 26.

Foreign Letters

ITALY

(From Our Regular Correspondent)

FLORENCE, March 31, 1949.

Treatment of Diseases of the Liver

At the inauguration of the academic year of the Academy of Sciences of Ferrara, Professor Dogliotti, University of Turin, reported on "Treatment of Diseases of the Liver." The speaker discussed numerous important researches conducted in America, the results of which led to new problems in diagnosis and therapy of chronic hepatopathy with a cirrhotogenous background. The most convenient treatment may be considered as follows: The amount of protein should be increased in the diet and the glycide rate should be maintained at a high level. According to some authors the amount of lipids should be reduced, but according to others it may vary around a relatively high level. In general, a decisively increased amount of alimentary calories should be given—i. e., from 3,000 to more than 3,500, with the patient at rest. In addition, a generous increase in lipotropic substances, particularly choline and methionine, is required. This therapy does not exclude the use of other means which experience has shown effective in hepatopathy, such as hepatic extracts, vitamin B complex, vitamin C and corticoadrenal extracts. Favorable statistics furnished by American schools have been confirmed by the results obtained in the institute which is under the direction of the speaker. It is, however, too early to draw definite conclusions in this highly complex field, in which symptomatology and therapy are not very clear.

Association of Legal and Industrial Medicine

This association held a meeting in Naples under the chairmanship of Professor Palmieri. Sessa reported on his histologic research on rabbits and guinea pigs subjected to acute experimental intoxication with trinitrotoluene. The poison was administered by mouth on alternate days in doses of 0.20 to 0.50 Gm., with a total dose of 0.80 to 2 Gm. in four to eight days. Other animals were subjected to chronic intoxication with weekly doses of 0.01 Gm. to 0.02 Gm. with a total dose of 0.04 to 0.14 Gm. in twenty-four to fifty-two days.

On microscopic examination all the organs appeared injured, showing vascular congestion and occasional hemorrhages, and degenerative processes from turbid swelling to hyaline and fatty degeneration. The toxic process was characterized also by infiltration phenomena and mesenchymal reactions with noteworthy differences between the acute form, in which degenerative-necrotic elements prevailed and the chronic form, in which congestion and reaction were predominant.

During the various phases, changes were most evident in the kidney, liver and adrenal glands; next in order were those in the lungs, spleen, stomach and heart.

Prisco presented a report on cardiopathy. The statistics on the disabling and compensable morbidity from cardiopathy show among workmen an increase of about 2.65 per cent in the post-war period as compared with the prewar period. This increase, the speaker stated, was caused mostly by hardship among laborers, whose conditions of work had become particularly harassing. The speaker recommended a rigorous orientation concerning those suffering from cardiopathy, withdrawing them from heavy work which could disturb the circulatory compensation.

Graziani studied the oxygen consumption of the liver, of the kidney and of the bone marrow in the experimental intoxication by trinitrotoluene. Using Warburg's technic, he demonstrated a conspicuous increase in the consumption of oxygen by the liver and the bone marrow as compared with that in the control animals, while the respiratory quotient of the kidney was not

modified. As far as the liver is concerned, the catalyzing action of oxidation was called on to explain the excess of the consumption of oxygen; with regard to the bone marrow, the increased consumption may depend on the medullary hyperplasia which was observed on microscopic examination.

Peptic Ulcer and Electroshock

At the Association of Hospital Physicians of Genoa, Drs. Corbella and Piredda presented a preliminary note on the treatment of peptic gastroduodenal ulcer by means of electroshock.

The speakers recalled the first communications by Cushing in 1932, who had observed the occurrence of peptic ulcers as sequelae of surgical intervention on the base of the brain. There followed the investigations by Fulton, Hoff and Sheehan and by Roussy and Mossinger which resulted in the occurrence of bleeding ulcers in the gastroduodenal mucosa as sequelae of lesions produced in the diencephalon and in the prefrontal cortex of experimental animals.

The speakers recalled the symptoms of peptic gastroduodenal ulcer by which it resembles syndromes due to dysfunction of encephalic centers. They reported on electroshock therapy of 12 patients with gastroduodenal ulcer which had been demonstrated on roentgenologic examination. In all the subjects thus treated the painful symptoms and the dyspeptic disturbances subsided after the first treatment, and after the third treatment at the latest. The improvement was accompanied by a pronounced reduction of the free and combined hydrochloric acid. In a second report the speakers will present the late results of this therapeutic trial.

THE NETHERLANDS

(From Our Regular Correspondent)

AMSTERDAM, April 26, 1949.

Numerus Clausus or Numerus Fixus?

In the annual assembly of the Society of Friends of the University of Amsterdam the former President, Prof. J. J. van Loghem, gave a talk on the problem of the overcrowding of the universities. He treated this problem especially from the medical point of view. At this time there are 6,700 medical students—i. e., more than the total number of the medical profession in Holland. The medical faculties are overtaxed; consequently the quality of the medical training is in danger.

Professor van Loghem pointed out that *numerus clausus*—the university admits a limited number of students—is an attractive measure from the point of view of the professors and of the students admitted. On the other hand, it is an *unsocial measure*, as it does not reckon with the needs of the community. The speaker considered it preferable for the Government to fix each year a number representing the doctors expected to be wanted in the near future and to bring up the equipment of the faculties to this level. For this number Professor van Loghem coined the word *numerus fixus*, a conception intrinsically different from *numerus clausus*.

Low Mortality Figures

Professor René Sand, the Belgian pioneer of social medicine, considers the low mortality figures of his Dutch neighbor in *Bruxelles Médical*. As important causal factors he mentions the Dutch law on infectious diseases, the splendid nursing and educational work of the Green, White and White-Yellow Crosses, the organization of the national campaign against tuberculosis, the schools for social workers, the drinking water policy, the system of social insurance, the housing law and the nutrition of the population. Even in 1930 the children of the unemployed in Holland showed normal development.

This subject is also treated in the "Epidemiological and Vital Statistics Report of the World Health Organization." An article by Dr. Stowman on "The Declining Deathrate" characterizes

the Netherlands as "a class by itself, having the lowest general death rate in the world, in spite of its high birth rate which increases the age groups under 1 year having a high mortality risk. In 1947 the death rate was only 8.1 per 1,000, in 1948 7.4 per 1,000. It had never previously been considered possible to attain such low general death rates in a population of nearly ten millions without striking peculiarities in regard to economic or age constitution. An intensive investigation of this phenomenon and its possible underlying causes may well lead to useful results."

Two New Medical Journals

An editorial in the *Nederlandsch Tijdschrift voor Geneeskunde* gives a hearty welcome to two new periodicals, both of them quarterly journals: *Archivum Chirurgicum Neerlandicum* and *Documenta Neerlandica et Indonesica de Morbis tropicis*.

The former is published by a Collegium chirurgicum representing general surgery, urology, chest surgery, neurosurgery, plastic surgery and anesthesia. The board of editors is made up of four professors of surgery (Amsterdam, Leyden, Utrecht, Groningen), with Prof. I. Boerema as chairman and Dr. H. R. Bax (Arnhem) as secretary. The first number contains eight original articles, excellently illustrated, all in English.

The new *Quarterly Journal of Tropical Medicine and Hygiene* (this is its subtitle) is published by a special foundation, Prof. J. E. Dinger (Leyden) being the chairman of the managing committee. Prof. N. H. Swellengrebel (Amsterdam) is the chairman of the editorial board and Dr. Ch. W. F. Winckel is the editor.

In his introduction Professor Swellengrebel lays stress on the fact that, although the scientific achievements of the Dutch in the Netherlands Indies have been rather creditable as far as quality is concerned, it is to be regretted that they have neglected to render these achievements intelligible to their colleagues abroad. The appearance of this journal in English shows their intention of mending their ways in the future.

Centenary of the Medical Association

Next July the Netherlands Medical Association, which has its headquarters in Amsterdam, will celebrate the hundredth anniversary of its foundation. Eighty per cent of the medical profession are members of the association, constituting three subdivisions: the general practitioners, the specialists and the medical officers.

In Holland the ratio of physicians to the population is 89:100,000; the analogous numbers for the United States is 104. The celebration in July will last three days. Its program contains a two day scientific congress, an automobile rally for doctors on their way to Amsterdam, a reception by the municipality, a performance in the municipal theater, a medical-historical exhibition and many other entertainments. The board of the association expects many guests from all parts of the world.

BUENOS AIRES

(From Our Regular Correspondent)

Feb. 26, 1949.

Coca Chewing

The Society for Forensic Medicine and Toxicology in Buenos Aires voted unanimously that it is erroneous to admit that chewing coca leaves is useful or indispensable to life in the Andean altitudes. Medical observations have repeatedly shown that the white men who live at the same altitudes—with few exceptions—do not chew, with the consequence that they work much better. However, it must be recognized that the "coqueo" is an old and deeply rooted habit among the Andean Indians. Chewing coca leaves day after day and in the accustomed quantities results in chronic intoxication, which contributes much to the physical and mental degeneration of the Indian

race. The final goal must be the suppression of this habit, but the practical proceeding must be gradual, together with and during a definite improvement of the general living conditions for the native populations. It was noted that the resolution was voted on just at the moment when the United Nations are investigating the effect of chewing coca leaves on the inhabitants of certain regions of Latin America.

Thoracolumbar Sympathectomy in Hypertension

Drs. A. C. Taquini, A. Villamil, J. R. E. Suárez and J. M. González Fernández determined the blood volume in 5 hypertensive persons (3 of grade II, 2 of III) before and after thoracolumbar sympathectomy. They found an increase due to elevation of plasma and globular volume, but no significant modification of the extracellular liquid. In almost all cases the venous pressure did not vary. The circulation time remained unaltered in 3 cases and was prolonged in 2. Serum proteins remained within normal limits. Seventeen to one hundred and thirty-seven days after the second operation the minute volume was diminished in the 3 cases of degree II, the medium arterial pressure somewhat diminished, the total peripheral resistance increased and the cardiac output diminished. In the cases of degree III the minute volume was slightly augmented and the medium arterial pressure and peripheral resistance diminished, while the cardiac output remained practically unchanged. Later on, eight months to two years after the second operation, the 3 patients of degree II and 1 of III showed a similar picture: the minute volume was like that before the operation, and the medium pressure, the peripheral resistance and the cardiac output showed values like those before the operation or somewhat less. In the other case of degree III the minute volume and the cardiac output decreased below the preoperative level while the medium pressure and the peripheral resistance increased, the latter above preoperative figures.

Renal Lesions of Experimental Diabetes

Dr. V. G. Foglia, of the Houssay-Institute in Buenos Aires, together with Drs. R. E. Mancini and A. F. Cardozo, found that in extirpating 95 per cent of the pancreas of male and female rats, lesions appear only after two months, the glycemia remaining normal during this time; the same is the case after extirpation of more than 95 per cent (although hyperglycemia appears immediately). After the two months, the lesions are found in all of the rats; first an increase occurs in hyaline in the arterioles and the glomerular capillaries; later reticulin fibers appear in these vessels, and finally sclerosis. These glomerular lesions are diffuse and almost always serious, like those of diabetic patients, although without showing the hyaline masses.

Congress of Ophthalmology

The fourth National Congress of Ophthalmology was held in Mar del Plata. Among those present were Drs. Castroviejo and Conrad Berens of New York, A. R. Beese from Columbia, G. A. Hanson of Seattle; also specialists from France, Spain and Switzerland and delegates from many Latin American countries. There were four exhibitions: a scientific one by the four Argentine universities, one of social work, made by the Ministry of Public Health, an industrial one, and one of books and periodicals. The chairman was the titular professor for ophthalmology of the University of La Plata, Dr. Diego M. Argüello. The main subject was "Eye Tumors."

Causes of Death

In the city of Buenos Aires the figure for tuberculosis remained more or less the same: 2,735 in 1939 and 2,359 in 1947; that for cancer increased from 3,696 to 4,772 in 1947, but that for circulatory diseases increased steadily, from 5,698 in 1939 to 8,093 in 1947.

Brief Items

The third South American Congress of Neurosurgery will be held in Buenos Aires in March 1949. The main subjects will be surgical treatment of epilepsy; hemostasis in neurosurgery, and lobectomies. The president is Prof. Dr. Ramón Carrillo, Minister of Health, who is titular professor of neurosurgery in Buenos Aires.

The prize Mariano R. Castex of the National Academy of Medicine of Buenos Aires has been granted to Drs. Egidio S. Mazzei and Diego Taylor Gorostiaga y Elyeser Magalhaes, for their paper "El embolismo pulmonar en clínica, obstetricia y cirugía."

Correspondence

ANTABUS® FOR ALCOHOLISM

To the Editor:—In THE JOURNAL, April 2, page 954, there is a note on antabus® entitled "Antabus for Alcoholism," written by Dr. J. Murray Scott, medical director of Ayerst, McKenna & Harrison, Ltd.

We wish to call attention to the fact that the Monsanto Chemical Company has been manufacturing ethyl thiurad®, which is chemically tetraethyl thiuram disulfide and referred to as antabus® by Dr. Scott, as an item of commerce for the rubber industry for a number of years. The chemical is an old one, and we also wish to call attention to the fact that Monsanto has been supplying experimental quantities of highly purified tetraethyl thiuram disulfide to responsible ethical pharmaceutical houses capable of conducting qualified experiments on its value in the treatment of alcoholism.

We too have recognized the sociologic significance of this development and have carefully screened requests for this material. It is interesting to note that our medical people had observed for some time that workers on this compound, as well as other chemicals for the rubber industry, developed intolerance to alcohol. We are glad that the Danish workers have carried out their work showing the possible medical value in the treatment of alcoholism.

Since the articles referred to by Dr. Scott have appeared in the literature, however, we have been supplying qualified groups of investigators requesting the material for pharmacologic and clinical purposes.

HAL G. JOHNSON, PH.D.
Monsanto Chemical Co.
St. Louis.

MEDICINE IN THE PANAMA CANAL ZONE

To the Editor:—I have recently returned from a trip to the Canal Zone as a consultant to the Medical Department of the United States Army. I visited the Gorgas Hospital at Ancon, the Army Hospital at Fort Clayton, the Naval Hospital at Coco Solo and the Army Hospital at Colon.

I was afforded every opportunity to study the ophthalmic care given the patients, who included Army and Navy personnel, their dependents and the civilian employees of the government. In ten days, packed with activities, the over-all impression that I have carried away is that of excellent care given the patients, the high professional quality of the medical officers responsible for this care, and their hunger for professional shop talk.

There are weak spots to be sure; it could be scarcely otherwise when we consider that the Medical Department is understaffed at the moment and contains a number of men who have but recently completed their internships. In spite of these shortages, which are not too serious, there is evident a desire by the medical officers to give the best they can and to keep their professional acumen and keenness to a high level.

The facilities that are supplied the ophthalmologists are equal to those in many large universities and clinics and better than some. I was also impressed with the care that is taken of these necessary tools for good work.

Gorgas Hospital is, of course, the major installation. There is an enormous quantity of clinical material and an exciting variety of rare and unusual cases seldom seen outside of large charity hospitals. The opportunity to study and learn is endless, and most of the doctors have taken advantage of this chance. The atmosphere of the place is more like that of a well run medical school and hospital than any Government hospital with which I am familiar. The library is superb and contains not only an adequate number of up-to-date medical textbooks and systems, but a much larger variety of the current medical journals than are usually found in a general hospital. The good will of the commanding officer and his obvious desire to provide the best tools with which the doctors can do their jobs, unhampered by rules, regulations and red tape, are reflected throughout the institution. The result is, naturally, a happy and peaceful aura about the place that makes for contented work.

To draw together the civilian and Army doctors in this manner is a thrilling experience and cannot help being beneficial to the patients, the medical officers and the civilian consultants alike. The Medical Department of the Army is to be congratulated for adopting this fine program.

DERRICK VAIL, M.D., Chicago.

"LITTLE STROKES"

To the Editor:—Sophocles (C. 497 B. C.—405 or 406 B. C.) died suddenly and happily—probably from overexertion while giving a public reading of his tragedy "Antigone" or/and from overexcitement and joy when he was proclaimed victor in a contest, after reading the play or, as is altogether likely, from coronary thrombosis or a "little stroke" in his advanced old age, rather than from choking on an unripe grape!

Of interest, now, is the fact that Sophocles 2,400 years ago knew of, and wrote about, "little strokes." In his "Oedipus Tyrannus," 961, Sophocles says, "A little stroke puts aged bodies to sleep." Thus Walter C. Alvarez, of the Mayo Clinic, has recently revived the term "little stroke!"

I might add, too, that the old experienced navigator or pilot Phrontis, son of Onetor and Menelaus' boatman (Homer's Odyssey, Book III), dropped dead suddenly from overexertion with the steering oar of the moving ship (against the storming winds) within his hands. This sudden death was caused by coronary thrombosis or perhaps by Sophocles' "little stroke" rather than by Phoebus Apollo's gentle darts! Archangelus Piccolhomini (1525-1586) is of the opinion that "the obstruction of the little cord or vessel [or "nerve"] which goes to the heart, suddenly brought on, is the cause from which some persons go suddenly and unexpectedly out of this world."

HYMAN I. GOLDSTEIN, M.D., Camden, N. J.

INCIDENCE OF UNDULANT FEVER

To the Editor:—To determine the incidence of undulant fever in a private practice in the Stock Yards District of Chicago, we studied the blood samples of 100 consecutive patients between the months of June 1948 and January 1949. Of these 57 per cent were female and 43 per cent male, the ages varying from 19 to 63. All laboratory tests were done by the Division of Laboratories of the State of Illinois, Department of Public Health. Only one reaction was positive, and this in a dilution of 1 to 5,120, and 1 person had recovered from acute brucellosis five years previously.

FREDERICK STENN, M.D.
JOSEPH PLESTINA, M.T.
Chicago.

Medical Examinations and Licensure

COMING EXAMINATIONS AND MEETINGS

NATIONAL BOARD OF MEDICAL EXAMINERS

NATIONAL BOARD OF MEDICAL EXAMINERS: *Parts I and II.* Various Centers. June 20-22, Sept. 12-14. *Part III.* June, various centers. Exec. Sec., Mr. E. S. Elwood, 225 S. 15th St., Philadelphia 2.

EXAMINING BOARDS IN SPECIALTIES

AMERICAN BOARD OF ANESTHESIOLOGY, INC. *Written.* Various Centers. July 15. *Oral.* Oct. 16-20. Sec., Dr. Curtiss B. Hickcox, 745 Fifth Ave., New York 27.

AMERICAN BOARD OF INTERNAL MEDICINE: *Oral.* Philadelphia, June 1-3. *Written.* Oct. 17. Asst. Sec.-Treas. Dr. W. A. Werrell, 1 Main St., Madison 3, Wis.

AMERICAN BOARD OF NEUROLOGICAL SURGERY: *Oral.* Chicago, June 1949. Sec., Dr. W. J. German, 310 Cedar Street, New Haven, Conn.

AMERICAN BOARD OF OPHTHALMOLOGY: *Oral.* New York, June 11-15; St. Louis, Oct. 15-19; Boston, December. Sec., Dr. S. J. Beach, 56 Ivie Rd., Cape Cottage, Maine.

AMERICAN BOARD OF ORTHOPAEDIC SURGERY. *Part II.* New York City, Jan. 1950. Final date for filing application for Part II is Aug. 15. Address: Sec.-Treas., Dr. Harold A. Sofield, Room 1856, 122 S. Michigan Ave., Chicago.

AMERICAN BOARD OF OTOLARYNGOLOGY: Chicago, Oct. 4-7. Sec., Dr. D. M. Lierle, University Hospital, Iowa City.

AMERICAN BOARD OF PEDIATRICS: *Written.* Under local monitors, June 24. *Oral.* Cleveland, Sept. 16-18; New York City, Oct. 21-23; Chicago, Dec. 9-11. Sec., Dr. John McK. Mitchell, 6 Cushman Road, Rosemont, Pa.

AMERICAN BOARD OF PHYSICAL MEDICINE. Philadelphia, June 4-5. Sec., Dr. R. L. Bennett, 30 N. Michigan Blvd., Chicago.

AMERICAN BOARD OF PLASTIC SURGERY: Examinations are given in June and November of each year in the home town of applicants. Sec.-Treas., Dr. Louis T. Byars, 400 Metropolitan Bldg., St. Louis, Mo.

AMERICAN BOARD OF PSYCHIATRY AND NEUROLOGY, INC. *Special Examination.* October. Place to be announced. Final date for filing application is July 15. December, New York City. Sec. Dr. F. J. Braceland, 102-110 Second Ave., S.W., Rochester, Minn.

AMERICAN BOARD OF RADIOLOGY. Atlantic City, June 2-4. Sec., Dr. B. R. Kirklin, 102-110 Second Ave., S.W., Rochester, Minn.

AMERICAN BOARD OF SURGERY: *Written.* Various Centers, October 26. Final date for filing application is July 1. Sec., Dr. J. Stewart Rodman, 225 S. 15th St., Philadelphia.

AMERICAN BOARD OF UROLOGY: *Written.* December. *Oral and Clinical.* Chicago, Feb. 11-15. Final date for receipt of case histories is Sept. 1, 1949. Sec., Dr. Harry Culver, 7935 Sunnyside Road, Minneapolis 18, Minn.

BOARDS OF MEDICAL EXAMINERS

ALABAMA: *Examination.* Montgomery, June 28-30. Sec., Dr. D. G. Gill, 519 Dexter Ave., Montgomery.

ARKANSAS: * *Little Rock*, June 9-10. Sec., Dr. L. J. Kosminsky, Texarkana. *Eclectic.* Little Rock, June 9-10. Sec., Dr. C. H. Young, 1415 Main St., Little Rock.

CALIFORNIA: *Examination.* San Francisco, June 21-23. Sec., Dr. Frederick N. Scatena, 1020 N St., Sacramento.

COLORADO: * *Examination.* Denver, June 20-22. Sec., Dr. W. W. King, 831 Republic Bldg., Denver.

CONNECTICUT: * *Examination.* Hartford, July 1. Secretary to the Board, Dr. Creighton Barker, 258 Church Street, New Haven.

DELAWARE: Dover, July 12-14. Sec., Dr. J. S. McDaniel, 229 South State St., Dover.

FLORIDA: * *Examination.* Jacksonville, June 26-28. Sec., Dr. Frank D. Gray, 12 N. Rosalind Ave., Orlando.

GEORGIA: *Examination.* June 8-9, Atlanta and Augusta. *Reciprocity.* Atlanta, June. Sec., Mr. R. C. Coleman, 111 State Capitol, Atlanta.

GUAM: *Endorsement.* Agana, Last Friday of each month. Sec., Capt. C. K. Youngkin, Dept. of Public Health, Guam. % F.P.O., San Francisco, Calif.

HAWAII: * *Examination.* Honolulu, July 11-14. Sec., Dr. S. E. Doolittle, 881 S. Hotel St., Honolulu.

IDAHO: Boise, July 11-13. Sec., Miss Estella S. Mulliner, Bureau of Occupational Licenses, 355 State House, Boise.

ILLINOIS: Chicago, June 28-30. Superintendent of Registration, Mr. Fred W. Ruegg, Capitol Building, Springfield.

INDIANA: *Examination.* Indianapolis, June 21-23. Sec. Board of Medical Registration and Examination, Dr. Paul R. Tindall, 416 K. of P. Bldg., Indianapolis.

IOWA: * *Examination.* Iowa City, June 13-15. Sec., Dr. M. A. Royal, 506 Fleming Bldg., Des Moines.

KANSAS: Kansas City, June 1-2. Sec., J. F. Hassig, 905 North 7th St., Kansas City, Kans.

KENTUCKY: *Examination.* Louisville, June 15-17. Sec., Dr. Bruce Underwood, 620 S. 3rd St., Louisville 2.

LOUISIANA: New Orleans, June 6-8. Sec., Dr. Roy B. Harrison, 1507 Ilibernia Bank Bldg., New Orleans.

MAINE: Augusta, July 5-6. Sec., Dr. Adam P. Leighton, 192 State St., Portland.

MARYLAND: *Examination.* Baltimore, June 21-24. Sec., Dr. Lewis P. Gundry, 1215 Cathedral St., Baltimore. *Homeopathic.* Baltimore, June 14-15. Sec., Dr. John A. Evans, 612 West 40th St., Baltimore.

MASSACHUSETTS: *Written.* Boston, July 12-15. Sec., Dr. George L. Schadt, 413 E. State House, Boston.

MICHIGAN: * *Written.* Detroit and Ann Arbor, June 13-15. Sec., Dr. J. Earl McIntyre, 203 Hollister Bldg., Lansing.

MINNESOTA: * *Minneapolis*, June 21-23. Sec., Dr. Julian F. DuBois, 230 Lowry Medical Arts Bldg., St. Paul 2.

MISSISSIPPI: Jackson, June 21-22. Asst. Sec., Dr. R. N. Whitfield State Board of Health, Jackson.

MISSOURI: *Examination.* St. Louis, June 8-10. Exec. Sec., Mr. John A. Hailey, Box 4, Jefferson City.

MONTANA: Helena, Oct. 3-5. Sec., Dr. Otto G. Klein, First National Bank Bldg., Helena.

NEBRASKA: * *Examination.* Omaha, June 6-8. Dir., Bureau of Examining Boards, Mr. Oscar F. Humble, 1009 State Capitol Building, Lincoln 9.

NEW HAMPSHIRE: Concord, Sept. 8-9. Sec., Dr. J. S. Wheeler, 107 State House, Concord.

NEW JERSEY: *Examination.* Trenton, June 21-24. Sec., Dr. E. H. Hallinger, 28 West State Street, Trenton 8.

NEW YORK: Albany, Buffalo, New York and Syracuse, June 28-July 1. Sec., Dr. Jacob L. Lochner, 23 South Pearl St., Albany.

NORTH CAROLINA: *Examination.* Raleigh, June 23-25. Sec., Dr. Ivan Proctor, 226 Hillsboro St., Raleigh.

NORTH DAKOTA: * *Written*, Grand Forks, July 5-7. *Reciprocity*, Grand Forks, July 8. Sec., Dr. C. J. Glaspel, Grafton.

OHIO: *Examination.* Columbus, June 15-18. *Endorsement*, Columbus, July 5. Sec., Dr. H. M. Platter, 21 W. Broad St., Columbus.

OKLAHOMA: * *Oklahoma City*, June 8-9. Sec., Dr. Clinton Gallaher, 813 Braniff Bldg., Oklahoma City.

OREGON: * *Examination.* Portland, July 7-9. *Reciprocity.* Portland, July 22. Exec. Sec., Mr. Howard I. Bobbitt, 609 Failing Building, Portland.

PENNSYLVANIA: *Examination.* Philadelphia and Pittsburgh, July. Acting Sec., Mrs. B. G. Steiner, 351 Education Bldg., Harrisburg.

PUERTO RICO: San Juan, Sept. 6-10. Sec., Dr. Luis Cueto Coll, Box 3717, Santurce.

RHODE ISLAND: * *Examination.* Providence, July 7-8. Chief, Mr. Thomas B. Casey, 366 State Office Bldg., Providence.

SOUTH CAROLINA: *Examination.* Columbia, June 27-29. *Endorsement* Columbia, June 27-28, Aug. 1, Sept. 5 and Oct. 3. Sec., Dr. N. B. Heyward, 1329 Blanding St., Columbia.

SOUTH DAKOTA: * *Examination.* Pierre, July 19. Sec., Dr. G. J. Van Heuvelen, Capitol Bldg., Pierre.

TEXAS: *Examination.* Austin, June 16-18. Sec., Dr. M. H. Crabb, 209 Medical Arts Bldg., Fort Worth 2.

UTAH: *Examination.* Salt Lake City, July 13-15. Sec., Dept. of Registration, Miss Rena B. Loomis, 324 State Capitol Bldg., Salt Lake City.

VERMONT: Burlington, June 21-23. Sec., Dr. F. J. Lawliss, Richford.

VIRGINIA: *Examination.* Richmond, June 17-18. *Reciprocity.* Richmond, June 16. Dr. K. D. Graves, 631 First St., S.W., Roanoke.

WASHINGTON: * *Seattle*, July. Sec., Mr. Edward C. Dohm, Department of Licenses, Olympia.

WISCONSIN: * *Examination.* Milwaukee, June 28-30. Sec., Dr. C. A. Dawson, Tremont Bldg., River Falls.

WYOMING: Cheyenne, June 20. Sec., Dr. Franklin D. Yoder, Capitol Bldg., Cheyenne.

* Basic Science Certificate required.

BOARDS OF EXAMINERS IN THE BASIC SCIENCES

ALASKA: Feb. 1950. Sec., Dr. C. Earl Albrecht, Box 1931, Juneau.

ARIZONA: Tucson, June 21. Sec., Mr. Francis A. Roy, Science Hall, University of Arizona, Tucson.

COLORADO: *Examination.* Denver, June 1-2. Sec., Dr. Esther B. Starks, 1459 Ogden St., Denver.

CONNECTICUT: New Haven, June 11. Exec. Asst., State Board of Healing Arts, Miss Mary G. Reynolds, 110 Whitney Ave., New Haven 10.

FLORIDA: *Examination.* Gainesville, June 11. Sec., Mr. M. W. Emmel, University of Florida, Gainesville.

MICHIGAN: *Examination.* Detroit and Ann Arbor, Oct. 14-15. Sec., Miss Eloise LeBeau, 101 N. Walnut St., Lansing 15.

MINNESOTA: *Minneapolis*, June 7-8. Sec., Dr. Raymond N. Bieter, 105 Millard Hall, University of Minnesota, Minneapolis.

OREGON: Portland, June 18, Sept. 3 and Dec. 3. Sec., Mr. Charles D. Byrne, State Board of Higher Education, Eugene.

SOUTH DAKOTA: Vermillion, June 3-4. Dr. G. M. Evans, 310 E. 15th St., Yankton.

TENNESSEE: Memphis, July 8-9. Sec., Dr. O. W. Hyman, 874 Union Ave., Memphis 3.

WISCONSIN: Milwaukee, June 4, Sept. 24 and Dec. 3. Sec., Prof. W. H. Barber, Ripon College, Ripon.

Bureau of Legal Medicine and Legislation

MEDICOLEGAL ABSTRACTS

Governmental Hospitals: Validity of Rules Fixing Standards for Practitioners Therein.—The plaintiff physician filed suit to restrain the defendant, Hamilton County Hospital, from interfering with, or discriminating against, him in his right to practice and perform his professional duties in the hospital. From a judgment for the physician, the hospital appealed to the appellate court of Indiana (81 N. E. [2d] 699; J. A. M. A. 139:251 [Jan. 22] 1949) and eventually to the Supreme Court of Indiana.

On Sept. 9, 1947, the board of trustees of the defendant hospital adopted certain rules regulating the qualifications which a physician must possess in order to practice medicine, surgery and obstetrics in the hospital. It was provided that "the Resident Active Medical Staff, which shall include all the physicians having an unlimited license to practice medicine in the state of Indiana and having membership in Hamilton County Professional organization of fully licensed physicians having the largest number of such physicians residing in Hamilton County" shall make up the membership of the Active Medical Staff of the hospital. "(d) 2. All appointments to the Staff and assignments to services shall be made by the Board of Trustees but only upon the recommendation of the Active Medical Staff. The Board of Trustees will either accept the recommendation of the medical staff or refer it back for further consideration with a statement of its reasons for such action: When final action has been taken by the governing body the superintendent will be authorized to transmit its decision to the candidate and to the chief of staff. . . ." Other rules provided that in order for a physician to practice in the hospital he either must be a member of this medical staff or must have a member of the medical staff associated with him in the treatment of his patient. A surgeon desiring to practice surgery in the hospital but not being a member of the surgical staff was required to be a member of the Active Medical Staff and, in addition, was required to "(b) have a certificate of internship showing one year's service as an intern in a hospital approved by the Council on Medical Education and hospitals of the American Medical Association. (c) In addition to intern training required under (b) he shall have had not less than three years of surgical training which meets the approval of the American College of Surgeons."

The plaintiff graduated from Indiana University School of Medicine in 1938 and practiced medicine in the state of Indiana from that time until June 1942, when he entered the army. He was placed on the army inactive list in January 1945 and became a resident of Noblesville, Ind., about January 1947. He was not a member of the Hamilton County Medical Society and was therefore denied membership on the Active Medical Staff of the defendant hospital. Furthermore, he did not have the intern training required to practice surgery in the hospital. He was therefore refused permission to practice medicine or surgery in the hospital.

To require membership of the plaintiff in the resident active medical staff of the defendant hospital before permitting him to practice in the hospital, said the Supreme Court, would be a reasonable requirement if such staff were provided for by reasonable rules of the hospital, or the Board of Health through its Council, as provided by the Indiana Statutes. The present rules, however, provide that the hospital can appoint new members to its staff only on recommendation of its staff. It would seem by this rule, the Supreme Court continued, that recommendation to membership may be rejected by the board, but that no one shall be made a member of the staff without such recommendation. This is an unreasonable requirement, as by it the hospital delegates to its staff a virtual veto of its right to perform one of its duties. By this arrangement the staff dictates what physicians may practice in the hospital. In so holding we are aware that courts of at least one other jurisdiction have approved of staff selection in public hospitals

by invitation from their staff. (*Selden v. City of Sterling*, 45 N. E. [2d] 329; J. A. M. A. 121:886 [March 13] 1943). With this holding we cannot agree.

It will be further noted, the Supreme Court continued, that by the involved rules, the plaintiff's right to practice in the hospital is not only conditioned on his being a member of the staff but also on his being a member of the Hamilton County Medical Society, an extragovernmental agency. His admission to this society depends entirely on the sole determination of the society. Whether he could ever become a member depends on conditions beyond his control. By this rule the hospital again delegates its power to determine what physicians may use its facilities. It amounts to a preference in favor of the society and a discrimination against those physicians who by choice or otherwise are not members of the same.

It is our conclusion, said the Supreme Court, that the complaint stated facts entitling the plaintiff to some relief; namely, the right to practice general medicine, excluding surgery, in the hospital, without being a member of the staff as here constituted, as membership on this staff can be increased only on recommendation of the staff and is limited to members of the Hamilton County Medical Society. It is our further opinion that the plaintiff is not qualified, under the valid portions of the rules now in force, to perform surgery in the hospital. We therefore affirm that portion of the judgment of the trial court which would prohibit the plaintiff from doing surgery and reverse that portion of the judgment which would prohibit the plaintiff from practicing medicine in the hospital other than surgery. Judgment was entered accordingly. *Hamilton County Hospital v. Andrews*, 84 N.E. (2d) 469 (Ind., 1949).

Medical Motion Pictures

FILM REVIEWS

Surgical Division of a Patent Ductus Arteriosus. 16 mm., color, silent, 625 feet (1 reel), showing time twenty-five minutes. Produced in 1948 by Mervin La Rue & Co., Chicago. Prepared by and procurable on loan from Willis J. Potts, M.D., The Children's Memorial Hospital, 707 Fullerton Avenue, Chicago 14.

The motion picture reviews briefly the essential signs and symptoms for a diagnosis of patent ductus arteriosus and emphasizes the diagnostic importance of a continuous "humming top" murmur. The surgical technic of division of a patent ductus by means of a new clamp is shown in detail. The basic feature of the clamp is embodied in rows of tiny teeth in the opposing jaws; when closed on the ductus, the teeth are embedded in the wall and will not slip. One clamp is placed on the aortic end of the ductus and another is placed on the pulmonary end. The ductus is cut and the stumps sutured with a double row of dekanatel® silk on a curved no. 9 atraumatic needle. The color photography ranges from fair to excellent. A few scenes are overexposed, and closer views of the author's method of clamping, dividing and suturing the patent ductus arteriosus would have improved this section of the picture. When considered in its entirety, the film is far superior to the average picture on this subject. It is highly recommended for showing to surgeons who are particularly interested in this type of surgery and residents working in a hospital where this work is being done.

Vaginal Hysterectomy. 16 mm., silent, color, 475 feet (1 reel), showing time seventeen minutes. Produced by Dwinell Grant Productions. Prepared in 1948 by and procurable on loan from Charles C. Weltzman, M.D., 847 Eastern Parkway, Brooklyn.

This motion picture attempts to demonstrate the author's operative technic in a vaginal hysterectomy with repair of cystocele and rectocele. Illustrative anatomic drawings are interspersed throughout the picture, some of which are misleading and do not give a clear concept of the topographic site. The operative field is unreasonably obscured by blood and the operator's hands, so that the steps of the operation are not easily discernible. This is a record type film having a minimum of teaching value. It is not recommended. The photography is poor to good.

Current Medical Literature

AMERICAN

The Association library lends periodicals to members of the Association and to individual subscribers in continental United States and Canada for a period of three days. Three journals may be borrowed at a time. Periodicals are available from 1938 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 18 cents if three periodicals are requested). Periodicals published by the American Medical Association are not available for lending but can be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

American Journal of Psychiatry, New York

105:481-560 (Jan.) 1949. Partial Index

Extramural Medical Care and National Resources. P. R. Hawley.—p. 481.

Public Mental Hospitals In England. A Survey. D. Pratt.—p. 485.

Patient Population Distribution in Mental Hospitals In United States. S. Leibman and R. L. French.—p. 489.

Prophylactic Electroshock. J. J. Geoghegan and G. H. Stevenson.—p. 494.

American Journal of Tropical Medicine, Baltimore

28:755-918 (Nov.) 1948. Partial Index

Field Experiments with Chloroquine Diphosphate. D. A. Berberian and E. W. Dennis.—p. 755.

Teaching of Malaria Diagnosis. A. J. Walker.—p. 777.

Evaluation of Complement Fixation Tests for Malaria. A. Harris and L. M. Reidel.—p. 787.

Transient Urticaria in Malaria. M. Kissin and R. J. Adleman.—p. 797.

Clinical Manifestations and Treatment of Epidemic Amebiasis Occurring in Occupants of Mantetsu Apartment Building, Tokyo, Japan. C. Davis and L. S. Ritchie.—p. 817.

*Use of Streptomycin in Cultivation of *Endameba Histolytica* from Stools. C. L. Spingarn and M. H. Edelman.—p. 825.

Cutaneous Leishmaniasis in the United States: Report of Case in Veteran. S. H. Auerbach and R. R. Buchholz.—p. 831.

Present State of Chagas' Disease Surveys in Chile. A. Neghme and J. Román.—p. 835.

Nomenclature of Agent of Murine Typhus. H. Mosser.—p. 841.

Treatment of Q Fever with Streptomycin: Case Report. C. G. Spicknall, L. L. Terry and R. J. Huebner.—p. 845.

Q Fever: Serologic Survey of Bovine Serums in United States. C. C. Shepard.—p. 849.

Experimental Histoplasmosis: Portal of Entry of Fungus. R. M. Allen.—p. 857.

Studies on Incidence of Trichiniasis in Mississippi: Preliminary Report. T. J. Brooks Jr., J. W. Ward and T. M. Holder.—p. 863.

Laboratory Evaluation of DDT Residual Effectiveness Against House Flies, *Musca Domestica*. R. W. Fay, A. J. Buckner and S. W. Simmons.—p. 877.

Streptomycin in Cultivation of *Endameba Histolytica*.

—In a previous study Spingarn and Edelman found that streptomycin prolonged the survival of cultures of trophozoites of *Endameba histolytica*. This effect was associated with bacterial inhibition. The favorable influence of streptomycin in prolonging the viability of trophozoites suggested that the drug might also prove valuable in starting cultures from cysts of *E. histolytica* found in stools. When they used a standard technic, their attempts to obtain cultures of trophozoites from stools containing cysts were usually failures. When streptomycin was added to the cultures at the time of inoculation with feces containing cysts, trophozoites were found with great regularity. The authors describe the method they used and the results obtained. They found that the addition of streptomycin in doses ranging from 1.0 to 10.0 mg. per cubic centimeter of serum-saline overlay favored the production of cultures of trophozoites from cysts of *E. histolytica* present in stools. The drug produced varying degrees of bacterial inhibition, and the growth of *Bacillus hominis* was suppressed. They believe that further experiments relating to the effect of antibiotics on *E. histolytica* may eventually provide a simple, reliable method for culturing trophozoites from cyst-containing stools. Their results confirm observations that there is considerable variability in the conditions required for the excystation and growth of *E. histolytica* in a particular specimen. By using a wide range of doses of streptomycin and, perhaps, penicillin as well, it may be possible to control the nature and density of bacterial flora in such a manner as to be able to culture *E. histolytica* cysts from

stools in every instance. This is an essential prerequisite for the use of a cultural method for diagnosis when microscopic studies reveal no or doubtful evidence of amebiasis.

American Practitioner, Philadelphia

3:261-324 (Jan.) 1949

Angina Pectoris: Symptoms and Differential Diagnosis. M. Plotz.—p. 261.

Evaluation of Present Forms of Treatment of Polycythemia Rubra Vera. L. O. Jacobson and T. R. Smith.—p. 267.

Present Status of Treatment of Toxic Goiter. W. O. Thompson.—p. 271.

Complications and Precautions in Blood Transfusion Therapy. E. E. Muirhead and J. M. Hill.—p. 275.

Dietary Cholesterol: Its Role in Atherosclerosis. B. A. Sachs.—p. 284.

Dermatologic Problem of Adolescent. L. Hollander.—p. 290.

Clinical Significance of Rumination. J. N. Dambassis.—p. 309.

Thrombophlebitis in Lower Extremity. J. E. Summers.—p. 315.

Propylthiouracil in Treatment of Angina Pectoris: Preliminary Report. R. L. Fisher and M. Zukerman.—p. 318.

Clinical Significance of Rumination.—Dambassis reports 9 cases of rumination in 4 multiparous women, 2 obese and 2 not, between the ages of 38 and 60, in 1 thin girl aged 22, in 1 obese man aged 45, in 2 boys aged 6 and 10 respectively and in 1 girl aged 9. The incidence was higher for women than for men. The hereditary factor was not present, although "ruminant families" have been described. Rumination is not a physiologic phenomenon. Hiatus hernia was present in 2 of the author's adult patients. Such conditions are favorable substrata for the development of rumination. The 3 children had a history suggestive of a low grade congenital circular muscle pyloric hypertrophy which commonly subsides in the first six months, sometimes leaving a certain degree of pylorospasm capable of causing squeezing contraction of the stomach musculature and elevation of the fundic pressure. In one of the middle-aged women aerophagia was the chief complaint, associated with temporary pylorospasm resulting in an increase of the fundic pressure. The girl aged 22 had an irritable colon; her case was considered among the reflex conditions in which anomalous impulses are brought about and result in a regional gastropasm or an incompetence of the cardia. In another middle-aged woman rumination was due to incompetence of the cardia, which had undergone an overrelaxation after having passed its culminant point of spasticity. The case of the obese man aged 45 was typical as that of a heavy and hasty eater and drinker who ruminated from his childhood, carrying over possibly a conditioned reflex probably caused by the infantile gluttony observed in some children. Treatment of rumination consists in reeducation of the patient and the appropriate therapy of the underlying cause. A bland diet is indicated. Coffee, tea and alcohol should be discarded. Some drugs such as phenobarbital, papaverine, calcium carbonate, bitter digestives and any glandular preparation are indicated.

Archives of Ophthalmology, Chicago

40:101-238 (Aug.) 1948

Necrosis of Intraocular Tissues. B. Samuels.—p. 101.

Incidence of Defective Color Vision Among Psychotic Patients. L. H. Hardy, Gertrude Rand and M. Catherine Rittler.—p. 121.

Preplacement of Air in Cyclodialysis. S. Rome and R. Koff.—p. 134.

Deep Keratitis Associated with Atypical Lichen Planus: Report of Case. J. Goldsmith.—p. 138.

Aid in Detecting Trachoma-Like Inclusion Bodies in Conjunctiva. M. Bodian.—p. 147.

Occlusion of Cilioretinal Artery. L. M. Levitt.—p. 152.

*"Silent" Dacryocystitis. F. H. Theodore.—p. 157.

History of Dartmouth Eye Institute. H. M. Burian.—p. 163.

Di-Isopropyl Fluorophosphate (DFP) in Treatment of Glaucoma: Further Observations. I. H. Leopold and P. R. McDonald.—p. 176.

Lattice Type of Hereditary Corneal Degeneration: Report of Five Cases, Including One of Child of Two Years. F. C. Stansbury.—p. 189.

"Silent" Dacryocystitis.—Theodore says that dacryocystitis is generally described as a chronic inflammation of the lacrimal sac due to stenosis of the nasolacrimal duct. The stenosis develops as a result of inflammation of the nasal mucosa extending by continuity to the mucous membrane of the nasolacrimal duct. A mucopurulent or purulent discharge is present, which flows into the conjunctival sac on pressure. Sometimes a mucocele develops. The condition known as acute dacryocystitis is more properly designated as acute peridacryocystitis. It occurs when the organisms present in chronic dacryocystitis

penetrate the submucous tissue and invade the wall of the sac itself. The "acute" inflammation is secondary to chronic dacryocystitis. These two types of inflammation of lacrimal sac appear to be the only ones generally accepted, but there exists a third type, an incipient, mild, low grade dacryocystitis in which obstruction is not important. The author reports 7 cases in which a mild type of dacryocystitis, usually mucoid in character, was the unsuspected cause of persistent conjunctivitis or of unexplained tearing. This "silent" type of dacryocystitis is overlooked if investigation of the tear passages is limited only to a determination of patency. If the lacrimal washings are collected and examined both clinically and bacteriologically, the finding of mucus or of pus containing pathogenic bacteria will indicate the presence of "silent" dacryocystitis. Once the diagnosis was established and treatment instituted, the conjunctivitis, which in almost every case of the present series had existed for months, subsided in a matter of weeks, recovery paralleling the clearing of the lacrimal washings. Experience suggests that this low grade type of mucous dacryocystitis is not uncommon and, if not recognized, may eventually lead to more obvious inflammatory changes in the lacrimal passages.

Archives of Surgery, Chicago

57:443-612 (Oct.) 1948

- *Treatment of Thyroiditis. G. Crile Jr.—p. 443.
- Surgical Management of Branchiogenic Cysts and Sinus Tracts. C. W. McLaughlin Jr.—p. 450.
- Early Diagnosis and Roentgen Manifestations of Obstruction of Small Bowel. C. J. Hunt.—p. 460.
- Potassium Metabolism in Immediate Postoperative Period. R. E. L. Berry, Vivian Iob and K. N. Campbell.—p. 470.
- *Lymphatic Spread of Carcinoma of Breast. C. W. Monroe.—p. 479.
- Experiences with Dragstedt Skin-Covered Ileostomy. G. B. Sanders.—p. 487.
- Value of Transmetatarsal Amputations in Management of Gangrene of Toes. W. Furst and L. G. Herrmann.—p. 497.
- Role of Antibiotics in Masking Inflammatory Processes. A. R. Curreri, E. R. Schmidt and J. T. Mendenhall.—p. 513.
- Preoperative Place of Streptomycin in Operations on Bowel. H. S. Morton and F. Smith.—p. 520.
- Inguinal and Femoral Hernioplasty: Anatomic Repair. C. B. McVay.—p. 524.
- Glomus Tumors: Summary of 15 Cases. K. E. Lemmer.—p. 531.
- Keloids and Hypertrophic Scars. H. M. Trusler and T. B. Bauer.—p. 539.
- Parenteral Use of Water, Dextrose, Electrolytes, Fat and Vitamins. W. G. Maddock.—p. 553.
- Lesions of Patellar Cartilage as Cause of Internal Derangements of Knee. C. W. Peabody and F. P. Walsh.—p. 589.
- Arterial Blood Supply of Common Bile Duct. T. C. Douglass and W. W. Cutter.—p. 599.

Treatment of Thyroiditis.—According to Crile there exist three main clinical types of thyroiditis: (1) the subacute (psendotuberculous or giant cell) variety, (2) struma lymphomatosa (Hashimoto's thyroiditis) and (3) Riedel's struma. In 2 cases of subacute thyroiditis and 2 cases of struma lymphomatosa proved by biopsy, roentgen therapy was followed by complete resolution of the palpably enlarged thyroid. Three patients with proved Riedel's struma were not benefited by roentgen therapy. Crile stresses that roentgen therapy is the treatment of choice for subacute thyroiditis, and thyroidectomy is rarely, if ever, indicated. When the diagnosis of struma lymphomatosa is made before operation, roentgen therapy should be given a trial, but if struma lymphomatosa is recognized at the time of operation a very conservative resection of both lobes of the thyroid is recommended. In Riedel's struma, roentgen therapy is of little or no value, and it is unwise, unnecessary and often dangerous to attempt to remove the entire lobe. If the onion-like concentric laminations in the fibrous tissue surrounding the central degenerating adenoma can be found, these avascular planes can be followed by blunt dissection and the core of the lobe shelled out without disturbing its capsule. After this procedure the symptoms are relieved and there is no further proliferation of fibrous tissue.

Lymphatic Spread of Carcinoma of Breast.—Monroe made a detailed pathologic study of 87 breast specimens removed at radical mastectomy. The location of the lymph nodes has been accurately charted and each of the lymph nodes examined microscopically. The study indicates that the greater the number of lymph nodes removed in the operative specimen, the greater the patient's chances for freedom from recurrence.

Cancer Research, Baltimore

8:349-396 (Aug.) 1948

- Ascorbic Acid Content in Human Cancer Tissue. A. Góth and I. Littmann.—p. 349.
- Method of Staining Nucleoli of Cells in Fresh Benign and Malignant Tissues. W. W. Ayres.—p. 352.
- Diagnosis and Treatment of Primary Ovarian Carcinoma with Special Reference to Radiation Therapy. J. H. Freed and E. P. Pendergrass.—p. 361.
- Lack of Extractable Carcinogens in Skin of Patients with Multiple Precancerous Keratoses of Actinic Origin. F. E. Mohs.—p. 371.
- Effect of Carcinogenic Compounds on Ascorbic Acid Content of Liver in Mice and Rats. M. Daff, C. Hoch-Ligeti, E. L. Kennaway and M. M. Tipler.—p. 376.
- Increased Weight of Liver in Wistar Albino Rats with Induced and Transplanted Tumors. Eleanor H. Yeakel.—p. 392.
- Influence of Growth and Adrenocorticotrophic Hormones on Body Composition of Hypophysectomized Rats. Choh Hao Li, Miriam E. Simpson and H. M. Evans.—p. 71.
- Renal Excretion of Water and Antidiuretic Substances in Patients with Hepatic Cirrhosis and Rats with Dietary Liver Injury. C. A. Hall, B. Frame and V. A. Drill.—p. 76.
- Androgen: Ketosteroid Ratios of Rabbit Urine. C. T. Davis, C. R. Slater and B. Krichesky.—p. 83.
- Changes in Distribution and Concentration of Alkaline Phosphatases in Tissues of Rat After Hypophysectomy or Gonadectomy, and After Replacement Therapy. E. W. Dempsey, R. O. Green and Helen Wendler Deane.—p. 88.

Endocrinology, Springfield, Ill.

43:355-460 (Dec.) 1948

- Cytologic Examination of Uterine Growth During Pregnancy. C. A. Salvatore.—p. 355.
- Use of Stilbestrol Inhibited Males as Test Animals for Gonadotrophic Hormones. A. V. Nalbandov and G. J. Baum.—p. 371.
- Formation of Secondary Decidua in Spayed Mice and Lactating Rats. P. Constantines.—p. 380.
- Progesterone and Estrogen in Experimental Control of Ovulation Time and Other Features of Estrous Cycle in Rat. J. W. Everett.—p. 389.
- Bio-Assay of Calorigenic Substances Using Tadpoles of *Xenopus laevis*. C. F. Hamilton, A. Albert and M. H. Power.—p. 406.
- Further Studies on Protective Power of Adrenal Extract and Steroids Against Toxic Agents. Lena A. Lewis and I. H. Page.—p. 415.
- Growth Inhibition in Bone and Bone Marrow Following Treatment with Adrenocorticotropin (ACTH). B. L. Baker and D. J. Ingle.—p. 422.
- Influence of Quantitative Thyroprotein Treatment of Hens on Length of Incubation Period and Thyroid Size of Chicks. R. S. Wheeler and E. Hoffmann.—p. 430.
- Effect of Adrenalectomy and Adrenal Cortical Hormone upon Formation of Antibodies. J. S. Thatcher, B. C. Houghton and Carolyn H. Ziegler.—p. 440.

Illinois Medical Journal, Chicago

94:337-390 (Dec.) 1948

- Clinical Interpretation of Sternal Puncture. P. L. Bedinger and L. R. Limarzi.—p. 351.
- Present Management of Peptic Ulcer. J. B. Kirsner and W. L. Palmer.—p. 357.
- Delay in Treatment of Cancer. Faye E. Bates and I. M. Ariel.—p. 361.
- Follow-Up Studies of Patients with Pre-Frontal Lobe Lobotomy. J. Cohean.—p. 366.
- *Mass X-Ray Examination Using Miniature Films. C. Hall.—p. 369.
- Roentgen Ray Aspects of Malignancies of Small Intestines. E. L. Rypins.—p. 372.
- Toothpick in Ascending Colon. C. W. Olsen, E. G. Johnson and G. Bilek.—p. 374.

Mass Roentgen Examination.—Hall says that of 107,005 miniature roentgenograms taken, 1,726 disclosed signs suggestive of tuberculosis. Of these, 1,366 proved to be minimal lesions, 259 moderately advanced and 101 far advanced. The miniature roentgenogram is a tool that does not replace either the standard roentgenogram or the medical training and experience of the practitioner. The physician plays an all-important part in the mass survey program. He gets the results of this detection process, and the ultimate diagnosis of tuberculosis or of other pathologic conditions is up to him. A study of results of tuberculosis control programs in the past indicates that much time and energy probably have been devoted to the wrong population groups. Tuberculosis is not a disease found commonly in children. The mass survey also indicates that the prevalence of tuberculosis increases with age. The survey should not be conducted in grade schools, but should be concentrated among industrial and other general adult population groups. We can protect children from tuberculosis by detecting tuberculosis among the parents. An adult population free of tuberculosis will result in a young generation free of infection. Tuberculosis is spread almost entirely by adults. If all tuber-

culous adults could be found, isolated, treated and the disease arrested, the next generation would have practically no source of infection, and tuberculosis would become a relatively infrequent disease.

Journal of Bacteriology, Baltimore

56:699-842 (Dec.) 1948. Partial Index

- Consequences of Mutation During Growth of Biochemical Mutants of *Escherichia Coli*. I. Pattern of Adaptation of Histidineless Cultures. F. J. Ryan and Lillian K. Schneider.—p. 699.
- Enzymatic Studies on Mechanism of Resistance of *Pneumococcus* to Drugs. J. S. Gots and M. G. Sevag.—p. 709.
- *Circulin, an Antibiotic From Member of *Bacillus Circulans* Group: I. Bacteriologic Studies. Charlotte McLeod.—p. 749.
- Morphologic Characteristics of Certain Cultured Strains of Oral Spirochetes and *Treponema Pallidum* as Revealed by Electron Microscope. E. G. Hampp, D. B. Scott and R. W. G. Wyckoff.—p. 755.
- Control of *Salmonella* Infections in Colonies of Mice. C. A. Slanetz.—p. 771.
- Micro-Organisms in Cecal Contents of Rats Fed Various Carbohydrates and Fats. H. Nath, V. H. Barki, W. B. Sarles and C. A. Elvehjem.—p. 783.
- Analysis of Action of Proflavine on Bacteriophage Growth. Ruth A. C. Foster.—p. 795.

Circulin, an Antibiotic.—McLeod says that a new antibiotic has been obtained from broth cultures of a mucoid variant of *Bacillus circulans*. This substance is active against both gram-positive and gram-negative bacteria and against fungi. It is bactericidal as well as bacteriostatic, and the activity is not appreciably reduced in the presence of blood serum. Circulin is hemolytic and extremely toxic. Although it is unsuitable for parenteral administration, limited trials indicate that it has possible value in the treatment of bacterial and fungous infections of the skin. Efforts are now being made to reduce the toxicity of circulin.

Journal of Infectious Diseases, Chicago

83:207-300 (Nov.-Dec.) 1948

- Further Observations on Complement Fixation in Typhus Fever. Wei-Tung Liu, Huei-Ching Chang and P'ei-Jen Wang.—p. 207.
- Further Studies on Occurrence and Distribution of *Salmonella* Types in United States. P. R. Edwards, D. W. Bruner and Alice B. Moran.—p. 220.
- Experiments with Bovine Strain of *Leptospira* Isolated from Human Patient. H. Bernkopf, L. Olitzki, L. A. Stuczynski and others.—p. 232.
- Immunology of Certain Mouse-Adapted Poliomyelitis Virus Strains when Cultivated in Embryonated Eggs. H. M. Powell and W. A. Jamieson.—p. 238.
- Physiologic Studies on Spore Formation in *Clostridium Botulinum*. E. S. Wynne.—p. 243.
- Ability of Plasmodium Lophurae to Acquire Resistance to Chlorguanide, Camoquin and Chloroquine. P. E. Thompson.—p. 250.
- Studies on Action of Penicillin: VII. Development of Penicillin Resistance by *Meningococcus* in Vivo. C. P. Miller and Marjorie Bohnhoff.—p. 256.
- Effect of Quinine Treatment of Host on the Carbohydrate Metabolism of Malarial Parasite *Plasmodium Gallinaceum*. J. W. Moulder.—p. 262.
- Growth Response of *Leuconostoc* to Nicotinic Acid, Nicotinamide, and Some Related Compounds. S. A. Koser and G. J. Kasai.—p. 271.
- In Vitro Cultivation of Rat Leprosy Organism. R. Ashbel and A. Poljakoff.—p. 279.
- Hemagglutination by Influenza Virus: I. Modification of O Phase of Influenza A Virus. B. A. Briody.—p. 283.
- Id.: II. Existence of Two Phases of Influenza B Virus. B. A. Briody.—p. 288.
- Id.: III. XO Phase of Influenza A Virus. B. A. Briody.—p. 293.

Journal-Lancet, Minneapolis

69:1-32 (Jan.) 1949

- Value of Estrogen Therapy in Treatment of Varicose Veins Complicating Pregnancy. H. O. McPheeters.—p. 2.
- Postpartum Hemorrhage. R. J. Moe.—p. 5.
- Prepartum Care. G. Brown.—p. 7.
- Management of Neglected Transverse Presentation by Waters Extra-peritoneal Cesarean Section: Report of 2 Cases. C. W. Seibert.—p. 9.
- Puerperal Sepsis: Case Report. J. F. Bieck.—p. 11.
- Basal Temperature Records in Obstetrics and Gynecology. M. B. Sinkin.—p. 13.
- *Peritoneal Irrigation in Treatment of Severe Oliguria Caused by Transfusion Reaction. F. J. McCaffrey.—p. 17.
- Concomitant Extra-Uterine and Intra-Uterine Pregnancy. W. P. Sadler.—p. 22.
- Massive Hemorrhage Into Gastro-Intestinal Tract in Last Trimester: Case Report. M. T. Mitchell.—p. 26.

Peritoneal Irrigation in Oliguria Caused by Transfusion.—McCaffrey reports a woman, aged 40, in whom renal insufficiency due to a transfusion reaction developed. Caudal analgesia and renal decapsulation failed to alter the progress

of the uremic syndrome, but peritoneal irrigation effected an immediate dramatic lowering of the blood metabolites with great clinical improvement in the patient. The return of renal function is not believed due directly to the use of peritoneal lavage but it is felt that the lowering of the blood metabolites in the short span of eighty-two hours of lavage halted the progress of the uremia for a sufficient period to enable the kidneys to regain their normal functions. The method is recommended as worthy of consideration in any case of uremia that threatens to have a fatal outcome.

New Jersey Medical Society Journal, Trenton

45:569-622 (Dec.) 1948

- Anticoagulant Treatment of Venous Thrombosis. A. J. D'Alessandro.—p. 572.
- Infectious Hepatitis and Liver Function. M. Magnes.—p. 580.
- Hysterectomy: Pathologic Analysis of 2000 Uteri Removed at Operation. S. J. Rose.—p. 583.
- Surgical Complications of Pregnancy. J. R. Willson.—p. 589.
- Cancer Problem in Proctology. F. S. Forte.—p. 594.

Northwest Medicine, Seattle

47:863-932 (Dec.) 1948

- Industrial Health Blueprints. H. R. Hennessy.—p. 883.
- Newer Procedures in Diagnosis of Occupational Diseases. C. M. McGill.—p. 885.
- Extracapsular Fracture of Hip; Improved Plate for Fixation. W. B. McKibben.—p. 888.
- Traumatic Rupture of Pancreas. R. S. Smith.—p. 892.
- Spontaneous Rupture of Abdominal Aortic Aneurysm Into First Portion of Jejunum with Fatal Intestinal Hemorrhage. K. M. Clisby and P. Grabicki.—p. 895.

Pennsylvania Medical Journal, Harrisburg

52:185-344 (Dec.) 1948

- Open Pages in Neurology. H. H. Reese.—p. 201.
- Recent Advances in Pre- and Postoperative Care. J. E. Rhoads.—p. 207.
- The Healing Mission. W. H. Fineshriber.—p. 210.
- Roentgen Diagnosis of Otitis Media and Mastoiditis in Infancy and Early Childhood. B. R. Young.—p. 213.

Surgery, Gynecology and Obstetrics, Chicago

88:1-144 (Jan.) 1949

- Apocrine Tissue, Chronic Cystic Mastitis and Sweat Gland Carcinoma of Breast. J. F. Higginson and J. R. McDonald.—p. 1.
- Vaginal Operations for Cystocele, Prolapse of Uterus, and Stress Incontinence. W. Shaw.—p. 11.
- *Experimental Pulmonary Embolism. W. D. Holden, B. W. Shaw, D. B. Cameron and others.—p. 23.
- *Nature of Lateral "Aberrant" Thyroid Tumors. S. Warren and J. D. Feldman.—p. 31.
- *Evaluation of Skin Grafting in Technic of Radical Mastectomy in Relation to Local Recurrence of Carcinoma. H. Conway and C. G. Neumann.—p. 45.
- Obstructed Uterine Cervix. G. F. Melody.—p. 50.
- Technic of Surgical Division of Patent Ductus Arteriosus. O. H. Wangenstein, R. L. Varco and I. D. Baronofsky.—p. 62.
- Fractures of Upper End of Radius and Ulna. F. D. Dickson.—p. 69.
- One Hundred Cases of Congenital Absence of Vagina. A. L. Bryan, J. A. Nigro and V. S. Counsellor.—p. 79.
- Carcinoma Developing in Chronic Draining Cutaneous Sinuses and Fistulas. A. K. McAnally and M. B. Dockerty.—p. 87.
- *Effect of Intravenous Glucose and Amino Acids on Glycosuria and Urinary Output in Humans. C. E. Lockhart and R. Elman.—p. 97.
- Fetal Mortality and Morbidity in Cesarean Section. S. Pedvis, J. K. L. Irwin and N. W. Philpott.—p. 103.
- Prolapse of Redundant Gastric Mucosa. A. M. Cove and W. C. Curphey.—p. 108.
- Indurated Leg and Leg Ulcers: Clinical Study of Their Etiology and Treatment. H. Mahorner.—p. 115.

Experimental Pulmonary Embolism.—Holden and his co-workers attempted to determine whether or not pulmonopulmonary, pulmonovaginal depressor and pulmonocoronary reflexes contributed to the death of animals subjected to massive pulmonary embolism. Pulmonary embolism closely simulating that occurring in human beings was produced experimentally in dogs. No evidence was obtained from these experiments to support the supposition that pulmonopulmonary, pulmonocoronary or pulmonovaginal depressor reflexes contribute to the death of dogs after massive pulmonary embolism. It is suggested as a result of this work that the use of papaverine in the treatment of massive pulmonary embolism is without benefit and may be harmful. The constant absence of postembolic thrombosis in the pulmonary arteries of the heparinized animals suggests that the early intravenous administration of heparin to patients may be of great value.

Lateral "Aberrant" Thyroid Tumors.—Warren and Feldman feel that in regard to the tumors of thyroid tissue in the lateral regions of the neck three possibilities have to be considered: (1) lateral thyroid tumors originate in thyroid tissue which is separated from the thyroid gland by defective embryogenesis and in the majority of cases metastasize to the thyroid; (2) tumors in thyroid and aberrant thyroid tissue represent multicentric neoplastic growth in a single type of embryonal rest; (3) they are early metastases from a tumor of the thyroid gland and become clinically apparent before the tumor of the thyroid manifests itself. The authors aimed to determine what features can be considered as evidence for one or another mode of origin. They analyzed the lateral thyroid tumors received in the laboratory of the New England Deaconess Hospital over a period of nineteen years. There were 63 cases diagnosed as lateral aberrant thyroid tumor among approximately 20,000 surgically removed thyroids. In 57 of these the clinical diagnosis of lateral thyroid tumor was confirmed by histologic examination. In 49 of the 57 cases there was an associated thyroid cancer. In the remaining 8 cases the thyroid was not received in the laboratory, either because it was removed elsewhere or because it was regarded as uninvolved. The histology of the tumor in the thyroid and in the lateral masses of the neck was identical in all but 1 instance. In 40 of the 57 cases the lateral tumors were found to be metastases to cervical lymph nodes. In the remaining 17 cases there was no microscopic evidence that the lateral tumors were either metastatic or derived from embryonal rests. Thus the data indicate that most if not all lateral thyroid tumors of the neck are metastases from cancers of the thyroid. These neoplasms tend to occur in a younger age group than does cancer or thyroid disease. The presenting symptom is usually only a swelling or nodule in the neck. The disease often recurs locally unless completely eradicated. Follow-up observations must be made over decades rather than years.

Skin Grafting in Radical Mastectomy.—This study by Conway and Neumann is based on 255 patients on whom radical mastectomy was performed for carcinoma of the breast. The shortest follow-up was five years. Special attention has been given to the relation of the use of a skin graft to local recurrence. In 188 cases in which a graft was employed, there were 40 instances of local recurrence (21 per cent), whereas in 67 cases of closure without a graft, there were 4 instances of local recurrence (6 per cent). However, the size of the tumor at the time of operation had an important bearing on the incidence of local recurrence. In the smallest tumors the rate of local recurrence was 4 per cent, whereas in the largest tumors the rate of recurrence was nearly 50 per cent. Local recurrence had a bearing on the length of survival. In the 125 patients surviving more than five years, local recurrence developed in 1.6 per cent, whereas in the 130 patients surviving less than five years the rate of recurrence was 32 per cent. Of the 40 instances of local recurrence following grafting, 27 appeared as solitary nodules in the immediate vicinity of the graft whereas only 13 appeared within the grafted area or as multiple metastases both surrounding and within the grafted area. This situation gives rise to the thought that more radical excision of skin might give further protection against local recurrence. Since the rate of local recurrence seems to be closely related to the size of tumor at the time of operation, it seems likely that local recurrence in the form of solitary nodules outside the area of grafting is related to insufficient removal of skin. The suggestion is therefore made that the excision of skin in radical mastectomy be more radical. With the improved methods of skin grafting now available, it seems indefensible that surgeons should not remove a truly wide area of skin at the time that radical mastectomy for carcinoma is carried out. The larger the tumor the greater the need for wide excision of skin.

Effect of Intravenous Dextrose and Amino Acids on Urinary Output.—Lockhart and Elman gave one hundred and four timed and controlled 1 liter injections of dextrose solutions intravenously to 32 selected adults. These subjects were patients in the general surgical wards who were either awaiting plastic or other elective procedures or had had their operation previously and were about to be discharged. The dextrose solu-

tions were administered intravenously in the usual amount (1 liter) at rates ranging from 0.35 to 3.1 Gm. per kilogram per hour. The glycosuria resulting from each injection and the degree of diuresis were measured. The following solutions were utilized: 5 per cent dextrose in water; 5 per cent dextrose in isotonic sodium chloride solution; 10 per cent dextrose in water; 10 per cent dextrose in isotonic sodium chloride solution; 5 per cent amigen® in 5 per cent dextrose; 5 per cent pure amino acids in 5 per cent dextrose; 15 per cent dextrose in water; 15 per cent dextrose in 5 per cent amigen®; 15 per cent dextrose in 5 per cent pure amino acids; isotonic sodium chloride solution. The maximum speed of injection of dextrose without production of glycosuria was found to approximate 0.5 Gm. per kilogram per hour. This is much lower than the rate of 0.85 Gm. per kilogram per hour found by Woodyatt and his co-workers. In clinical usage this slower rate of injection should be used when dextrose is administered intravenously even to patients in a good state of health, in order to avoid glycosuria and associated diuresis. Urinary output was considerably reduced when isotonic sodium chloride was present in the intravenous solution. Higher concentrations of dextrose tended to produce more diuresis than lower concentrations, and the amount of diuresis tended to increase with the increased rates of administration. Evidence was obtained that the addition of hydrolyzed protein (amigen®) or pure amino acids to the dextrose solutions increased the rate of utilization of dextrose by the tissues. This was shown by a lower blood sugar level and less glycosuria when amino acids were present than when solutions of dextrose alone were given at the same rate.

Tennessee State Medical Assn. Journal, Nashville 41:437-476 (Dec.) 1948

Indications for Splenectomy with Case Reports. E. R. Campbell.—p. 437.
Preliminary Report on Production of Rh Hapten for Treatment of Erythroblastic Mothers. C. G. Ransom, A. R. Ransom and Jane Ransom.—p. 447.

Virginia Medical Monthly, Richmond 75:595-649 (Dec.) 1948

Specialization: Its Advantages and Abuses. B. R. Kirklin.—p. 597.
Management of Esophageal Lesions. W. P. Longmire Jr.—p. 601.
*Influenza Virus Vaccine, Types A and B: Experience with it in Cold Prevention. W. B. Blanton and A. K. Sutphin.—p. 607.

Influenza Virus Vaccine and Prevention of Colds.—The purpose of this study by Blanton and Sutphin was to determine whether or not in a selected civilian group a stock influenza virus vaccine of types A and B could influence the number and severity of the whole group of acute infections of the upper respiratory tract. Approximately 1,400 industrial workers and college students in Richmond were given 1 cc. of influenza virus vaccine in the fall of 1946. An additional 583 male employees of the same company received the vaccine elsewhere in the state. No epidemic of influenza occurred in Virginia during the period of study. No convincing evidence was obtained to show that the common cold is influenced by this type of vaccine.

West Virginia Medical Journal, Charleston 44:325-357 (Dec.) 1948

Natural History and Treatment of Infectious Hepatitis. P. H. Long.—p. 325.
Modern Trends in Surgical Treatment of Cancer of Lower Gastrointestinal Tract. F. W. Rankin.—p. 329.
Management of Menopause with Psychosomatic Aspects. E. Novak.—p. 334.

Wisconsin Medical Journal, Madison 47:1145-1268 (Dec.) 1948

President's Annual Dinner Address. W. D. Stovall.—p. 1163.
Bladder Tumors: Their Diagnosis, Treatment, and Prognosis. J. C. Sargent.—p. 1166.
Strangulated Inguinal Hernia in Man of 88 Years: Operation and Recovery. V. S. Falk Jr.—p. 1172.
Placenta Accreta. B. E. Urdan and A. M. Kurzon.—p. 1174.
Management of Surgical Diabetic Patient. R. S. Baldwin.—p. 1177.
Acute Intestinal Obstruction in Patient Over 60 Years: Review of 80 Cases. H. B. Haley and A. S. Jackson.—p. 1180.
Bronchopulmonary Segments and Variations in Pulmonary Vascular Patterns. A. B. Appleton.—p. 1185.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted. Single case reports and trials of new drugs are usually omitted.

British Journal of Cancer, London

2:177-308 (Sept.) 1948

- Racial and Social Incidence of Cancer of Uterus. E. L. Kennaway.—p. 177.
- Statistical Report on 2529 Cases of Cancer of Breast. W. L. Harnett.—p. 212.
- *Duodenal Spread of Pyloric Carcinoma. J. H. Fodden.—p. 239.
- Squamous Cell Carcinoma Occurring in Asbestosis of Lung. R. J. R. Cureton.—p. 249.
- Hemagglutination by Extracts of Tumors and of some Normal Tissues. M. H. Salaman.—p. 253.
- Estrogen-Induced Fibroids for Thoracic Serosa. S. Bruzzone, H. Elgueta, R. Iglesias and A. Lipschutz.—p. 267.
- Role of Initiating and Promoting Factors in Pathogenesis of Tumors of Thyroid. W. H. Hall.—p. 273.
- Effects of Thiol-Compounds on Tumor Induction by Carcinogenic Hydrocarbons. H. G. Crabtree.—p. 281.
- Further Experiments in Mice with p-Diazoaminobenzene. A. H. M. Kirby.—p. 290.
- Action of 2-Aminofluorene in Three Pure Strains of Mice. A. H. M. Kirby.—p. 294.
- Metabolism of 3:4-Benzpyrene in Human Beings After Intravenous Injection. S. Iversen.—p. 301.

Duodenal Spread of Pyloric Carcinoma.—After reviewing the literature on duodenal immunity from cancerous permeation, Fodden presents his investigations on the frequency and manner of spread of the neoplasm into the first part of the duodenum in 50 cases of pyloric carcinoma. Sixteen cases showed that such an invasion of the duodenum had occurred, the invasion being more widespread and destructive in necropsy cases than in surgical cases. In 5 out of the 9 surgical specimens showing such duodenal involvement, cancer cell groups were seen at the edge of the duodenal resection. Progression of the growth occurred mainly through the lymphatics of the duodenal wall, and demonstrated an anastomosis between the pyloric lymphatic plexuses and those of the first part of the duodenum. In a smaller proportion of cases the pyloric neoplasm invaded the duodenal tissues directly. It was felt that the familiar macroscopic check to pyloric cancers at the duodenum was due to the duodenal mucous membrane and the layer of Brunner glands. Microscopically, these were the only tissues which appeared to resist the spread and destructive effects of the growth.

British Journal of Radiology, London

22:1-60 (Jan.) 1949

- Mackenzie Davidson Memorial Lecture, 1948. "... The Future Comes Apace, What Shall Defend the Interim? ..." E. R. Carling.—p. 1.
- *Radiological Diagnosis of Intestinal Obstruction by Means of Direct Radiography. J. H. Middlemiss.—p. 11.
- Some Aspects of Mucosal Pattern in Diagnostic Study of Carcinoma of Stomach. G. Steiner.—p. 25.
- Investigation Into Some Factors Affecting X-Ray Dose Distribution and Its Measurement. R. Oliver and L. A. W. Kemp.—p. 33.
- Report on Installation of Ten Gramme Teleradium Unit. J. H. Martin, T. J. Tulley and E. B. Harriss.—p. 44.
- Further Survey of Radiation Sickness with Particular Reference to Its Treatment by Pyridoxine. L. M. Shorvon.—p. 49.

Diagnosis of Intestinal Obstruction by Direct Radiography.—Middlemiss investigated the part which radiology can play as a diagnostic measure in 151 cases of suspected mechanical intestinal obstruction and in 37 cases of postoperative distension. The distended bowel contains gas and fluid, and these two static elements separate to form fluid levels in the most dependent loops of the bowel. Gas shadows appear on roentgenograms as less opaque shadows than those of neighboring tissues or fluids. Roentgenographic technic therefore must be directed toward the demonstration and utilization of these gas shadows as a contrast medium. A routine technic of a supine and an erect roentgenogram of the abdomen using a posteroanterior projection where possible and using intensifying screens and a moving grid at an anode-film distance of 36 to 48 inches (91.4 to 121.9 cm.) is recommended. The appearances of mechanical obstruction of the bowel are as follows: stasis within the bowel as shown by the presence of fluid levels, and distension of bowel by gas. The site of the obstruction can be localized as being distal to the most distal part of the distended bowel. Thus obstructions of the small bowel can be

labeled high, mid or low obstructions. Obstructions of the large bowel can usually be localized more accurately; care must be taken not to diagnose an obstruction of the large bowel with an incompetent ileocecal valve as an obstruction of the small bowel. Volvulus, intussusception and perforation of a gas-containing viscus are conditions which may produce roentgenologic signs recognizable on scout survey films. Negative roentgen findings must be evaluated with reserve. Mechanical obstruction may still exist in the absence of positive roentgenologic evidence. It is of utmost importance to differentiate between adynamic obstruction, localized and generalized, and mechanical obstructions, as the early recognition of the latter in postoperative cases may be a life-saving measure. Closest liaison between the clinician and the radiologist is emphasized.

Indian Medical Gazette, Calcutta

83:353-398 (Aug.) 1948. Partial Index

- Report on Epidemic of Anterior Poliomyelitis in Nicobar Islands. S. H. Moses.—p. 355.
- *Extrapleural Plombage with Lucite Spheres. N. L. Bordia.—p. 363.
- Aneurysm of Thoracic Aorta. A. K. Nandi.—p. 365.
- Lymphadenoma of Salivary Glands. B. P. Tribedi and A. R. Roy.—p. 367.

Extrapleural Filling with Lucite® Spheres.—Bordia shows that the use of extrapleural filling or plugging is not a new procedure and that with the advent of antibiotics this operation is again being used more frequently. In the search for a suitable substance for extrapleural filling the plastic methyl methacrylate (Lucite®) has been tried; since the solid substance proved too heavy, hollow spheres have been used. The author cites American workers who have used this filling substance and discusses the indications and contraindications to its use. He outlines the technic of the operation and the postoperative course. This method may be extremely useful in the management of tuberculosis in India. The ease with which it can be undertaken makes it suitable for the conditions there. He believes it will replace thoracoplasty in the vast majority of cases.

Lancet, London

2:997-1023 (Dec. 25) 1948

- Aims of Medicine. E. D. Adrian.—p. 997.
- Drug Sensitizing Organism to Ethyl Alcohol. J. Hald and E. Jacobsen.—p. 1001.
- *Treatment of Alcoholism with Sensitizing Drug. O. Martensen-Larsen.—p. 1004.
- Peritoneal Effusion as Complication of Artificial Pneumoperitoneum. R. C. Cohen.—p. 1006.
- *Hypertrophy of Pylorus in an Adult with Massive Eosinophil Infiltration and Giant-Cell Reaction. H. J. Barrie and J. C. Anderson.—p. 1007.
- Calfiferol by Intramuscular Injection. Teresa Lightbound.—p. 1010.
- Pelvic Pain in Obstetrics: Review of 153 Cases. P. J. O'Reilly.—p. 1012.

Sensitizing Drug Against Alcoholism.—Martensen-Larsen points out that the discovery by Hald and Jacobsen, that the intake of tetraethylthiuramdisulfide (Antabuse®) sensitizes the organism to even moderate doses of alcohol, makes it possible to develop a medical treatment for alcoholism. Concurrently with the examination of the pharmacologic effects of this substance, Martensen-Larsen has studied the clinical effects of the drug on alcoholic addicts. From December 1947 to May 1948, 83 patients have been treated. So far no harmful systemic effects on liver, heart, kidney or blood-forming organs have been observed; nor have any untoward side effects been noted. The treatment has produced satisfactory results in 74 of the patients. The remaining 9 have lacked interest in the treatment and have refused to continue it.

Hypertrophy of Pylorus in Adult.—Barrie and Anderson report the case of a woman, aged 27, with two weeks' history of constant circumumbilical pain intense enough to keep her awake at night and of pain and a feeling of distension between the breasts immediately after taking food. She had vomited after every meal, and this had relieved the pain between the breasts. She had lost weight. Four years previously she had had a similar but less severe attack associated with melena, but the symptoms had lasted a fortnight. Her appetite had been good between these two attacks, but eggs, pastry and bacon caused indigestion. Roentgenoscopy after a barium meal indicated hypertrophy of the prepylorus, for which a partial gastrectomy

was performed. The surgical specimen showed concentric hypertrophy of the muscular coat of the stomach, pylorus and duodenum, with massive eosinophil infiltration of the pylorus and peculiar para-arterial giant cell follicles. The evidence suggests that this is an example of a true organic intestinal allergic reaction. The woman did not tolerate certain foods well; she had constant blood eosinophilia and a localized tissue eosinophilia of the pylorus. There were giant cell follicles in the pylorus which closely resembled follicles found in the heart muscle of patients who have become sensitive to neoarsphenamine.

Medical Press, London

220:485-506 (Dec. 8) 1948

- Disorders of Personality. B. B. Sharp.—p. 490.
Exercises and Obstetric Analgesia. Helen E. Rodway.—p. 494.
*Diagnosis and Treatment of Low Backache. M. G. Good.—p. 496.

Low Backache.—Good differentiates backache into a symptomatic or secondary and a primary form. The secondary form occurs as a symptom of organic illness in infectious diseases such as smallpox, influenza or typhoid, and in renal or gynecologic disorders. Primary backache may be due to morbid conditions in (1) muscles, ligaments and fascia; (2) joints and bones, and (3) nerves. Experiences in the British Army with several hundred cases seem to justify the conclusion that a myalgia of lumbar, gluteal and other muscles is responsible for most cases of low backache. The main symptom of this form of myalgia is pain of two kinds—a dull, deep kind, which cannot be localized properly and a superficial type which is localized. The pain is aggravated by contraction and relieved by relaxation of the affected muscles. Sometimes it increases during sleep and awakens the patient. The objective signs center around muscular areas termed "myalgic spots" which, as a rule, are harder to the touch than the surrounding parts, but nodules are absent. Pressure on a myalgic spot produces a severe pain. The author discusses the lumbar, gluteal, lumbogluteal and dorsal forms of myalgia. A salt-poor vegetarian diet has a beneficial effect on myalgias and infra-red ray treatment followed by strictly local massage gives satisfactory results provided it is applied to the myalgic areas and not to areas of referred pain. The disadvantages are that massage of myalgic spots is painful and up to several months are often necessary for complete relief. A more rapid and effective relief can be obtained by injection of 1 to 2 cc. of 1 per cent procaine into each myalgic spot. Failure of this local anesthesia is due to a faulty technic; the injections have to be made into accurately located myalgic spots.

New Zealand Medical Journal, Wellington

47:537-604 (Dec.) 1948. Partial Index

- *Thiouracil versus Surgery: Tentative Comparison based on 100 Treated Cases with Note on Radioactive Iodine. E. J. Fischmann and A. Fischman.—p. 537.
Tuberous Sclerosis with Cerebral Neoplasm: Report of Case Benefited by Operation. J. C. Parr.—p. 550.
Patent Ductus Arteriosus, Review of Results of 20 Surgical Closures, and Description of Intrapercardial Ligation. J. Borrie.—p. 569.
Collapse Therapy in Pulmonary Tuberculosis: Contemporary View. B. C. Thompson.—p. 580.
Manipulation and Treatment of Pain in Chest. J. McM. Mennell.—p. 586.
Poliomyelitis in Pregnancy. C. H. Garlick.—p. 599.

Thiouracil versus Surgery.—One hundred patients treated with thiouracil since 1944, 50 of whom ceased medication, were analyzed by Fischmann and Fischman with a view to obtaining data regarding the relative merits of surgery and thiouracil in the treatment of thyrotoxicosis. There is no justification for treating nodular goiter with thiouracil, since the relapse frequency is seven times higher after this than after surgical treatment. Thyroidectomy in nodular goiter permanently abolishes increased thyroid size and also prevents malignancy. In diffuse goiter, surgery and thiouracil have no apparent advantages over one another in regard to applicability, efficiency, unfavorable reactions and the ophthalmopathy of thyrotoxicosis. Treatment with thiouracil is slightly superior with regard to the duration of incapacity and the mortality rate. It does not induce permanent myxedema and avoids the disfigurement caused by the scar. Surgery is superior with regard to reducing thyroid

size. It seems that as an alternative to surgery, thiouracil and its allies deserve further trial in the treatment of diffuse toxic goiter. In nodular goiter surgery is the treatment of choice. Radioactive iodine seems by far the most effective of the three available methods of treating toxic goiter. Some authors have called attention to pathologic potentialities involved and have suggested that the therapeutic trial of radioactive isotopes should be limited to cancer.

Quarterly Journal of Medicine, Oxford

17:257-334 (Oct.) 1948

- Pulmonary Eosinophilosis. R. Viswanathan.—p. 257.
Review of Antihistamine Drugs. R. B. Hunter and D. M. Dunlop.—p. 271.
*Etiology of Constrictive Pericarditis, with Special Reference to Tuberculous Pericarditis, Together with Note on Polyserositis. G. W. S. Andrews, G. W. Pickering and T. H. Sellers.—p. 291.

Causation of Constrictive Pericarditis.—Andrews and his co-workers report 11 cases of chronic constrictive pericarditis in 6 men and 5 women between the ages of 18 and 63. Constrictive pericarditis is a clinical entity which should be differentiated from other forms of adherent pericardium and from polyserositis. Ascites and edema are its chief symptoms; venous congestion and enlarged liver are the chief physical observations. The heart itself exhibits little abnormality. The pericardium is thick and fibrous, and usually reveals no clue as to the nature of the causative disease. Constrictive pericarditis is not due to antecedent acute pericarditis arising from rheumatism, uremia, myocardial infarction or malignant metastasis. During a seven year period all cases of other forms of acute pericarditis—namely, 18 cases of acute tuberculous pericarditis, 7 cases of acute septic pericarditis and 1 case of so-called idiopathic pericarditis—have been studied. In 16 of the 18 patients with acute tuberculous pericarditis, 14 male and 4 female patients between the ages of 4 and 49 years, 4 without and 14 with tuberculosis of other serous cavities (polyserositis), constrictive pericarditis developed. Pericardiectomy was performed in 9 of these patients, of whom 3 died; the remaining 6 improved greatly. The pericardium showed a healed scar in 1 and active tuberculosis in 7 seven months to five and a half years from the onset. Pericardiectomy in the presence of active tuberculosis does not seem to increase the liability to dissemination of the disease. Of 7 patients with acute septic pericarditis, 5 died in the acute phase. In neither of the 2 survivors did constrictive pericarditis develop. In the 1 patient with so-called idiopathic pericarditis constrictive pericarditis did not develop. In Great Britain most cases of constrictive pericarditis are due to antecedent acute tuberculous pericarditis. It is the rule for constrictive pericarditis to develop as tuberculous pericarditis. No other form of acute pericarditis has been observed to heal in this way. None of the 11 patients with chronic constrictive pericarditis gave a history of past acute pericarditis. Of all the forms of acute pericarditis, that due to tuberculosis is the most likely to be overlooked.

South African Medical Journal, Cape Town

23:745-784 (Dec. 11) 1948. Partial Index

- *Incidence of Postural Proteinuria: Relation to Body Build and Nutritional Status. B. M. Bull and M. P. Jones.—p. 746.
Peripheral Nerve Injuries: Results of Treatment. C. A. R. Schulenburg.—p. 750.
Mussel and Fish Poisoning. C. von Bonde.—p. 760.
Brucella Agglutinins: Their Occurrence in Witwatersrand Milk Supplies and in Serum of Normal Persons. W. Lewin, I. Bersohn and N. Richardson.—p. 763.
The Brucella Abortion Ring Test for Fresh Milk. G. C. van Drimmelen.—p. 765.
Medical Emergencies in the New-Born: Their Recognition and Treatment. S. Heymann.—p. 766.
Curare: Report. G. G. Henderson.—p. 770.

Postural Proteinuria.—Bull and his associates point out that it has long been known that benign forms of proteinuria exist, and it is almost generally agreed that the commonest of these are the postural proteinurias. In earlier investigations one of the authors had demonstrated that the lordotic posture induces and the kyphotic posture prevents proteinuria. The application of a firm binder to the abdomen prevents the proteinuria ordinarily induced by the lordotic posture. Postural proteinuria is accompanied by an increase in the output of all

the formed elements in the urine, and clearance studies reveal a fall in effective renal blood flow and glomerular filtration rate and a rise in the filtration fraction. The protein can be found in the urine from both kidneys. There is a delay in the foot to tongue circulation time and a rise in pressure in the inferior vena cava in strict association with the proteinuria. Proteinuria can be induced in subjects with large and easily palpable livers by rotating the liver manually so that its anterior surface moves inferiorly. In this investigation the authors are concerned with the incidence of postural proteinuria and with whether postural proteinuria is more common in certain constitutional types. Three hundred and seven boys and youths between the ages of 6 and 20 years, 123 girls between the ages of 6 and 13 years, 50 medical students between 20 and 30 years of age and 50 male subjects over the age of 50 years were investigated. It was found that the incidence of postural proteinuria rose from approximately 1:3 in the 6 to 9 year age group to approximately 3:4 in the 14 to 16 year age group and then decreased to about 1:10 in older men. There was no correlation between postural proteinuria and the state of nutrition.

Acta Ophthalmologica, Copenhagen

26:395-582 (No. 4) 1948. Partial Index

- Spectrometric, Photoelectric Determination of Fluorescence of Eye Lens. Quantitative and Objective Method for Experimental Investigations. S. E. Brolin.—p. 395.
- Experiences with Iridencleisis Antiglaucomatosa with Remarks on Value of Early Operation in Glaucoma. A. Dellaporta.—p. 413.
- Localization of Foreign Bodies in Eye by Bone-Free Radiography. K. Lindblom.—p. 439.
- *Lipoma Conjunctivae in Three Generations. J. Sæbø.—p. 447.
- Medical and Surgical Treatment of Serpiginous Ulcer of Cornea. R. Friede.—p. 509.
- Case of Herpes Zoster Ophthalmicus Complicated with Neuroretinitis. J. Jensen.—p. 551.
- *Variations in Size and Shape of Eye. S. Stenström.—p. 559.

Conjunctival Lipoma in Three Generations.—Conjunctival tumors such as lipomas are comparatively rare. Sæbø reports 3 patients with such tumors. The patients belonged to three generations of the same family, indicating a hereditary anomaly. The first case concerned a woman, aged 51; a growth was observed in her right eye after birth, but this growth never caused any inconvenience. There was slight bulging of the lateral part of the superior palpebra. About 5 mm. outside the corneoscleral limbus there was a yellowish white vertical conjunctival fold. When the eye was wide open a yellowish white tumor was seen extending backward from the conjunctival fold. Its thickness was about 5 mm., and the consistency soft and elastic. The tumor was firmly adherent to the bulbar conjunctiva, but freely movable against the underlying sclera. The daughter of this woman, aged 22, had a similar congenital growth. According to the mother's information her father had a similar tumor in his right eye. Her father is now dead, but a photograph shows a fold in his right eye, similar to that of the two others.

Variations in Size and Shape of Eye.—Stenström points out that for a satisfactory roentgenographic localization of a foreign body in the eye, the first essential is to ascertain whether the foreign body lies within or outside the bulb. In certain cases this can be done only if the size of the bulb is known. In earlier procedure, consideration could not be paid to this matter, as no method was available for measuring the length of the bulb in vivo. Rushton's procedure makes this possible. Stenström, with the aid of Rushton's method, has made longitudinal measurements of a large number of eyes, at the same time measuring the horizontal equatorial diameter according to the method of Berg. The results thus obtained are reported. The author stresses that the size and shape of the eye show such decided variations that an eye of average size cannot be reckoned with when foreign bodies have to be localized in the orbit. Not even if the refraction of the eye is known can one work with a schematic value of the axial length. Where the greatest precision is required, and especially in the borderline cases in which the foreign body lies close to the posterior pole of the eye, one should, if possible, measure the length and equatorial diameter of the eye. If this is impracticable, the great variations in the size of the eye should be taken into account.

Cardiologia, Basel

13:177-240 (No. 4) 1948

- *Recognition and Treatment of Threatened Cardiac Infarction. M. Holzmänn.—p. 177.
- Endocardial Electrocardiogram Under Experimental Pathologic Conditions of Pericardium and of Myocardium. E. Coelho, J. M. Fonseca and Adelaide Constantino.—p. 193.
- Paradoxical Behavior of Electrocardiogram with Exercise Tests in Persons with Coronary Insufficiency. Adriana Mussafia.—p. 212.
- Continuous Measurement of Arterial Oxygen Saturation in Man; Clinical Oximetry with Swedish Oximeter According to Millikan. Inga Lindgren.—p. 226.

Threatened Cardiac Infarction.—Holzmänn reports 4 typical cases of acute severe angina pectoris in 3 men between the ages of 38 and 52 and in a woman aged 53. This syndrome is characterized by repeated attacks of angina pectoris with increasing frequency and intensity which first results from exertion, but later may occur while at rest. The duration of the attack may exceed the limit of ten to fifteen minutes and there may be no response to the usual dose of glyceryl trinitrate. In the author's cases the syndrome of acute severe angina pectoris was a prodrome of cardiac infarction. The electrocardiogram of 2 of these patients showed peculiar changes with a lowering of the ST segment which were interpreted as protracted coronary insufficiency, being considered as a prodromal phase of the infarction. In 1 case the attempt was made to prevent the threatened coronary thrombosis by combined treatment with intravenous injections of heparin and dicumarol® orally. An infarction of the posterior wall occurred with mild clinical symptoms, suggesting that the prophylactic treatment was instituted too late. Treatment with heparin and dicumarol® should be instituted immediately in cases of acute severe angina pectoris and should be combined with vasodilators such as aminophylline. In the presence of signs of inflammation additional administration of penicillin is recommended.

Deutsche medizinische Wochenschrift, Stuttgart

73:621-660 (Dec. 17) 1948. Partial Index

- Pathogenesis of Gastric Ulcer. G. von Bergmann.—p. 621.
- Pulmonary Segments in Lobar Pneumonia. C. Esser.—p. 631.
- Diagnosis of Hemochromatosis. P. Büchmann and G. Schenz.—p. 634.
- Botulism. W. Wasmuth.—p. 636.
- Possibilities of Treating Hepatic and Biliary Disturbances with Hormones. G. Venzmer.—p. 638.
- *Use of Methylthiouracil During Pregnancy and Lactation. W. Bickenbach, M. Hess and A. Loeser.—p. 640.

Use of Methylthiouracil During Pregnancy and Lactation.—Bickenbach and his associates found in experiments on rats that when mother animals were given methylthiouracil before mating and during part or even the whole length of gestation the development of the young animals at birth showed no visible changes. However, when methylthiouracil medication of the mother animal was continued during lactation, the nursing young commenced to show signs of cretinism beginning with about the second week of life. The symptoms of cretinism proved to be reversible, for when the young were separated from their mother the signs of cretinism subsided, but the young were extremely susceptible and few survived separation from the mother. Signs of cretinism and high death rate were observed also when the mother animal was given methylthiouracil only during the period of lactation. This indicates that the substance is excreted in the milk of rats. The authors warn that the fact that rats remain unimpaired by methylthiouracil during gestation cannot be applied to human conditions, especially since the placental mechanism in human subjects differs from that in rats.

Harefuah, Jerusalem-Tel Aviv

35:65-80 (Nov. 15) 1948. Partial Index

- *Oral Administration of Penicillin in Infants. B. Z. Verbin.—p. 65.
- BCG Vaccination Against Tuberculosis. A. Zifrony.—p. 68.

Penicillin by Mouth for Infants with Diarrhea.—Verbin gave penicillin by mouth to 95 infants with acute diarrhea. Ninety of these recovered and 5 died. The author gained the impression that this method of administration is effective in purely intestinal disturbances as well as in parenteral complications. He was able to prove in experiments that penicillin is

absorbed in therapeutically active amounts after oral administration to infants. Laboratory tests have shown that the acidity of the infantile stomach is lower than that of the adult stomach, the gastric juice of adults exerting a destructive effect on penicillin, whereas in infants this is not the case. The intestinal flora of infants with diarrhea is chiefly gram positive and the administration of penicillin changes it to gram negative.

Nederlandsch Tijdschrift v. Geneeskunde, Amsterdam 92:3705-3812 (Nov. 13) 1948. Partial Index

- *Constitutional and Emotional Factors in Etiology of Essential Hypertension. J. Groen and J. H. Reisel.—p. 3714.
Urticaria After Emotional Experiences. G. F. Van Balen.—p. 3723.
Artificial Feeding of Healthy Infants. P. J. M. Haanappel.—p. 3726.
*Etiologic Conditions in Pulmonary Cancer. W. F. Wassink.—p. 3732.

Emotional Factors in Essential Hypertension.—According to Groen and Reisel it is well known that the blood pressure of normal persons fluctuates considerably under the influence of emotions, and in patients with essential hypertension this seems to be so to an even greater extent. Frequently patients themselves ascribe an intensification of their hypertension to some emotional annoyance. The authors tried to determine whether the character structure of these patients is such that they are predisposed to emotional conflicts and also whether the onset or exacerbation of the hypertension was preceded by an emotional upset. They obtained their data from 50 patients with essential hypertension whose ages varied between 18 and 60 years. They found that these patients are usually active, hard working persons with a tendency to perfectionism. They are inclined to lead and to dominate. They are not satisfied with themselves, and while outwardly they may appear self assured, inwardly they are not. Many make great efforts to adjust themselves to their surroundings; they have a great need to be loved and appreciated. One of the most fundamental characteristics of these patients is a strong destructive aggressiveness, and this combined with the need for love and appreciation makes for chronic conflict situations.

Pulmonary Cancer.—Comparing the occupations of 143 patients with cancer of the lung and trachea with the occupations of hundreds of other patients with cancers in which occupation seems to be without significance, Wassink gained the impression of a high incidence of cancer of lung and larynx among brain workers and a low incidence of this type of cancer among agricultural workers. Further investigations suggested that excessive smoking and remaining for long periods in rooms in which the air is laden with tobacco smoke is one of the most important exogenous causal factors in cancer of the lung.

Nordisk Medicin, Stockholm

40:2025-2076 (Nov. 5) 1948. Partial Index

- *Temperature and Pulse in Acute Appendicitis Illustrated by 2,250 Cases. E. Dahl-Iversen and H. Rahbek Sørensen.—p. 2026.
Spinal Anesthesia: I. Headache Treated with Physiologic Salt Solution Intraspinaly. J. C. Skov.—p. 2030.
Anesthesia and Asthma. Preliminary Report. G. Haglund.—p. 2032.
Retropubic Prostatectomy According to Millin. J. Ostenfeld.—p. 2038.
*Miliary Tuberculosis Treated with p-Aminosalicylic Acid (PAS) and with p-Aminosalicylic Acid and Streptomycin. B. Carstensen and L. Söderhjelm.—p. 2039.
Chyluria and Hyperlipemia. K. Boman.—p. 2042.
Bilateral Pneumothorax after Thyroidectomy. E. Christensen.—p. 2044.
Treatment of Swelling of Arm After Operation for Cancer of Breast. E. Millbourn.—p. 2046.
Diagnosis of Omental Adhesions to Anterior Abdominal Wall. K. Stray.—p. 2047.
Dislocation Fracture of Hip Joint. W. Mathisen.—p. 2049.
Cancer Cells in Prostatic Secretions. C. M. Fayers and C. Jönsson.—p. 2051.
Tetanus after Burn Probably Caused by Plastic Operation. G. Asboe Hansen.—p. 2054.

Temperature and Pulse in Acute Appendicitis Illustrated by 2,250 Cases.—Dahl-Iversen and Sørensen found agreement between the temperature of children and adults in acute appendicitis. According to their material the clinical value of temperature and pulse rate in acute appendicitis is slight. There is no temperature or pulse rate, they assert, which is characteristic of appendicitis, and differential diagnosis with respect to febrile disorders with similar symptoms must be made

along other lines. There is no typical temperature or pulse rate for the different types of appendicitis. Temperature and pulse also are not important in evaluation of the gravity of a case. Normal or slightly elevated values do not exclude a grave case. In cases where appendicitis is suspected the history and especially the abdominal findings should hold the central place in diagnostic consideration. In a given case a rise in temperature and pulse points to aggravation of the pathologic process.

Miliary Tuberculosis Treated with Para-Aminosalicylic Acid (PAS) and with Para-Aminosalicylic Acid and Streptomycin.—Carstensen and Söderhjelm say that while both para-aminosalicylic acid and streptomycin possess high tuberculostatic activity, with streptomycin apparently somewhat superior, streptomycin because of its toxic properties has shown itself unsuited for use in prolonged treatment. In experimental tuberculosis in mice better therapeutic results have been attained by combination therapy with para-aminosalicylic acid and streptomycin than with either agent alone. Three cases of typical miliary tuberculosis are published. In the first, with death from meningitis, there was roentgenologic regression of the miliary pulmonary changes in the lungs after six months' treatment with para-aminosalicylic acid, and necropsy revealed healing of miliary foci in lungs, liver, spleen and kidneys. In the next case, with decided changes in lungs and ocular fundus, healing has apparently occurred after combination therapy; para-aminosalicylic acid was given almost constantly for ten months, streptomycin for two periods of twenty-one and eighteen days respectively (total amount, 32.7 Gm. and 18 Gm. respectively). In the third instance the results are promising after combination therapy with para-aminosalicylic acid for three months and streptomycin for eleven days (total amount, 20.4 Gm.). The authors advocate prolonged treatment of recent tuberculous manifestations with para-aminosalicylic acid, in grave conditions supplemented with streptomycin for shorter periods.

Revue d'Hématologie, Paris

3:251-344 (No. 3) 1948. Partial Index

- Iontophoresis; Its Part in Biologic and Medical Research. E. Wiedemann.—p. 251.
Influence of Incompatibility of ABO System on Rh Antagonism. J. J. Van Loghem Jr. and J. Spaander.—p. 276.
Research and New Theories on Pathogenesis of Erythroblastosis fetalis. A. S. Wiener.—p. 287.
*Macrocytic Anemia Associated with Cirrhosis of Liver (Pathogenesis and Treatment). L. Braier.—p. 293.

Macrocytic Anemia in Cirrhosis of Liver.—According to Braier, Laënnec's cirrhosis of the liver is frequently associated with mild macrocytic anemia, which differs from that associated with Biermer's disease because of the absence of megalocytes and of anisopoikilocytosis. It is an "isomacrocytosis" in contrast to the anisomacrocytosis associated with Biermer's disease. The concept according to which macrocytic anemia associated with Laënnec's cirrhosis of the liver may be caused by an insufficient storage of the antianemic factor—i. e., by severe lesions of the hepatic parenchyma—is erroneous. Eppinger's and Naegeli's concepts of hypersplenism may explain certain types of anemia in cirrhotic patients, but in the majority of cases the macrocytic anemia like the cirrhosis itself depends on complex and only partly known disturbances of nutrition and of metabolism. The macrocytic anemia in cirrhosis is often resistant to antianemic agents, such as liver extract, blood transfusions and iron. The author treated 6 patients with large doses of folic acid combined with very large doses of concentrated extract of liver by mouth, and 5 patients with 2 Gm. of synthetic methionine daily by mouth for several weeks and even for several months. Definitely favorable results could not be obtained in any of these cases, not even in those patients whose general clinical condition improved under a dietary regimen devised for the protection of the liver by containing lipotropic agents and brewer's yeast. Ten patients with Laënnec's cirrhosis, 1 of them with macrocytic anemia, were given 5 Gm. of choline daily by mouth for several weeks; although choline did not exert any disadvantageous effect on the blood picture of the patients, the drug was ineffective in the case of the patient with macrocytic anemia.

Book Notices

The Renal Origin of Hypertension. By Harry Goldblatt, M.D., C.M., Director, Institute for Medical Research, Cedars of Lebanon Hospital, Los Angeles. Publication Number 14, American Lecture Series. A Monograph in American Lectures in Pathology, edited by Paul R. Cannon, M.D., Professor of Pathology, University of Chicago, Chicago. Fabrikoid. Price, \$2.75. Pp. 126, with 38 illustrations. Charles C Thomas, 301-327 E. Lawrence Ave., Springfield, Illinois, 1948.

This monograph constitutes an excellent summary of recent results in the field of experimental renal hypertension and their application to the pathogenesis and treatment of human hypertension. Goldblatt reviews earlier and at best partially successful attempts at producing hypertension experimentally by various procedures applied to the kidney and then describes his classic work in producing chronic and malignant hypertension in dogs and other species by moderate and severe constriction of the renal arteries. He points out that in long-standing chronic experimental renal hypertension there is little arteriosclerosis and arteriolosclerosis but that the pathologic changes found in experimental malignant hypertension resemble those found in malignant hypertension in man. In discussing the pathogenesis of experimental renal hypertension, Goldblatt considers that a neurogenic mechanism is not involved but that the anterior pituitary and the adrenal cortex may possibly be concerned. He then discusses the renin-hypertensinogen-hypertensin-hypertensinase system and indicates that the origin of renin from the renal tubule cells or the cells of the juxtaglomerular apparatus is still unsettled. He suggests that the alteration in renal circulation produced by renal artery constriction may produce experimental renal hypertension through an increased secretion of renin by the kidney. He considers less likely the possibility that pressor amines or other recently demonstrated vasoactive substances produced by the kidney play significant roles in pathogenesis. Goldblatt reviews the largely negative results with various drugs (including thiocyanate), vitamins, hormones and renal extracts in the treatment of experimental renal hypertension and points out that the results in essential hypertension have not been dissimilar. He favors the view that the therapeutic and prophylactic effects of heterologous hog renin in experimental renal hypertension are due to antirenin and in doing so commits several important errors in presenting the work of Wakerlin and associates in this field. He points out that sympathectomy has no significant effect in reducing the blood pressure of renal hypertensive dogs and suggests that when there is an effect in essential hypertension, a neurogenic factor may be involved pathogenetically. On the basis of results obtained with unilateral nephrectomy in experimental renal hypertension, Goldblatt wisely recommends this procedure for human hypertension only when the renal involvement is definitely unilateral. On the basis of admittedly incomplete evidence, he favors the renal origin of essential hypertension. This monograph is definitely recommended to all students and practitioners of medicine who wish to remain abreast of research in a field which should some day bear the fruit of understanding, successful treatment, and even prevention of human hypertension.

The Frontal Lobes. Proceedings of the Association December 12 and 13, 1947. New York. Editorial Board: John F. Fulton, M.D., Charles D. Aring, M.D., S. Bernard Worts, M.D. Research Publications Association for Research in Nervous and Mental Disease, Volume XXVII. Cloth. Price, \$12.50. Pp. 901, with 237 illustrations. Williams & Wilkins Co., Mt. Royal & Guilford Aves., Baltimore 2, 1948.

The momentous discovery by Egas Moniz, in 1935, that certain mental disorders could be relieved by surgical operations on the frontal lobes has stimulated an enormous amount of work along various lines. The present volume, containing the papers presented at the meeting of the Association for Research in Nervous and Mental Disease, in December 1947, is at once a record of work done and a signpost toward further researches. The first half is devoted to experimental work of various kinds and the second to clinical experiences, particularly with frontal lobotomy. In his preface, Fulton states: "The tenor of the lobotomy papers is of challenging interest, both in respect of the improvement reported in groups such as schizophrenics, and also in the remarkable results in connection with the relief of intractable pain."

The contributions vary greatly in style and cogency. Some are difficult to follow, although the editors are to be commended for their efforts to clarify. Other papers are almost too brief, and reveal tantalizing glimpses of work well begun, but bristling with unanswered questions. Psychological studies and speculative contributions are rather disappointing. Rylander, of Stockholm, has a fine chapter on personality alterations after lobotomy, although one must suspect that in many of his patients the lobotomy was too extensive, and that more restricted lesions would have led to better clinical results. The mystery as to why lobotomy should relieve the intolerable pain of cancer, tabes dorsalis, phantom limb, and so on is not solved, particularly since it appears that the pain threshold and reaction tests are indicative of even greater sensitivity after lobotomy. Another paradox requiring solution is the production of rage by one observer and its abolition by another, both apparently working on the same area in the frontal lobe in animals. In addition to chapters dealing with psychosurgery, there are also discussions of language disorders, epilepsy, motor and autonomic reactions in relation to the frontal lobes. Now, it appears that those areas of the brain, considered by a former generation to be silent areas, are gradually yielding their secrets to those who know what questions to ask and how to interpret the answers.

Pharmacology, Therapeutics and Prescription Writing for Students and Practitioners. By Walter Arthur Bastedo, Ph.G., Ph.M., M.D., Consulting Physician, St. Luke's Hospital, New York. Fifth edition. Cloth. Price, \$8.50. Pp. 840, with 82 illustrations. W. B. Saunders Co., West Washington Sq., Philadelphia 5, 1947.

Bastedo's "Pharmacology, Therapeutics and Prescription Writing" is intended for students and practitioners. This book provides information that is of practical importance in the everyday life of a practitioner and student. There are those who insist that the subject of therapy today has become so broad that it is impossible to include in one volume all of the essential information. If there is adequate reason for this attitude, Bastedo's book is one of several that should be in a medical library. If, however, there are some who feel that only one book is necessary, this volume could be considered as one of several choices. The tenet of the author in his writings is obvious in his introduction, which begins "Medicine sometimes cures, it often relieves, it always consoles." He has discussed with discerning clarity treatment measures that are in common use and the actions of drugs that are well known or should be well known.

Pathologie des Kohlehydratstoffwechsels. Von Prof. Dr. E. Frank, Direktor der II. medizinischen Klinik der Universität Istanbul. Cloth. Price, 24 Swiss francs. Pp. 332, with 20 illustrations. Benno Schwabe, Klosterberg 27, Basal 10; imported by Grune & Stratton, Inc., 381 4th Ave., New York 16, 1949.

While the study of the pathology of carbohydrate metabolism is well presented here, the volume is designed for the investigator and student of internal medicine and the preclinical sciences rather than as a practical guide to the clinician. In the opening section, the researches on experimental diabetes are divided into three periods, the Minkowski-Banting era (pancreatic diabetes and insulin), the Houssay-Young-Long era (the roles of the anterior pituitary gland and the adrenal cortex in carbohydrate metabolism) and the alloxan diabetes era. This is followed by sections on types of pituitary diabetes in human pathology, insulin, pathologic anatomy of the pancreas in diabetes mellitus, diabetic coma, hyperinsulinism, the pathology of the renal threshold, and glycogen disease (Von Gierke's disease). An extensive discussion of acidosis is also included. The presentation concludes with a brief discussion of the so-called benign melliturias. The collection and evaluation of the literature on the pathology of carbohydrate metabolism is extensive and has been done with care: the book should be of great value to the pathologist, the physiologist and the biochemist. An extensive bibliography of some 23 pages covers the literature to the period of 1947. It might be mentioned that a legend of the discovery of pancreatic diabetes by Minkowski in 1889, new to this reviewer, is related in the opening chapter. Since Minkowski was the "great and honored teacher" of Dr. Frank, this should be authentic.

Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. THEY DO NOT, HOWEVER, REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS, BUT THESE WILL BE OMITTED ON REQUEST.

PERSISTENT LACTATION

To the Editor:—A patient, aged 32, complains of persistent lactation since the birth of her only child seven years ago. This patient is able to express a cubic centimeter or more of milk from either breast at will. The patient did not nurse her baby, but her breasts were pumped several times while in the hospital to relieve engorgement. She has now been divorced three years and denies any sexual stimulation. The patient is a slender, rather nervous person with small, soft, slightly pendulous breasts and erect nipples. Evidences of mastitis or other masses are absent. Pelvic examination reveals a normal uterus and adnexa. Some months ago she was given methyl testosterone in the form of metandren® linguets, 10 mg. daily for two weeks, without any appreciable effect. I have given her four doses of testosterone propionate, 25 mg. by intramuscular injection, without appreciable effect. What treatment will alleviate this condition?

Fred S. Taber, M.D., New Brunswick, N. J.

ANSWER:—The statement, "This patient is able to express a cubic centimeter or more of milk from either breast at will" probably indicates that the patient is doing just that. This is all the stimulation that the breast needs to continue lactating. Have her try leaving the breast absolutely alone and wearing an uplift brassiere. A small pad can be worn under the brassiere to absorb the milk. Lactation probably will stop in two to six months if the breast is not stimulated by manipulation or stripping.

DETERMINATION OF THE SEX OF OFFSPRING

To the Editor:—Explain the fact that in almost all animal life the sex of offspring is the same as the relatively stronger parent, because of either age, state of health or natural physical strength. In the process of development when is sex established?

Johnson Underwood, M.D., Parkville, Mo.

ANSWER:—In the human being, neither age, state of health nor natural physical strength has anything to do with the determination of sex of the offspring. The sex is determined at the time of fertilization of the ovum by the spermatozoon. It is the spermatozoon which determines the sex and not the ovum. All sperm and ova have 48 chromosomes to begin with. Each sperm cell has 46 regular chromosomes plus an "x" and a "y" chromosome, whereas each ovum contains 46 regular chromosomes, plus two "x" sex chromosomes. When maturation occurs each sperm cell and ovum divides into two cells. Each of the two ovum cells contains 23 regular chromosomes plus an "x" chromosome, but one half of the sperm cells contain 23 regular chromosomes plus an "x" chromosome and the other half of the sperm cells contain 23 plus a "y" chromosome. If a sperm cell containing 23 chromosomes plus "x" fertilizes an ovum, a female will result because in the union of the sperm and ovum there will be 46 regular chromosomes plus an "x" and an "x" chromosome. If, on the other hand, a sperm cell containing 24 chromosomes plus a "y" fertilizes an ovum, a male will result because in the union there will be 46 regular chromosomes plus an "x" and a "y" chromosome. It is purely a matter of chance as far as we know at present whether a sperm with an "x" or a "y" chromosome will fertilize an ovum. This is borne out by the fact that almost universally about 94 females are born to every 100 males in single births.

ACUTE NEPHRITIS

To the Editor:—A 21 year old white man has had albumin, casts, red cells and white cells in his urine for the last five months. Ankle edema and decreased renal function are also present. I have diagnosed this as nephritis. How long must I keep him from his work? He has worked little during the past five months, as he has been mostly in bed.

Simon Cherkasky, M.D., Kaukauna, Wis.

ANSWER:—If the patient's nephritis is an initial attack and if there is still evidence of progressive inflammation in the form of urinary changes, decreasing renal function or elevation in blood pressure, it would be inadvisable to allow the patient to return to work. If, however, the renal process has become stabilized, there is little to be gained by further bed rest after a period of five months; gradual increase in activity and ultimate return to light work should be permitted. The work should not involve exposure to chilling or infection, if possible.

DIURETIC ACTION OF ASCORBIC ACID

To the Editor:—A patient with glomerulonephritis had intractable edema until we gave her heavy doses (1 Gm. daily) of vitamin C. What is the explanation.

Bernhard A. Fedde, M.D., Brooklyn.

ANSWER:—W. Evans (*Lancet* 1:308, 1938) reported some diuretic action of ascorbic acid given orally in patients with cardiac failure under control conditions. However, the effect was considerably less than that of ammonium chloride or the purine drugs. Similar results were reported by C. F. Shaffer (J. A. M. A. 124:700, 1944): Intravenous ascorbic acid had no diuretic effect. In 15 out of 20 patients given a mixture of 2 cc. of mercuraphylline and 500 mg. ascorbic acid intravenously, an increased urinary output of 500 cc. to 2,000 cc. over the control period occurred in the first twenty-four hours. D. W. Chapman and C. F. Shaffer (*Arch. Int. Med.* 79:449, 1947) published similar results from the intravenous injection of 2 cc. of meralluride sodium solution and 500 mg. ascorbic acid. The mechanism of this modest diuretic effect is not known, since there have not been studies on urinary sodium excretion. Presumably the effect is on the kidney, but the delayed action after oral administration in the absence of any evidence of acidosis suggests a metabolic effect.

TESTOSTERONE THERAPY

To the Editor:—I have had requests from middle-aged men for injections of testosterone. Will such medication stimulate or cause cancer of the prostate or other organs? What tests can one make to rule out possibility of cancer before injecting testosterone?

M.D., Oklahoma.

ANSWER:—Before starting a male patient on androgenic hormone therapy, it is, of course, imperative that a careful rectal examination of the prostate be performed. Any firm or fixed nodule is suggestive of cancer and contraindicates use of testosterone. A perineal biopsy would be the procedure of choice in confirming the diagnosis. A serum acid phosphatase determination may be of value, and an elevated level is significant of prostatic carcinoma.

One is not likely to find cancer cells in prostatic secretions examined by the ordinary method. Loss of weight, dysuria, back pain and anemia lead to the suspicion of a mitotic process in the prostate of the elderly man.

Testosterone is of value in aiding erections and easing the mental attitude during the male climacteric and is often of value in decreasing nocturia and easing the irritable bladder.

RADIOTHERAPY IN CANCER OF RECTUM

To the Editor:—What value has high voltage roentgen therapy in treatment of carcinoma of the rectum?

M.D., Illinois.

ANSWER:—Radiotherapy is, in general, not as good as radical operation, either as a cure for carcinoma of the rectum or as an attempt to relieve symptoms. Generally, roentgen treatment is used as a palliative procedure and is given in doses of approximately 1,500 to 2,500 r per field. This is usually supplemented, in favorable cases, by interstitial radium in the form of needles or seeds. Preoperative roentgen treatment is seldom used for a strictly operable case, but it may be used in some of the higher grade lesions, strictly those of questionable operability. Recently there have been reports of the use of contact roentgen therapy for lesions low in the bowel which offer promising results.

VASODILATORS IN ACUTE CORONARY DISEASE

To the Editor:—Assuming that vasodilator drugs are contraindicated for acute myocardial infarction, why do some reputable cardiologists employ intravenously administered aminophylline during an attack?

Thomas E. Burrow, M.D., Carlisle, Ark.

ANSWER:—Vasodilator drugs are not used as a rule in acute myocardial infarction because their dilating effect on the peripheral arterioles is such that a considerable fall in blood pressure may develop. Such a fall in blood pressure may affect the coronary flow adversely.

The value of intravenously administered aminophylline during a coronary attack is a controversial question. Even if the drug does increase blood flow to the noninfarcted areas in the heart it is doubtful that blood supply to the infarcted areas is increased enough to make any appreciable difference in the final result. Furthermore, the drug may produce a fall in blood pressure by its dilating action. This may be counterbalanced by an increase in cardiac output, as experiments with aminophylline in congestive heart failure have shown. Thus, the net result of the drug is much in doubt.



Ernest B. Cross

PRESIDENT, AMERICAN MEDICAL ASSOCIATION, 1949-1950



WALTER B. MARTIN
Norfolk, Va.



JAMES R. MILLER
Hartford, Conn.



EDWARD J. McCORMICK
Toledo, Ohio



EDWIN S. HAMILTON
Kankakee, Ill.



ELMER L. HENDERSON, Chairman
Louisville, Ky.



LOUIS H. BAUER
Hempstead, N. Y.



JOHN H. FITZGIBBON
Portland, Ore.



DWIGHT H. MURRAY
Napa, Calif.



GUNNAR GUNDERSEN
La Crosse, Wis.

BOARD OF TRUSTEES



Ernest B. Cross

PRESIDENT, AMERICAN MEDICAL ASSOCIATION, 1949-1950



WALTER B. MARTIN
Norfolk, Va.



JAMES R. MILLER
Hartford, Conn.



EDWARD J. McCORMICK
Toledo, Ohio



EDWIN S. HAMILTON
Kankakee, Ill.



ELMER L. HENDERSON, Chairman
Louisville, Ky.



LOUIS H. BAUER
Hempstead, N. Y.



JOHN H. FITZGIBBON
Portland, Ore.



DWIGHT H. MURRAY
Napa, Calif.



GUNNAR GUNDERSEN
La Crosse, Wis.



LERDY A. CALKINS
Kansas City, Mo.
Chairman
Section on Obstetrics and
Gynecology



WILLIAM H. DANIEL
Los Angeles
Chairman
Section on Gastro-Enterology
and Proctology



WOODRUFF L. CRAWFORD
Rockford, Ill.
Chairman
Section on Pediatrics



FRANCIS J. GERTY
Chicago
Chairman
Section on Nervous and
Mental Diseases



FRANCIS M. FORSTER
Philadelphia
Secretary
Section on Nervous and
Mental Diseases



JAY A. MYERS
Minneapolis
Secretary
Section on Diseases of
the Chest



SHELLEY U. MARIETTA
Washington, D. C.
Chairman
Section on Diseases of
the Chest



GEORGE E. WAKERLIN
Chicago
Chairman
Section on Pathology
and Physiology



M. A. BLANKENHORN
Cincinnati
Chairman
Section on Internal Medicine



HAMILTON W. MCKAY
Charlotte, N. C.
Chairman
Section on Urology



HENRY B. ORTON
Newark, N. J.
Chairman
Section on Laryngology, Otology
and Rhinology



OSCAR A. SANDER
Milwaukee
Chairman
Section on Preventive and
Industrial Medicine and
Public Health



M. HAYWARD POST
St. Louis
Chairman
Section on Ophthalmology



HARRY M. WEBER
Rochester, Minn.
Chairman
Section on Radiology



PAUL C. HODGES
Chicago
Secretary
Section on Radiology



THOMAS E. ROBINSON
Salt Lake City
Secretary
Section on General Practice



C. WALTER METZ
Denver
Chairman
Section on Anesthesiology



WILLIAM F. MacFEE
New York
Chairman
Section on Surgery, General
and Abdominal



ANTHONY C. CIPOLLARO
New York
Chairman
Section on Dermatology
and Syphilology



DAVID M. BOSWORTH
New York
Chairman
Section on Orthopedic Surgery

The Journal of the American Medical Association

Published Under the Auspices of the Board of Trustees

VOL. 140, No. 5

CHICAGO, ILLINOIS
COPYRIGHT, 1949, BY AMERICAN MEDICAL ASSOCIATION

JUNE 4, 1949

DRUG ALLERGY

WILLIAM B. SHERMAN, M.D.
New York

The phenomena of idiosyncrasy to drugs have long presented a problem to physicians, but it is only recently that progress has been made in elucidation of the mechanism of many of these reactions. A considerable number of reactions are due to immunologic hypersensitivity or allergy, unrelated to the drug action. The recognition of allergic manifestations as such is made more difficult by the pharmacologic activity of these agents, and in some cases the distinction between allergic and toxic reactions cannot be made with certainty.

PATHOLOGIC CHANGES

In recent years, numerous studies of the histologic lesions of drug hypersensitivity, as distinguished from toxic effects, have been reported. Arteritis, with localized fibrinoid and hyaline degeneration of the media and perivascular infiltration, has been described in allergy to a number of different drugs.¹ Focal necrosis of the myocardium, liver, spleen and other organs, with infiltration of mononuclear cells, is also characteristic. The monocyctic infiltration may produce granulomas of these organs or, in the heart, extensive interstitial myocarditis.² Figure 1 shows arteritis due to sulfadiazine, and figure 2 shows granuloma of the liver due to sulfadiazine. A similar monocyctic infiltration of the periportal spaces of the liver due to arsphenamine sensitization may be associated with obstruction of the bile canaliculi causing jaundice.³ There is also evidence that massive parenchymal necrosis of the liver due to arsphenamine, cinchophen and sulfonamide drugs may represent a sensitization phenomenon.

SYMPTOMS

The symptoms of drug allergy are varied; some, such as asthma, urticaria, contact dermatitis and anaphylactic shock, are readily recognized as allergic manifestations, while others, such as fever, leukocytosis, arthralgia and morbilliform and scarlatiniform rashes, are easily confused with the symptoms of infectious diseases.

The most dramatic of allergic manifestations, anaphylactic shock, is familiar as a reaction to the injection

of heterologous antiserum into sensitive patients. Similar reactions (occasionally fatal) may be produced by injections of other protein-containing biologic products, such as liver extract, insulin, toxoids and vaccines, and occasionally by the intravenous injection of such non-protein drugs as arsphenamine, quinine and thiamine. These reactions may occur unexpectedly, but often mild evidences of sensitivity will follow one or two injections before the occurrence of a severe anaphylactic reaction; these should suggest caution in administering further injections.

Asthma and rhinitis due to drug allergy are not unusual, most often affecting persons who also have the same symptoms from other causes. The drug most frequently causing these symptoms is aspirin (acetylsalicylic acid), but sulfonamide drugs, penicillin, quinine, arsphenamine, vegetable gums and protein drugs, such as pancreatin and papain, are occasional causative agents. Attacks of asthma caused by acetylsalicylic acid usually start within a few minutes, because of its solubility and diffusibility, so that the relationship of cause and effect is apparent. The severity of the attacks is such that in several cases death has resulted from ingestion of 5 to 10 grains (0.3 to 0.6 Gm.). Cutaneous tests are not helpful in such sensitivity to crystalloid drugs. In the case of asthma and rhinitis due to vegetable gums and proteins, scratch or intracutaneous tests are diagnostic. Sensitizations to the vegetable gums are of practical importance because of the use of gums as excipients or cohesive agents in the preparation of pills. Most pills contain one of the gums, the presence of which is usually disregarded, and the possibility must be considered that a reaction following their use may be due to allergy to the gum rather than the pharmacologically active ingredient.⁴

Drugs of practically all types, crystalloids, proteins and gums, may cause urticaria and angioedema. In recent years the drug most frequently causing urticaria has been penicillin. Urticaria due to penicillin may occur as the sole manifestation of sensitization or may form a part of a syndrome resembling serum sickness in every respect, with urticaria, fever and arthralgia. The reaction is usually delayed seven to ten days after the first dose and frequently two or three days after use of the drug is discontinued. If the penicillin has been injected in oil and wax, the general features of the reaction are similar, but, in addition, there is usually a pronounced swelling at the site of injection, due to persistence of antigen at that location.

Fever due to drugs is an important and confusing manifestation of drug allergy, most frequently seen after administration of sulfonamide drugs, but also caused by

From The Department of Allergy, The Roosevelt Hospital, New York. Read before the Section on Miscellaneous Topics at the Ninety-Seventh Annual Session of the American Medical Association, Chicago, June 23, 1948.

1. Rich, A. R.: The Role of Hypersensitivity in Periarthritis *Nodosa*, *Bull. Johns Hopkins Hosp.* 71: 123, 1942.

2. Simon, M. A.: Pathologic Lesions Following the Administration of Sulfonamide Drugs, *Am. J. M. Sc.* 205: 439, 1943.

3. Hanger, F. M., Jr., and Gutman, A. B.: Postarsphenamine Jaundice Apparently Due to Obstruction of Intrahepatic Biliary Tract, *J. A. M. A.* 115: 263 (July 27) 1940.

4. Brown, E. B., and Crepea, S. B.: Allergy (Asthma) to Ingested Gum Tragacanth, *J. Allergy* 18: 214, 1947.

penicillin, streptomycin, thiouracil, iodides and other drugs. During the first course of any of these drugs, fever usually appears abruptly on the seventh to tenth day. The temperature may rise to 105 or 106 F., and the leukocyte count may remain normal or rise as high as 30,000. The fever is frequently, but not always,

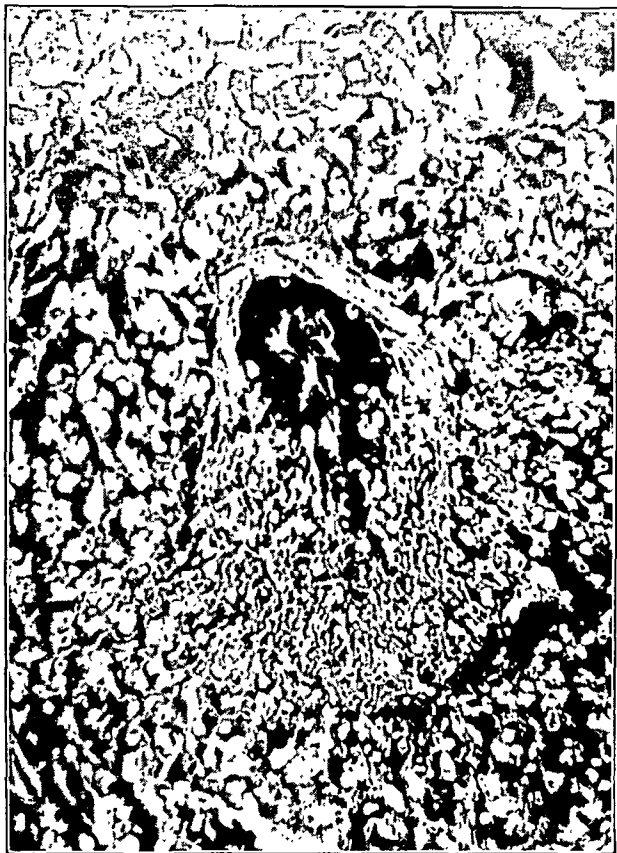


Fig. 1.—Arteritis following use of sulfathiazole (from Dr. Arnold Rich).

accompanied with morbilliform or scarlatiniform rash and may be easily mistaken for one of the acute infectious diseases. In cases in which the sulfonamide drugs have been used for pneumonia or pyogenic infection, the sudden rise of temperature, if accompanied with leukocytosis and not a rash, suggests a spread of infection. Such a misinterpretation may lead the physician to continue or increase the dose of the sulfonamide drug and occasionally has resulted in death from sensitivity due to drugs.⁵ The diagnosis of drug fever is rarely easy, but if one keeps in mind the possibility of its occurrence, the characteristic incubation period of seven to ten days and the rash and leukocytosis which may or may not accompany it, it may be suspected and a suitable substitute made for the previous medication.

When use of the causative drug is discontinued, the fever subsides in two or three days. The patient remains sensitive for a considerable period, and a single subsequent dose may cause an abrupt rise of temperature within a few hours. The administration of sulfonamide drugs for two to five days may initiate the process of sensitization, though the drug may be eliminated from the body before fever develops. Subsequent administration of the same drug will then cause an immediate reaction.

In the case of drugs injected once or twice a week, such as arsphenamine and oxophenarsine hydrochloride, drug fever occurs abruptly after the second or third injection, producing the picture of Milian's "syndrome of the ninth day."⁶

Drug fever is rarely serious if recognized as such and use of the causative agent discontinued, but it is an indication that sensitization has taken place and further use of the same or closely related drugs may give rise to more serious manifestations of drug allergy.

Rashes due to drugs are the commonest manifestations of drug allergy. Their morphologic appearances are exceedingly varied, some forms being characteristic of certain types of drugs, as the acneform dermatitis produced by bromides and iodides, while others, such as the morbilliform rashes following internal medications and vesicular contact dermatitis, may be due to a wide variety of agents.

When the drug, such as one of the sulfonamide drugs, is given in a continuous course, the morbilliform rash most often appears on the seventh to fourteenth day, often accompanied with drug fever. If use of the drug is stopped, the rash fades promptly, but if it is con-

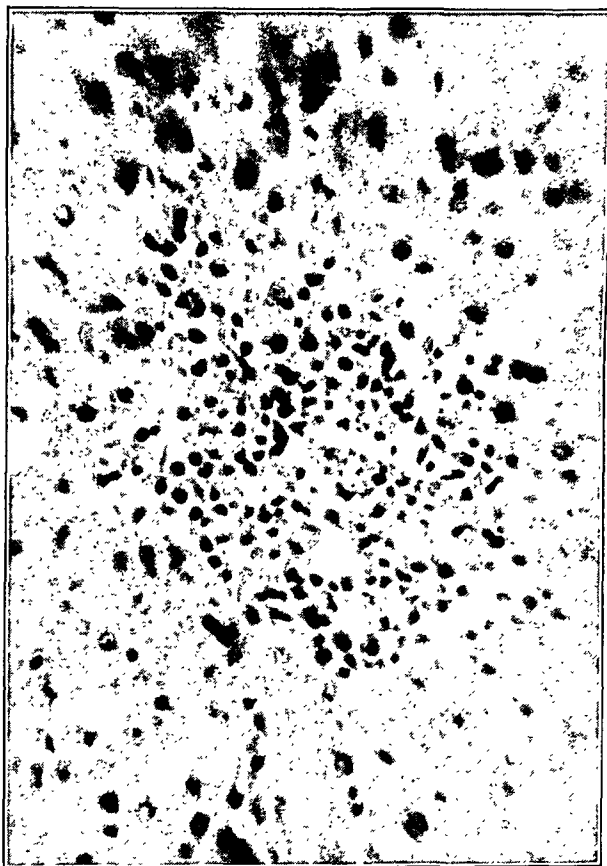


Fig. 2.—Granuloma of the liver following use of sulfadiazine.

tinued the eruption usually becomes more intense and may progress to an exfoliative dermatitis which is exceedingly persistent even after administration of the drug has been discontinued. Once the skin has been sensitized, subsequent use of the drug may cause a

5. Lederer, M., and Rosenblatt, P.: Death During Sulfathiazole Therapy: Pathologic and Clinical Observations on Four Cases with Autopsies, *J. A. M. A.* **119**:8 (May 2) 1942.

6. Peters, E. E.: Syndrome of Milian's Erythema of the Ninth Day, *Am. J. Syph., Gonorr. & Ven. Dis.* **25**:527, 1941.

prompt appearance of an intense confluent eruption and topical application of the drug may cause vesicular contact dermatitis.

Sensitization of the skin may also be initiated by topical application, continued local use of such drugs as the sulfonamide preparations for two weeks or more frequently causing contact dermatitis.⁷ If the same drug is subsequently administered by mouth there is usually a prompt recurrence of dermatitis at the sites of previous contact. In a considerable number of patients this local recurrence is accompanied with constitutional symptoms, such as chills, fever and eosinophilia,⁷ indicating that surface contact has produced a systemic rather than merely a cutaneous sensitization.

Jaundice may occur after the administration of a wide variety of drugs. In certain instances, as with chloroform and carbon tetrachloride, there is little doubt that damage to the liver is a normal toxic effect of the drug. In the case of other drugs, such as sulfonamide preparations, arsphenamine, cinchophen and quinacrine hydrochloride, there is reason to believe that jaundice occurs as a result of sensitization. Hanger and Gutman⁸ pointed out that jaundice occurring early in the course of arsphenamine treatment and showing the blood chemical observations of obstructive jaundice is presumably due to drug sensitivity. It is probable that drug sensitivity can also cause nonobstructive jaundice, but series of cases of postarsphenamine jaundice to which these chemical criteria have not been applied undoubtedly include cases of coincidental infectious hepatitis and of homologous serum jaundice transferred by the technic of injecting the drug, so that results based on them must be interpreted with caution.

All of the drugs causing jaundice are also common causes of other manifestations of allergy, such as drug fever and cutaneous rashes, and not infrequently jaundice occurs with or follows soon after one of these evidences of sensitization. When a drug is given in an interrupted course, jaundice is more frequent in the second course, suggesting that sensitivity has been acquired. After one attack of jaundice, further use of the same drug is apt to cause a recurrence.

Another type of dangerous reaction to drugs which has been suspected of having an allergic mechanism is granulocytopenia caused by such drugs as aminopyrine, thiouracil, arsphenamine and the sulfonamide preparations. Agranulocytosis may occur suddenly in patients who have previously tolerated the same drug for weeks or months, or after a gradually developing leukopenia. If recovery occurs, a subsequent dose of the causative drug may produce a decided drop in the leukocyte count within a few hours. Dameshek and Colmes⁹ reported positive cutaneous reactions to a mixture of aminopyrine and human serum in 3 patients suffering from agranulocytosis due to that drug. These observations are suggestive of an allergic mechanism, but have not yet received adequate confirmation.

Granulocytopenia due to drugs is occasionally accompanied with thrombopenia, which may also occur as a separate reaction to the sulfonamide drugs, arsphenamine and to other drugs, but most often to the hypnotic

sedormid[®] (allyl-isopropyl-acetyl-carbamide). Thrombopenia caused by drugs is usually manifested by purpura appearing abruptly after prolonged use of the drug. After one such attack, further administration of the same drug usually causes a prompt recurrence.

DIAGNOSIS AND MANAGEMENT

Most forms of allergy to protein drugs are readily demonstrable by scratch or intracutaneous tests with the causative agent. In allergy to nonprotein crystalloid drugs, such tests are rarely helpful. Since the antigenic activity of crystalloid drugs is believed to result from combination with proteins within the body, a few workers have used drug azoproteins as antigens for cutaneous tests, but the results reported have been disappointing. Leftwich⁹ reported success in the use of serum of patients receiving full doses of sulfonamide drugs as antigens in intracutaneous tests for the diagnosis of sensitivity to sulfonamide drugs. No confirmation of this work has been published, and Fink, Burton and Wheeler¹⁰ reported negative results from the use of this method in children. The writer has performed this test on patients known to be highly sensitive to sulfadiazine, with uniformly negative results. It is not a reliable criterion of sensitization to sulfonamide drugs. The only type of cutaneous test with nonprotein drugs which has proved of diagnostic value is the patch test in contact dermatitis. Frequently the patch test is also helpful in the diagnosis of dermatitis resulting from internal medication, but it is less reliable in such cases, because of the uncertainty of absorption of drugs through the intact skin.

In general the diagnosis of drug allergy depends on a knowledge of the clinical manifestations of sensitivity which may be expected from each drug used. The history of a hereditary tendency to allergic disease is of little aid in diagnosis except of those reactions manifested by asthma, rhinitis and urticaria. Many of the more serious types of drug allergy may be avoided if minor symptoms of sensitization, such as cutaneous rashes and fevers due to drugs, are recognized as such and use of the causative drug is promptly discontinued.

The specificity of drug allergies varies so greatly that it is impossible to predict the results of substitution of a closely related drug for one which has produced a reaction. Some patients react to a whole group of chemically related compounds, while others show a sensitivity specific for one drug of the group. Only a cautious trial with a fraction of the usual dose will give the answer in an individual case.

Likewise, the duration of drug sensitization is exceedingly variable, in some instances lasting for years and in others, especially in sensitization to penicillin, ending within a few weeks. If an acceptable substitute is available, the wisest procedure is to avoid readministration of a drug which has once caused an allergic reaction for an indefinite period. Occasionally strong indications for the use of an important drug may outweigh the history of allergic reactions to previous administration, and cautious trial, starting with a fractional dose, is warranted. In the case of penicillin,

7. Sulzberger, M. B.; Kanof, A.; Baer, R. L., and Lowenberg, C.: Sensitization by Topical Application of Sulfonamides, *J. Allergy* 18: 92, 1947.

8. Dameshek, W., and Colmes, A.: The Effect of Drugs in the Production of Agranulocytosis, with Particular Reference to Amidopyrine Hypersensitivity, *J. Clin. Investigation* 15: 85, 1936.

9. Leftwich, W. B.: An Intradermal Test for the Recognition of Hypersensitivity to the Sulfonamide Drugs, *Bull. Johns Hopkins Hosp.* 74: 26, 1944.

10. Fink, H. W.; Burton, I., and Wheeler, W.: The Applicability of Skin Tests for Sulfonamide Hypersensitivity in Children, *J. Immunol.* 54: 65, 1946.

such attempts are often successful; with the sulfonamide drugs, the results are less favorable.

While desensitization is often possible with protein compounds, attempts at desensitization with nonprotein drugs are rarely successful and occasionally cause severe reactions. In general substitution of another medication is preferable.

SUMMARY

Many of the untoward reactions to drugs, such as anaphylactic shock, asthma, rhinitis, urticaria, arthralgia, drug fever, dermatitis and probably hepatitis, granulocytopenia and thrombopenia, are due to allergic sensitization. Pathologic studies have demonstrated widespread visceral lesions in patients with clinical evidence of drug allergy. Scratch and intracutaneous tests with nonprotein drugs are rarely diagnostic. Patch tests are of value in contact dermatitis and occasionally in other eruptions due to drugs. The diagnosis of drug allergy in most cases must depend on the history and physical manifestations. Recognition of early signs of sensitization and discontinuation of use of the causative drug will often avoid the more serious types of reaction.

ABSTRACT OF DISCUSSION

DR. MARION B. SULZBERGER, New York: Rashes are the commonest manifestations of drug allergies. It is therefore not astonishing that the older dermatologic literature is where one must look to get the historical background of this important chapter of medicine. In 1877 Dr. Prince Morrow of New York published one of the best treatises on rashes and eruptions due to drugs. In 1893 Josef Jadassohn published a monograph entitled "Medicamentous Dermatitis," an almost prophetic treatise in which almost everything we know today is discussed. Simple chemicals of relatively low molecular weight, chemicals which can be synthesized in the laboratory, even elements such as mercury, can induce almost every known form of immunologic change. As a result, in studying the basic phenomena of immunology, one need not employ as antigens the impure mixtures and complex inconstant combinations derived from nature. The second important point is that almost every known disease picture can be caused by the immunologic reactions to such simple chemicals. In other words, there is nothing pathognomonic for disease produced by a living micro-organism, as distinguished from disease elicited by simple nonliving chemical substances. Thus, identical forms of arthritis, urticaria, asthma, erythematous eruptions, rhinitis and fever can be caused by infecting living agents, by "protein" allergens and also by salicylates and many simple chemicals. Hepatitis can be due to a virus, on one hand, to a drug allergy, on the other hand, to direct toxic action, such as that of chloroform, or to combinations of these. One of the most illuminating prospects in all medicine is offered by the study of the reasons for these frequent similarities of the disease pictures caused by living agents and by nonliving chemicals. Dermatologists' combined studies of cutaneous diseases and cutaneous reactions due to simple chemicals and drugs and the diseases and cutaneous reactions due to living micro-organisms have made clearer one great fact. Many important micro-organisms, such as tubercle bacilli, lepra bacilli, spirochetes and dermatophytic fungi, produce disease not by forming toxins, but by producing allergens which specifically sensitize the tissues. The picture the physician sees is mainly the result of the immunologic reaction of the sensitized tissue to the products of the micro-organisms. With this concept in mind, one can begin to comprehend the similarities of the disease pictures produced by certain living agents and those produced by simple chemical allergens. Both

are based on analogous immunologic alterations, and, more important, both can and must be studied by related and integrated theoretical concepts and experimental approaches.

DR. HOWARD OSGOOD, Buffalo: While Dr. Sherman considered a number of drugs, I should like to add one more. This is papain, derived from the fruit of the papaya tree or East Indian paw paw. The omission is undoubtedly due to the fact that sensitivity to it is not the usual so-called drug sensitivity, but is of the atopic type. Papain is a powerful protein digestant and occurs as a powdered extract in many proprietary and other digestant mixtures sold in drug stores. Papaya is used as a meat tenderizer in hamburger and other ground meats, being introduced shortly before cooking. It is used in treating hides. It is used extensively as a clarifier in beer and ale, although the amount present is in large dilution. The juice is canned and sold for drinking. In persons sensitive to it, exposure produces vasomotor rhinitis and asthma, which may be severe, and digestive symptoms.

DR. THEODORE LOUIS SQUIER, Milwaukee: It would be most most helpful if determinations of aminopyrine sensitivity or of sensitivities to other drugs were possible by a cutaneous test such as that described by Dameshek and Colmes, or by some modification thereof, such as was described by Leftwich. My co-workers and I have used the cutaneous test procedure advocated by Dameshek and Colmes, i. e., mixing of aminopyrine with human serum and later testing patients intracutaneously with the drug-serum mixture, with consistently negative results. Likewise, in a fairly extensive series of patients known to be sensitive to sulfonamide drugs, we have made cutaneous tests as described by Leftwich, using blood serum with a high content of a sulfonamide drug from patients treated with sulfonamide preparations. The results were uniformly negative. It is important to emphasize that when cutaneous tests are done with any serum, one may be confused by false positive reactions due to isoantibodies in the serum. Any one who has done passive transfer tests will recall how frequently the reactions are observed to the serum used in sensitizing the skin sites.

DR. J. A. RUDOLPH, Miami Beach, Fla.: I have under observation a group of patients who have been sensitized by the sulfonamide drugs, penicillin and some of the antihistaminics. I have not been able to determine whether these sensitizations have remained latent or not, since the patients meet none of the usual criteria for an allergic person. Could this not be the reason why one sees more allergic persons today who have asthma, rhinitis or other allergies which may have been initiated by the various drugs in question? It would seem that the immunologic concept of allergy may also be one of precipitation by drugs and need not be dependent on heredity and the other allergic criteria, alone, as we believe at present.

DR. W. B. SHERMAN, New York: I agree with essentially all the points brought out, and particularly Dr. Squier's remarks that no form of cutaneous test is reliable in the diagnosis of sensitivity to drugs. The diagnosis must be made from the knowledge of the particular reaction to be expected from each drug. I would like to stress, also, that some of the apparently minor reactions, such as cutaneous rashes and drug fever, may be warnings that more serious manifestations will take place if use of the drug is continued.

Mrs. John Hunter.—It was about this time that Hunter, at the age of 43, married Anne Home, the daughter of an Army doctor, and 29 years of age. She was a woman of great charm and considerable social distinction, the friend of Haydn, Madame d'Arbly and Mrs. Montague. She was something of a poetess and wrote the words for Haydn's "The Creation."—Souttar, H.S., The Hunterian Oration, *Annals of the Royal College of Surgeons of England*, March 1949, page 127.

PATHOGENESIS OF ARTERIAL HYPERTENSION

IRVINE H. PAGE, M.D.
Cleveland

Much is known of the pathogenesis of spontaneous hypertension in human beings and experimental hypertension in animals, despite the short time during which modern investigative methods have been used. Because the various types of experimental renal hypertension have received the greatest share of study is insufficient reason for one's assuming that they necessarily mirror more exactly essential hypertension in human beings. Several years ago, some clinicians overstepped judicious bounds in proclaiming that the cause of human hypertension had been reproduced in animals, a view wisely not expressed at that time by the inspirer of some of this work, Harry Goldblatt. But there are certainly enough similarities between experimental renal hypertension and essential hypertension to justify the hope that elucidation of the mechanism of the former will aid in the understanding of the latter.

For some years, the view was held that hypertension was due to humoral agents. A poor case at best was made for any participation of the nervous system. Indeed, at one time, the nervous system was discarded almost contemptuously; but times have changed. The nervous system now occupies the dominant place, in the opinion of many persons, in maintaining the elevated pressure during the chronic stage. Humoral agents merely initiate the rise during the first few weeks of hypertension, to lose their dominance later. But confusion becomes compounded. Because renin has not been detected with assurance in peripheral blood in increased amounts during the chronic stage of hypertension by the crude methods available, it is assumed that it plays no part in the mechanism. The assumption is made further, on the basis of what seems to me assailable evidence, that the nervous system now takes over the vasoconstrictor function from the humoral. Confronted with this array of inadequate evidence, some resign themselves to the belief that doctors are wholly lacking in insight into the mechanisms of arterial hypertension.

Even the simplest hypertension is a mosaic in which many mechanisms are to a greater or lesser extent involved. Elevated blood pressure is the resultant of multiple forces acting on the variety of tissues which compose the circulatory apparatus. Is it then to be supposed that this is any simple problem the solution of which will be found in the elucidation of but one of these forces?

The various systems chiefly involved in hypertension may be divided, for pedagogic purposes, into groups somewhat as follows:

Clinical

Experimental

I. NERVOUS PARTICIPATION

Poliomyelitis of brain stem	Cerebral Ischemia
Porphyria	
Increased intracranial pressure	Cushing's experiment
Sclerosis of carotid sinus	Resection of sinus and aortic depressor nerves

From the Research Division of the Cleveland Clinic Foundation and Bunts Institute, Cleveland.

Read in a Symposium on Hypertension in a joint meeting of the Section on Experimental Medicine and the Section on Internal Medicine at the Ninety-Seventh Annual Session of the American Medical Association, Chicago, June 25, 1948.

Clinical

Experimental

Resection of glossopharyngeal nerve
Emotion
Tabes dorsalis

Hypertension from audiogenic stimulus

II. CARDIOVASCULAR PARTICIPATION

Coarctation of aorta
Heart failure
Arteriovenous fistula
Arteriosclerosis

Clamping of aorta above renal vessels

III. ENDOCRINE PARTICIPATION

Hypophysis—basophil adenoma
Adrenals—pheochromocytoma
Cortical carcinoma
Cortical hyperplasia
Thymus—carcinoma with Cushing's syndrome
Placenta—associated with toxemia of pregnancy

Anterior lobectomy diminishing blood pressure

Adrenalin hypertension
Desoxycorticosterone acetate hypertension
Bilateral adrenalectomy abolishes hypertension

IV. RENAL PARTICIPATION

Glomerulonephritis
Obstruction to renal vessels
Pylonephritis
Prostatic obstruction
Polycystic kidneys
Crush syndrome
Periarteritis nodosa
Perinephric constriction of the parenchyma

Antikidney serum nephritis
Mechanical constriction of renal arteries or veins

Mechanical compression of ureters

Cellophane or silk perinephritis

NEUROGENIC HYPERTENSION

Persistent hypertension of neurogenic origin has been induced in animals by section of the carotid sinus and aortic depressor nerves and by cerebral ischemia resulting from ligation of the blood supply to the brain. Neither method produces hypertension which exactly simulates essential hypertension in human beings; nor could it currently be supposed that the mechanism of the neurogenic component of this disease is faithfully mirrored in these experimentally induced hypertensions. Yet the fact that blood pressure can be persistently elevated by experimental alteration of the nervous system gives hope that the way in which it actually participates may be elucidated.

Koch and Mies¹ were the first to show that sustained hypertension resulted when the carotid sinus and aortic depressor nerves were severed. Subsequent work, chiefly by Heymans,² Grimson,³ Thomas⁴ and Bing⁵ shows that the hypertension is widely fluctuant, depending on concurrent changes in heart rate. The mechanism of the rise in pressure seems to be a disproportion between the volume content of the arterial tree and its capacity. The disproportion is the result of increased cardiac output due to tachycardia exceeding the peripheral blood flow.

Hypertension due to ligation of cerebral arterial flow of an intermittent sort was produced in dogs by

1. Koch, E., and Mies, H.: Chronischer arterieller Hochdruck durch experimentelle Daueraussschaltung des Blutdruckzügler, Krankheitsforschung 7: 241, 1929.
2. Heymans, C.: Experimental Arterial Hypertension, New England J. Med. 219: 147, 1938.
3. Grimson, K. S.: The Sympathetic Nervous System in Neurogenic and Renal Hypertension: Experimental Correlation and Clinical Consideration, Arch. Surg. 43: 284 (Aug.) 1941.
4. Thomas, C. B., and McLean, R. L.: The Effect of Intravenous Injection of Epinephrin and Angiotonin Before and After the Production of Neurogenic Hypertension, Bull. Johns Hopkins Hosp. 75: 319, 1944.
5. Bing, R. J.: Hemodynamics of Neurogenic Hypertension, Investigation 23: 939, 1944.

such attempts are often successful; with the sulfonamide drugs, the results are less favorable.

While desensitization is often possible with protein compounds, attempts at desensitization with nonprotein drugs are rarely successful and occasionally cause severe reactions. In general substitution of another medication is preferable.

SUMMARY

Many of the untoward reactions to drugs, such as anaphylactic shock, asthma, rhinitis, urticaria, arthralgia, drug fever, dermatitis and probably hepatitis, granulocytopenia and thrombopenia, are due to allergic sensitization. Pathologic studies have demonstrated widespread visceral lesions in patients with clinical evidence of drug allergy. Scratch and intracutaneous tests with nonprotein drugs are rarely diagnostic. Patch tests are of value in contact dermatitis and occasionally in other eruptions due to drugs. The diagnosis of drug allergy in most cases must depend on the history and physical manifestations. Recognition of early signs of sensitization and discontinuation of use of the causative drug will often avoid the more serious types of reaction.

ABSTRACT OF DISCUSSION

DR. MARION B. SULZBERGER, New York: Rashes are the commonest manifestations of drug allergies. It is therefore not astonishing that the older dermatologic literature is where one must look to get the historical background of this important chapter of medicine. In 1877 Dr. Prince Morrow of New York published one of the best treatises on rashes and eruptions due to drugs. In 1893 Josef Jadassohn published a monograph entitled "Medicamentous Dermatitis," an almost prophetic treatise in which almost everything we know today is discussed. Simple chemicals of relatively low molecular weight, chemicals which can be synthesized in the laboratory, even elements such as mercury, can induce almost every known form of immunologic change. As a result, in studying the basic phenomena of immunology, one need not employ as antigens the impure mixtures and complex inconstant combinations derived from nature. The second important point is that almost every known disease picture can be caused by the immunologic reactions to such simple chemicals. In other words, there is nothing pathognomonic for disease produced by a living micro-organism, as distinguished from disease elicited by simple nonliving chemical substances. Thus, identical forms of arthritis, urticaria, asthma, erythematous eruptions, rhinitis and fever can be caused by infecting living agents, by "protein" allergens and also by salicylates and many simple chemicals. Hepatitis can be due to a virus, on one hand, to a drug allergy, on the other hand, to direct toxic action, such as that of chloroform, or to combinations of these. One of the most illuminating prospects in all medicine is offered by the study of the reasons for these frequent similarities of the disease pictures caused by living agents and by nonliving chemicals. Dermatologists' combined studies of cutaneous diseases and cutaneous reactions due to simple chemicals and drugs and the diseases and cutaneous reactions due to living micro-organisms have made clearer one great fact. Many important micro-organisms, such as tubercle bacilli, lepra bacilli, spirochetes and dermatophytic fungi, produce disease not by forming toxins, but by producing allergens which specifically sensitize the tissues. The picture the physician sees is mainly the result of the immunologic reaction of the sensitized tissue to the products of the micro-organisms. With this concept in mind, one can begin to comprehend the similarities of the disease pictures produced by certain living agents and those produced by simple chemical allergens. Both

are based on analogous immunologic alterations, and, more important, both can and must be studied by related and integrated theoretical concepts and experimental approaches.

DR. HOWARD OSGOOD, Buffalo: While Dr. Sherman considered a number of drugs, I should like to add one more. This is papain, derived from the fruit of the papaya tree or East Indian paw paw. The omission is undoubtedly due to the fact that sensitivity to it is not the usual so-called drug sensitivity, but is of the atopic type. Papain is a powerful protein digestant and occurs as a powdered extract in many proprietary and other digestant mixtures sold in drug stores. Papaya is used as a meat tenderizer in hamburger and other ground meats, being introduced shortly before cooking. It is used in treating hides. It is used extensively as a clarifier in beer and ale, although the amount present is in large dilution. The juice is canned and sold for drinking. In persons sensitive to it, exposure produces vasomotor rhinitis and asthma, which may be severe, and digestive symptoms.

DR. THEODORE LOUIS SQUIER, Milwaukee: It would be most helpful if determinations of aminopyrine sensitivity or of sensitivities to other drugs were possible by a cutaneous test such as that described by Dameshek and Colmes, or by some modification thereof, such as was described by Leftwich. My co-workers and I have used the cutaneous test procedure advocated by Dameshek and Colmes, i. e., mixing of aminopyrine with human serum and later testing patients intracutaneously with the drug-serum mixture, with consistently negative results. Likewise, in a fairly extensive series of patients known to be sensitive to sulfonamide drugs, we have made cutaneous tests as described by Leftwich, using blood serum with a high content of a sulfonamide drug from patients treated with sulfonamide preparations. The results were uniformly negative. It is important to emphasize that when cutaneous tests are done with any serum, one may be confused by false positive reactions due to isoantibodies in the serum. Any one who has done passive transfer tests will recall how frequently the reactions are observed to the serum used in sensitizing the skin sites.

DR. J. A. RUDOLPH, Miami Beach, Fla.: I have under observation a group of patients who have been sensitized by the sulfonamide drugs, penicillin and some of the antihistaminics. I have not been able to determine whether these sensitizations have remained latent or not, since the patients meet none of the usual criteria for an allergic person. Could this not be the reason why one sees more allergic persons today who have asthma, rhinitis or other allergies which may have been initiated by the various drugs in question? It would seem that the immunologic concept of allergy may also be one of precipitation by drugs and need not be dependent on heredity and the other allergic criteria, alone, as we believe at present.

DR. W. B. SHERMAN, New York: I agree with essentially all the points brought out, and particularly Dr. Squier's remarks that no form of cutaneous test is reliable in the diagnosis of sensitivity to drugs. The diagnosis must be made from the knowledge of the particular reaction to be expected from each drug. I would like to stress, also, that some of the apparently minor reactions, such as cutaneous rashes and drug fever, may be warnings that more serious manifestations will take place if use of the drug is continued.

Mrs. John Hunter.—It was about this time that Hunter, at the age of 43, married Anne Home, the daughter of an Army doctor, and 29 years of age. She was a woman of great charm and considerable social distinction, the friend of Haydn, Madame d'Arblay and Mrs. Montague. She was something of a poetess and wrote the words for Haydn's "The Creation."—Souttar, H.S., *The Hunterian Oration, Annals of the Royal College of Surgeons of England*, March 1949, page 127.

PATHOGENESIS OF ARTERIAL HYPERTENSION

IRVINE H. PAGE, M.D.
Cleveland

Much is known of the pathogenesis of spontaneous hypertension in human beings and experimental hypertension in animals, despite the short time during which modern investigative methods have been used. Because the various types of experimental renal hypertension have received the greatest share of study is insufficient reason for one's assuming that they necessarily mirror more exactly essential hypertension in human beings. Several years ago, some clinicians overstepped judicious bounds in proclaiming that the cause of human hypertension had been reproduced in animals, a view wisely not expressed at that time by the inspirer of some of this work, Harry Goldblatt. But there are certainly enough similarities between experimental renal hypertension and essential hypertension to justify the hope that elucidation of the mechanism of the former will aid in the understanding of the latter.

For some years, the view was held that hypertension was due to humoral agents. A poor case at best was made for any participation of the nervous system. Indeed, at one time, the nervous system was discarded almost contemptuously; but times have changed. The nervous system now occupies the dominant place, in the opinion of many persons, in maintaining the elevated pressure during the chronic stage. Humoral agents merely initiate the rise during the first few weeks of hypertension, to lose their dominance later. But confusion becomes compounded. Because renin has not been detected with assurance in peripheral blood in increased amounts during the chronic stage of hypertension by the crude methods available, it is assumed that it plays no part in the mechanism. The assumption is made further, on the basis of what seems to me assailable evidence, that the nervous system now takes over the vasoconstrictor function from the humoral. Confronted with this array of inadequate evidence, some resign themselves to the belief that doctors are wholly lacking in insight into the mechanisms of arterial hypertension.

Even the simplest hypertension is a mosaic in which many mechanisms are to a greater or lesser extent involved. Elevated blood pressure is the resultant of multiple forces acting on the variety of tissues which compose the circulatory apparatus. Is it then to be supposed that this is any simple problem the solution of which will be found in the elucidation of but one of these forces?

The various systems chiefly involved in hypertension may be divided, for pedagogic purposes, into groups somewhat as follows:

Clinical	Experimental
I. NERVOUS PARTICIPATION	
Poliomyelitis of brain stem	Cerebral Ischemia
Porphyria	
Increased intracranial pressure	Cushing's experiment
Sclerosis of carotid sinus	Resection of sinus and aortic depressor nerves

From the Research Division of the Cleveland Clinic Foundation and Buuts Institute, Cleveland.
Read in a Symposium on Hypertension in a joint meeting of the Section on Experimental Medicine and the Section on Internal Medicine at the Ninety-Seventh Annual Session of the American Medical Association, Chicago, June 25, 1948.

Clinical	Experimental
Resection of glossopharyngeal nerve	
Emotion	Hypertension from audiogenic stimulus
Tabes dorsalis	

II. CARDIOVASCULAR PARTICIPATION	
Coarctation of aorta	Clamping of aorta above renal vessels
Heart failure	
Arteriovenous fistula	
Arteriosclerosis	

III. ENDOCRINE PARTICIPATION	
Hypophysis—basophil adenoma	Anterior lobectomy diminishing blood pressure
Adrenals—pheochromocytoma	Adrenalin hypertension
Cortical carcinoma	Desoxycorticosterone acetate hypertension
Cortical hyperplasia	
Thymus—carcinoma with Cushing's syndrome	Bilateral adrenalectomy abolishes hypertension
Placenta—associated with toxemia of pregnancy	

IV. RENAL PARTICIPATION	
Glomerulonephritis	Antikidney serum nephritis
Obstruction to renal vessels	Mechanical constriction of renal arteries or veins
Pyelonephritis	
Prostatic obstruction	
Polycystic kidneys	Mechanical compression of ureters
Crush syndrome	
Periarteritis nodosa	
Perinephric constriction of the parenchyma	Cellophane or silk perinephritis

NEUROGENIC HYPERTENSION

Persistent hypertension of neurogenic origin has been induced in animals by section of the carotid sinus and aortic depressor nerves and by cerebral ischemia resulting from ligation of the blood supply to the brain. Neither method produces hypertension which exactly simulates essential hypertension in human beings; nor could it currently be supposed that the mechanism of the neurogenic component of this disease is faithfully mirrored in these experimentally induced hypertensions. Yet the fact that blood pressure can be persistently elevated by experimental alteration of the nervous system gives hope that the way in which it actually participates may be elucidated.

Koch and Mies¹ were the first to show that sustained hypertension resulted when the carotid sinus and aortic depressor nerves were severed. Subsequent work, chiefly by Heymans,² Grimson,³ Thomas⁴ and Bing⁵ shows that the hypertension is widely fluctuant, depending on concurrent changes in heart rate. The mechanism of the rise in pressure seems to be a disproportion between the volume content of the arterial tree and its capacity. The disproportion is the result of increased cardiac output due to tachycardia exceeding the peripheral blood flow.

Hypertension due to ligation of cerebral arterial flow of an intermittent sort was produced in dogs by

1. Koch, E., and Mies, H.: Chronischer arterieller Hochdruck durch experimentelle Dauerausschaltung des Blutdruckzügler, Krankheitsforschung 7: 241, 1929.
2. Heymans, C.: Experimental Arterial Hypertension, New England J. Med. 219: 147, 1938.
3. Grimson, K. S.: The Sympathetic Nervous System in Neurogenic and Renal Hypertension: Experimental Correlation and Clinical Consideration, Arch. Surg. 43: 284 (Aug.) 1941.
4. Thomas, C. B., and McLean, R. L.: The Effect of Intravenous Injection of Epinephrin and Angiotonin Before and After the Production of Neurogenic Hypertension, Bull. Johns Hopkins Hosp. 75: 319, 1944.
5. Bing, R. J.: Hemodynamics of Neurogenic Hypertension, J. Clin. Investigation 23: 939, 1944.

Nowak and Walker⁶ and later by Fishback, Dutra and MacCamy.⁷ However, it was so unpredictable and did not occur at all in so many animals, even after severe ischemia, that many observers doubted its existence. Taylor and I repeated this work and found, as had our predecessors, that ligation of the carotid, vertebral

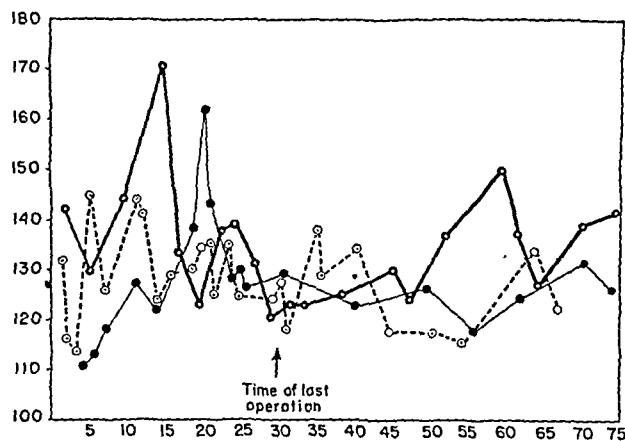


Fig. 1.—The effect on arterial pressure of progressive ligation of vessels to the dog's head. Changes in pressure are irregular despite severe cerebral ischemia. Dog 280 is represented by the heavy line, dog 348 by the light line and dog 424 by the broken line. The horizontal row of figures at the bottom shows the number of days, and the vertical column of figures at the left shows the blood pressure in millimeters of mercury.

and spinal arteries elicited altogether unimpressive elevations of blood pressure (fig. 1).

We then made a further series of experiments in which all the vessels that could be found going to the head were ligated. These animals usually experienced periodic convulsions and appeared demented, but the elevation in arterial pressure was at least perceptible and often persistent for weeks.

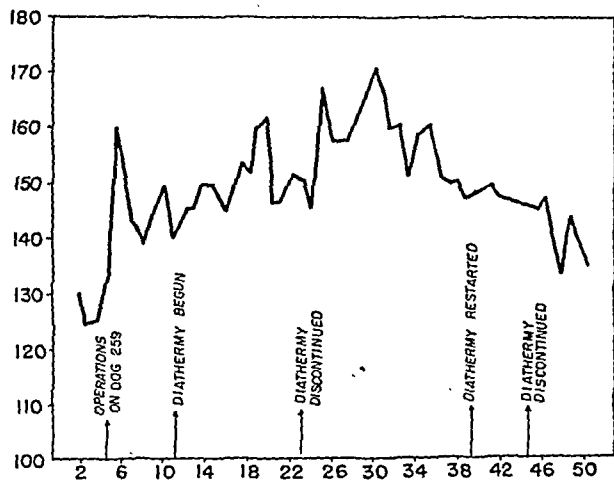


Fig. 2.—The effect of progressive ligation of vessels to the head with daily stimulation by diathermy of a tantalum wire placed just above the obex. Arterial pressure is higher and persists at higher levels for weeks or months. The horizontal row of figures at the bottom shows the time in weeks, and the vertical column of figures shows the blood pressure in millimeters of mercury.

Greater elevation was obtained by implantation of a tantalum wire in the groove of the medulla just above the obex, the exact area being determined by rise in blood pressure at operation following diathermy heat-

ing of the wire. The area of the medulla was subjected to daily fifteen minute treatments with inductothermy. Figure 2 shows the more persistent elevation in blood pressure. Discontinuance of treatment was followed by fall in blood pressure to normal or only slightly elevated levels. The injection of kaolin into the ventricular system of the brain was at one time used as a method of producing neurogenic hypertension. Recently, it has been seriously questioned whether anything but brief elevation in blood pressure may be so produced. Our own experience coincides with this. In dogs we have never produced persistent diastolic hypertension by injection of a variety of specimens of kaolin into the cisterna magna. The problem needs further study.

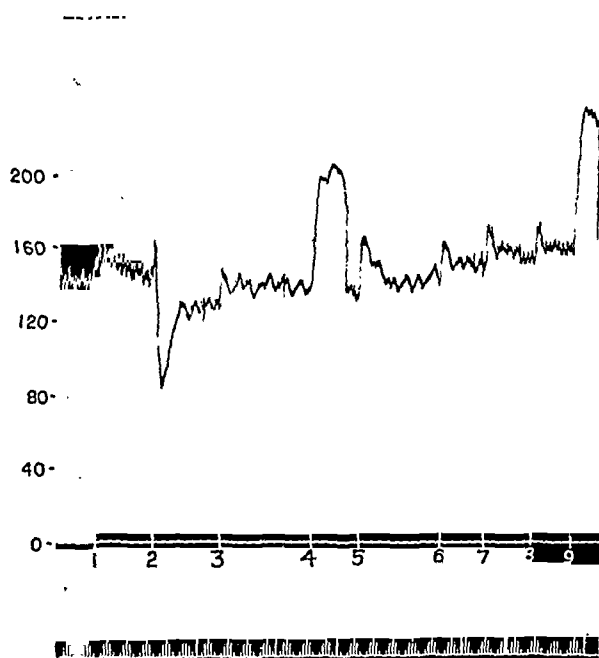


Fig. 3.—Augmentation of angiotonin (144). 1. Angiotonin. 2-3. Tetraethylammonium chloride, 5 mg. per kilogram of body weight. 4. Angiotonin. 5-8. Tetraethylammonium chloride. 9. Angiotonin. This is an example of augmentation that might have significance in the renal hypertensive state.

An interesting method for the production of hypertension in rats tested for their high emotional responsiveness has been developed by Farris, Yeakel and Medoff.⁸ In these rats, exposed to the sound of an air blast a minimum of 167 times daily, arterial pressures of from 160 to 180 mm. of mercury developed.

In human beings hypertension often follows bulbar poliomyelitis, chronic porphyria, tabes dorsalis and sclerosis of the carotid sinus. It is strikingly evident in the "hypertensive diencephalic syndrome," along with other evidences of diencephalic hyperactivity. Increased intracranial pressure elevates arterial pressure but not persistently. Disturbance of the psyche is believed by many of the psychiatrically minded to be at the bottom of much hypertension. Probably so, but one must await the proof. Thus, there is much suggestive evidence of nervous system involvement in hypertension, but so far it is lacking in the necessary clarity to be of decisive importance in the objective analysis of the problem in patients.

6. Nowak, S. J. G., and Walker, I. J.: Experimental Studies Concerning the Nature of Hypertension: Their Bearing on Surgical Treatment. *New England J. Med.* 220: 269, 1939.

7. Fishback, H. R.; Dutra, F. R., and MacCamy, E. T.: The Production of Chronic Hypertension in Dogs by Progressive Ligation of Arteries Supplying the Head. *J. Lab. & Clin. Med.* 28: 1187, 1943.

8. Farris, E. J.; Yeakel, E. H., and Medoff, H. S.: Development of Hypertension in Emotional Gray Norway Rats After Air Blasting. *Am. J. Physiol.* 144: 331, 1945.

ENDOCRINE PRODUCTION

Selye⁹ and his associates have made an important contribution to inquiry into experimental hypertension. They demonstrated that desoxycorticosterone acetate (D.C.A.) when given to unilaterally nephrectomized female rats, mice or chicks receiving salt in their drinking water, caused severe nephrosclerosis, moderate hypertension and associated vascular changes reminiscent of periarteritis nodosa and rheumatic fever in about three weeks. Monkeys and dogs, even after sixty days of treatment, show only minimal changes. An emulsion of anterior pituitary gland also produces much the same result, presumably because of its stimulating action on the adrenal cortex. But the pituitary and desoxycorticosterone acetate have points of difference, the chief of which being that the action of desoxycorticosterone acetate is unaffected by the protein content of diet, while a 30 per cent casein diet fed after pituitary injection yields 88 per cent of nephrosclerosis as contrasted with 11 per cent on a 15 per cent casein diet. It is possible that the difference in desoxycorticosterone acetate and pituitary action is one of protein metabolism, the former having little or no effect and the latter a profound one. Both desoxycorticosterone acetate and pituitary actions are augmented by sodium chloride. Casein, egg albumin and wheat gluten favor nephrosclerosis, while lactalbumin, gelatin and zein are less effective. Amino acids were ineffective, suggesting that the structural arrangement of a product of protein digestion determines its participation in nephrosclerotic action.

It is not as yet clear why other investigators have not had the same consistent success in reproducing these experiments. All those who have seen the vascular lesions in Selye's rats do not doubt their reality.

In the past years it has become apparent that rare cases of essential hypertension, or what passes for it, seem to originate in a medullary pheochromocytoma. The signs and symptoms of paroxysmal hypertension are not present, and the clinical pattern is that of essential hypertension. The mechanism is obscure, since no one has so far elicited persistent hypertension in animals with epinephrine. Vogt has biologic¹⁰ and Corcoran and I¹¹ chemical evidence that epinephrine stimulates increased liberation of corticoids. Possibly such a mechanism leads to the production of persistent hypertension in patients with a pheochromocytoma.

The production of hypertension by steroids has its striking clinical counterpart. The hypertension of Cushing's disease or syndrome leaves the physician in little doubt that the adrenal cortex is capable of playing a genetic role in its production.

Of the ovary, little need be said, if only because little is known. The far more direct association of the placenta with pregnancy and the toxemias of pregnancy assumes importance in analysis of the production of hypertension. The time-sanctioned "menopausal hypertension" has not withstood critical experimental analysis. It is with regret my co-workers and I record that it does not exist.¹² There can be little doubt that the endocrine system plays a crucial part in the mechanism of hypertension, but just how it does so is not clear.

CARDIOVASCULAR PRODUCTION

It is by no means certain that there is a special type of diastolic hypertension resulting alone from increased force of the heart beat and/or increased cardiac output. The hypertension of hyperthyroidism is systolic, because of increased cardiac output, and thus does not resemble essential hypertension. Possibly the nearest approach is the hypertension of coarctation of the aorta. If Steele's¹³ observation is widely verified, that relative diastolic hypertension exists below the stenosed area as well as above it, it is probable that widespread increase in peripheral resistance has occurred, mediated by nervous or humoral mechanisms or both. The evidence on these points is conflicting and requires more detailed examination before the mechanism will be clear.

My own work merely shows that the aorta of dogs may be clamped off at or near the aortic isthmus without producing significant hypertension proximal to the obstruction.¹⁴ The failure to produce it seems due to the fact that dogs have a remarkable ability to produce collateral circulation. Except for transient weakness in the hind quarters, the animal's blood supply seemed almost unaffected by so drastic a procedure as closing the aorta high in the chest.

RENAL PRODUCTION

A variety of attempts have been made over a period of many years to produce persistent hypertension by operative procedures on the kidneys. These have been associated with the names of such pioneers as Cash, Hartwich, Pässler and Janeway. The results were never wholly satisfying. Probably the best of the methods growing out of this exploration consisted either of reducing the mass of kidney substance by resection of portions of the parenchyma, by ligation of large branches of the main renal artery or by roentgen irradiation of the kidneys transplanted to a position under the skin. These methods had the disadvantage of reducing total renal excretory function, differing thus fundamentally from early essential hypertension in human beings. Goldblatt overcame this disadvantage by the application of constricting clamps on the main renal vessels and so achieved persistent diastolic hypertension without disturbance of renal excretory function. The method has received wide acceptance and has contributed greatly to furtherance of knowledge of experimental hypertension.

The application of cellophane or silk to the parenchyma of the kidneys offers another simple method of producing experimental hypertension. These materials cause irritation with the accumulation of fluid and the ingrowth of fibroblasts. Condensation occurs with the formation of a thick hull around the parenchyma, thus preventing the normal pulsating of the kidneys. Arterial pressure rises slowly over a period of weeks to months without excretory insufficiency.

One other method has been suggested (Dick¹⁵). Streptococci were injected into the blood stream. The method has not as yet been evaluated by other investigators.

9. Selye, H.: Production of Nephrosclerosis by Overdosage with Desoxycorticosterone Acetate, *Canad. M. A. J.* 47: 515, 1942.

10. Vogt, M.: The Output of Cortical Hormone by the Mammalian Suprarenal, *J. Physiol.* 102: 341, 1943.

11. Corcoran, A. C., and Page, I. H.: Methods for the Chemical Determination of Corticosteroids in Urine and Plasma, *J. Lab. & Clin. Med.* 33: 1326, 1948.

12. Taylor, R. D.; Corcoran, A. C., and Page, I. H.: Menopausal Hypertension: A Critical Study, *Am. J. M. Sc.* 213: 475, 1947.

13. Steele, J. M.: Evidence for General Distribution of Peripheral Resistance in Coarctation of the Aorta, *J. Clin. Investigation* 20: 473, 1941.

14. Page, I. H.: The Effect of Chronic Constriction of the Aorta on Arterial Blood Pressure in Dogs: An Attempt to Produce Coarctation of the Aorta, *Am. Heart J.* 19: 218, 1940.

15. Dick, G. F.: Experimental Hypertension: Its Production in Dogs by Intravenous Injection of Streptococci, *Arch. Path.* 39: 81 (Jan.) 1945.

Selye¹⁶ produced hypertension by placing a ligature around the aorta at a level between the two renal arteries sufficiently tightly drawn to reduce the pressure below it to a level at which, although blood flow continues, glomerular filtration can no longer occur. Life is maintained by the renal tissue above the tie. Extensive vascular damage occurs, killing the animal within weeks or months. The normal morphologic pattern of the kidney is replaced by aggregates of large cells apparently arising from the epithelium of the lower third of the proximal tubule. The tissue resembles that of adrenal cortex. Selye stated the belief that these cells are the source of renin.

A disturbing note has crept into current theory recently. The position has been vigorously maintained by Goldblatt and Houssay for some years that removal of both kidneys was not associated with rise in blood pressure, despite the observation of Jeffers, Lindauer, Twaddle and Wolferth¹⁷ and Grollman and Rule¹⁸ that the removal of three of the four kidneys in parabiotic rats resulted in hypertension in the nephrectomized animal. In 1947 Braun-Menendez and v. Euler¹⁹ reported that a rise of pressure occurred in only 3 of 23 such pairs. They then joined 3 rats in parabiosis, one bilaterally nephrectomized animal between 2 normal animals. Definite hypertension occurred in all 6 trios. Further, they found that one third of nephrectomized rats showed hypertension usually during the second or third day after nephrectomy. These interesting observations have not been explained.

Every one now recognizes that the obvious clinical counterparts of experimental renal hypertension are rare. Occasional patients with arteriosclerotic obstruction of the renal arteries, perinephric hulls, Wilm's tumors compressing the renal parenchyma and the like are seen, but the average hypertensive patient has none of these. Is there, then, any evident similarity between the kidney in the human hypertension and that in the experimental form? It has seemed to Corcoran and me that the interstitial fibrosis of the pyelonephritic kidney might mimic the cellophane perinephric hull by reducing the pulsation of the kidneys. But in early hypertension the changes in kidneys, if any, have eluded us all. Because of the pronounced somatic expression of nervous overactivity in some patients, the opinion exists that in some unknown manner the kidneys are stimulated to produce pressor substances. Kottke, Kubicek and Visscher's²⁰ experiments on stimulation of the renal nerves suggest that hypertension occurs only as long as the nerves are being stimulated. That any such mechanism exists in patients is pure conjecture.

MECHANISMS OF RENAL HYPERTENSION

Experimental renal hypertension more closely simulates essential hypertension in human beings than any other experimental form. This is good reason for its having been more extensively studied than others. A danger lurks in the use of the term "renal," because of the implication that the kidneys alone supply the mechanism for elevation of arterial pressure to abnor-

mal heights. While the kidneys may be accorded primacy in some, they could not produce hypertension without active participation of the circulation with its multiple controls.

Hypertension can be produced either by severing the carotid sinus and aortic depressor nerves or by producing cerebral ischemia along with medullary stimulation. The hemodynamic changes in neither are identical with those in the usual patient with essential hypertension, although certain similarities exist. For example, arterial pressure is in large measure determined by heart rate in both animals after sinoaortic nerve section just as it is in some patients with early essential hypertension. However, the differences rather than the similarities are at present the more evident.

NERVOUS PARTICIPATION

The part played by the renal nerves has of late caused some interest and indeed some concern. Observations made in both hypertensive patients and dogs showed no special participation of these nerves in the mechanism of renal hypertension. Kottke, Kubicek, and Visscher²⁰ found persistent hypertension in dogs as long as the renal nerves were stimulated continuously by indwelling electrodes. Every one hoped that the hypertension would persist after discontinuation of the stimulation, but it did not. Even more recently, Trueta²¹ made the interesting, if somewhat imaginative, claim that hypertension is due to shunting of blood through juxtamedullary glomeruli via sluiceways more directly into the venous system, so eliciting cortical ischemia. This shunting seems to be under nervous control. Strongly against this notion is the fact that Bradley²² found normal extraction percentages in the kidneys of hypertensive patients. Further, there is no substantial current evidence indicating that cortical ischemia is in itself a cause of hypertension.

Thus, in animals with experimental renal hypertension, severing the renal nerves neither lowers blood pressure nor prevents elicitation of hypertension. Splanchnic nerve section, anterior nerve root section and even "total" sympathectomy with cardiac denervation are all without decisive influence on the elevated blood pressure. Destruction of the cord leads to profound fall in blood pressure, but, if the animals can be kept in a fair state of health, hypertension returns, but not to its preoperative level. Whatever the mechanism, destruction of the cord affects blood pressure significantly, while sympathectomy does not, in animals with renal hypertension. Here, there is both a similarity to and difference from patients with hypertension. It is not clear what function the pressor substances found in the cerebrospinal fluid have in the genesis of neurogenic hypertension. I²³ found such a substance in 1937 and Raab²⁴ more recently. Raab reviewed admirably the nature of this problem.

ENDOCRINE PARTICIPATION

Systematic experiment shows that the removal of the entire pituitary gland in both rats and dogs is associated with fall in blood pressure, but usually not to

16. Selye, H.: Transformation of the Kidney into an Exclusively Endocrine Organ, *Nature*, London **158**: 131, 1946.

17. Jeffers, W. A.; Lindauer, M. A.; Twaddle, P. H., and Wolferth, C. C.: Experimental Hypertension in Nephrectomized Parabiotic Rats, *Am. J. M. Sc.* **199**: 815, 1940.

18. Grollman, A., and Rule, C.: Experimentally Induced Hypertension in Parabiotic Rats, *Am. J. Physiol.* **128**: 587, 1942.

19. Braun-Menendez, E., and von Euler, U. S.: Hypertension in Bilateral Nephrectomy in the Rat, *Nature*, London **160**: 905, 1947.

20. Kottke, F. J.; Kubicek, W. G., and Visscher, M. B.: Induction of Arterial Hypertension by Chronic Renal Artery-Nerve Denervation, *Am. J. Physiol.* **145**: 38, 1945.

21. Trueta, J.; Barclay, A. E.; Daniel, P. M.; Franklin, K. J., and Prichard, M. M. L.: Studies of the Renal Circulation, Springfield, Ill., Charles C Thomas, Publisher, 1947.

22. Bradley, S.: The Validity of the Clearance Technique in the Measurement of Renal Blood Flow in Normal Man and in Patients with Essential Hypertension, in Zweifach, B. W., and Shorr, E.: Factors in Blood Pressure, New York, Josiah Macy Jr. Foundation, 1947.

I. H.: A Highly Active Pressor Substance from Cerebral Tissue of Human Beings, *Science* **82**: 550, 1935.

Adreno-Sympathogenic Heart Disease (Neurohumoral Treatment), *Ann. Int. Med.* **28**: 1010, 1948.

wholly normal levels. The fall is slow, suggesting an indirect rather than direct participation in the mechanism controlling blood pressure. Removal of the posterior pituitary has no effect, while loss of the anterior reproduces completely the arterial pressure changes of total hypophysectomy. After the fall in blood pressure, according to the careful work of Anderson, Page, Li and Ogden,²⁵ it may be again raised to the original hypertensive level by administration of the pure adrenocorticotrophic hormone of Li and Evans.

The view that the adrenal glands are more directly concerned in the mechanism of hypertension comes from the early observations on experimental renal hypertension that removal of both glands causes a fall in arterial pressure to normal or even below. Administration of salt is insufficient treatment to restore the hypertension. Lewis and I have studied the effect of a variety of other treatments. Compound A acetate plus desoxycorticosterone acetate kept the blood pressure at a level as great as or greater than before adrenalectomy. Desoxycorticosterone acetate alone over an extended period led to severe attacks of hypoglycemia, but arterial pressure tended to remain elevated in the salt-fed animals.

Studies of Gaudino²⁶ suggest that the fall in blood pressure, in rats at least, is associated with reduction of renin substrate in the blood. This is the protein substrate on which renin acts to produce angiotonin. In normal rats, bilateral adrenalectomy produces a sharp fall together with some reduction of blood pressure. In only 5 of the 10 hypertensive rats did substrate fall, despite reduction to normal in arterial pressure. Treatment of the adrenalectomized normal rats with desoxycorticosterone acetate restored the renin substrate to normal concentrations and arterial pressure to normal. Similar treatment of the hypertensive adrenalectomized rats reestablished the hypertension. No measurements of the substrate appear to have been made in the latter group.

Lewis and Goldblatt²⁷ claimed to have demonstrated complete disappearance of substrate in the blood of untreated adrenalectomized dogs. Adequate therapy with adrenal cortical hormones or desoxycorticosterone acetate resulted in a return to normal level. Full details of these experiments reported in 1942 as yet have not appeared.

This explanation of the mechanism of adrenal participation in hypertension is attractive indeed, but closer scrutiny of the results so far published is not encouraging. The method for the determination of substrate is crude in the extreme, and the results with hypertensive rats shows only one half of them exhibiting a fall in substrate while all show a fall in pressure.

Finally, the observation that desoxycorticosterone acetate acts on the metabolism of a protein is entirely foreign to what is known of this substance. There is good evidence to show that desoxycorticosterone acetate is without action on protein synthesis. That it should act alone on renin substrate is unlikely. Therefore, until more and better evidence is available, it seems necessary to suspend judgment on the Lewis and Gold-

blatt and Gaudino evidence as providing the solution to the vital problem of how the adrenal glands participate in the mechanism of hypertension.

Since Selye was able to produce nephrosclerosis and hypertension by administration of anterior pituitary or desoxycorticosterone acetate, it is natural to suppose a similar mechanism in human hypertension. Desoxycorticosterone acetate occurs in minute amounts in the normal human adrenal cortex. Even this small amount present over long periods of time might produce vascular change. There are obviously many other possibilities for participation in the mechanism of hypertension by both pituitary and cortical steroids. At present, there is no evidence on which to form any opinion as to the probability of any of them.

Perera²⁸ described the occurrence of Addison's disease in a patient with essential hypertension which throws some light on adrenal participation in the latter. While the patient was receiving desoxycorticosterone acetate, the pressure was persistently elevated. Replacement therapy with salt alone, even though the patient was in electrolyte and water equilibrium, resulted in a drop of blood pressure to normal. The results parallel those described previously for animals with experimental hypertension. Rigid restriction of sodium chloride from the diet in patients obliterates the pressor action of desoxycorticosterone acetate which follows its injection into those receiving salt. Hypertensive persons seem to be more susceptible to desoxycorticosterone acetate than normal persons, because the twice daily injections of 5 mg. produce a rise in both systolic and diastolic pressures in the former but not in the latter. The rise could not be attributed to salt and water retention alone, since comparable retention occurred in normotensive persons (Perera and Blood²⁹).

HUMORAL PARTICIPATION

Contemporary thinking on humoral participation in the mechanism of renal hypertension exhibits dichotomy. Some believe that, as the result of changes in the character of the blood flow within the kidneys, renin is liberated from the tubular cells to react with renin substrate to produce angiotonin or a protein-bound prototype. Others think that hypertension is the result of ischemia of the kidneys of a degree sufficient to provoke the production of pressor amines, of which hydroxytyramine is the prototype. Holding to the former opinion, I shall emphasize that view.

As Corcoran and I³⁰ showed in dogs made hypertensive by clamps on the renal arteries or by cellophane perinephritis, hypertension could be produced without more than transient reduction of renal blood flow. In patients with essential hypertension, Goldring and Chasis³¹ found reduction of blood flow only late in the course of the disease, not during its initiation, a fact we have repeatedly confirmed (Corcoran, Taylor and Page³²). It is hard, therefore, to understand how hypoxia of sufficient degree could occur to set in motion the enzymatic degradation of amino acids to pressor

28. Perera, G. A.: The Relationship of the Adrenal Cortex to Hypertension, *J. A. M. A.* **129**: 537 (Oct. 20) 1945.

29. Perera, G. A., and Blood, D. W.: The Relationships of Sodium Chloride to Hypertension, *J. Clin. Investigation* **26**: 1109, 1947. Pressor Activity of Desoxycorticosterone Acetate in Normotensive and Hypertensive Subjects, *Ann. Int. Med.* **27**: 401, 1947.

30. Corcoran, A. C., and Page, I. H.: Renal Blood Flow in Experimental Renal Hypertension, *Am. J. Physiol.* **135**: 361, 1942.

31. Goldring, W., and Chasis, H.: Hypertension and Hypertensive Disease, New York, The Commonwealth Fund, 1944.

32. Corcoran, A. C.; Taylor, R. D., and Page, I. H.: Functional Patterns in Renal Disease, *Ann. Int. Med.* **28**: 560, 1948.

25. Anderson, E.; Page, E. W.; Li, C. H., and Ogden, E.: Restoration of Renal Hypertension in Hypophysectomized Rats by the Administration of Adrenocorticotrophic Hormone, *Am. J. Physiol.* **141**: 393, 1944.

26. Gaudino, N. M.: Accion de las Glandulas Suprarrenales Sobre el Hipertensionismo, *Rev. de la Soc. Argent. de Biol.* **20**: 529, 1944. Las Suprarrenales en la Hipertension Arterial Nefrogena, *Rev. Soc. Argent. de Biol.* **20**: 470, 1944.

27. Lewis, H. A., and Goldblatt, H.: Studies on Experimental Hypertension: XVIII. Experimental Observations on the Humoral Mechanism of Hypertension, *Bull. New York Acad. Med.* **18**: 459, 1942.

amines and suppress the destructive action of the amine oxidases.

The renal vasopressor system, made up as it is of renin, renin substrate and angiotonin, seems to me the one more likely to be concerned in the genesis of experimental renal hypertension. Renin is a proteolytic enzyme contained in the tubular cells which acts on an α_2 globulin produced by the liver and contained in the blood. The product of the reaction is angiotonin (hypertensin), a polypeptide which is highly pressor in its action. It is possible that in the body angiotonin is combined with protein and is split off only by such treatment as precipitation with alcohol or heat to produce the angiotonin as it is known at present. Aside from conjecture, there are two bits of evidence which suggest this possibility. Some years ago, my co-workers and I found a protein-like vasoconstrictor substance in the blood of hypertensive and normal patients and dogs as demonstrated on the rabbit's ear vessels perfused with plasma. The possibility of the presence of a vasoconstrictor substance resulting from coagulation of the blood prevented us from being certain of our results. The problem is again under active investigation, now that Rapport, Green and I³³ have found a method of inactivating the serum vasoconstrictor (crystalline "serotonin").

The second bit of evidence is more convincing and comes from the work of our former colleagues Helmer, Shipley and Kohlstaedt.³⁴ They found that plasma from sick or shocked animals, or ones given injections of crude extracts of kidney, contains a pressor substance which when injected into nephrectomized cats produces a sustained rise in blood pressure. The material was partially purified by ammonium sulfate precipitation. Its nature is not as yet elucidated. Whether such a substance occurs in hypertension is not known, and its study will be awaited with keen interest.

A further dichotomy of thought has occurred, largely, I suppose, because of the difficulty of finding sufficient quantities of renin in peripheral blood to account for the rise in blood pressure. Thus Ogden³⁵ has marshalled the evidence in a stimulating fashion to suggest that during the first weeks of experimental renal hypertension the humoral mechanism is chiefly responsible, displaced later by the vasoconstrictor action of the nervous system. Another view reverses this sequence, giving primacy to the nervous mechanism, the humoral prevailing later. The evidence for either view is not strong.

One must recognize, as Leloir, Munoz, Taquini, Braun-Menendez and Fasciolo³⁶ originally showed, that shocking operations cause the immediate liberation of renin into the blood stream, and therefore it is not surprising that the enzyme should be found in excess in peripheral blood after operation on the kidneys to induce hypertension. As we have seen, renin itself is not a vasoactive substance; it is merely one component of a complex system yielding vasopressor substance. Its measurement out of the framework in which it works, i.e., the highly artificial in vitro environment, has to me only limited significance. Could the

effector substance itself be measured, whatever it be, the results would be far more apposite. As has been repeatedly emphasized, the physiologic mechanisms of hypertension are multiple and interconnected. Just so are the chemical ones. Their simplification on the basis of ignorance of their complexity can lead only to premature apostasy.

Thus renin appears early in the blood after operation on the kidneys, and from this it is argued that the hypertension is initiated by the renal vasopressor system. After a week or so, renin disappears from the blood as measured by contemporary methods, hence, the argument runs, nervous control has taken over. The argument exemplifies the complexities of humoral control and the inadequacy of present evidence to offer satisfying answers to the problem of its participation in the regulation of blood pressure.

Most of the known pressor agents as causes for hypertension are ruled out by their pharmacologic properties. For example, many elevate arterial pressure by increasing cardiac output, a phenomenon not consonant with the hemodynamics of essential or experimental renal hypertension. Many of them produce severe symptoms, again not in accordance with observations on early essential hypertension. For these and other cogent reasons, angiotonin seems from the testimony of brief experiments in both human beings and animals most nearly to reproduce the mechanism which elevates arterial pressure. Yet the reproduction is not sufficiently perfect to be certain that it, in its present form, is the one solely involved.

This is a highly complex problem which will find no easy solution. Yet let no one doubt that methods are not now at hand for its solution. It is not for lack of knowledge that one must wait; it is for lack of hands and heads with which to do it.

THE VASCULAR SUBSTRATE

Investigation of the factors which control the responsiveness of the blood vessels to stimuli has not progressed to the point clarifying the problem of the state of the vessels in hypertension. Actually, only a vague directional trend is in the process of being established—one of great physiologic interest, but one not yet shown to be apposite to the hypertensive state.

With Taylor and Reinhard,³⁷ I have studied this problem for several years, it being our special concern during the war years because of its applicability to the problem of shock. Animals and man in deep shock show greatly reduced pressor and depressor responses to chemical stimuli such as epinephrine and angiotonin. Supposedly normal, anesthetized animals exhibit widely differing responses from day to day and even during the same experiment. Significant average responses were obtainable only after study of large numbers of animals. Thus, the blood vessels or the stimuli or both must be highly variant.

The nervous system plays an important part in the control of vascular responsiveness. Injury to it temporarily reduces responsiveness, while its rapid complete destruction enhances responsiveness. Thus section of the cord at the sixth cervical segment and destruction caudad yield a preparation that for days or weeks is highly sensitive to vasoactive substances. It is made much more sensitive by denervation of the carotid sinus and vagotomy. Administration of tetraethylam-

33. Rapport, M. M.; Green, A. A., and Page, I. H.: The Enzymatic Inactivation of Serum Vasoconstrictor, *Proc. Soc. Exp. Biol. and Med.* 68: 582, 1948.

34. Helmer, O. M.; Shipley, R. E., and Kohlstaedt, K. G.: Nature of a Principle in Blood Which Elicits a Sustained Pressor Response in Nephrectomized Animals, *Federation Proc.* 6: 128, 1947.

35. Ogden, E.: The Extra-Renal Sequel to Experimental Renal Hypertension, *Bull. New York Acad. Med.* 23: 643, 1947.

36. Leloir, L. F.; Munoz, J. M.; Taquini, A. C.; Braun-Menendez, E., and Fasciolo, J. C.: La formacion del hipertensinogeno, *Rev. argent. de cardiol.* 9: 269, 1942.

37. (a) Page, I. H., and Taylor, R. D.: Mechanism of Renal Tachyphylaxis: Restoration of Responsiveness by Tetraethyl Ammonium Ion, *Science* 105: 622, 1947. (b) Page, I. H.: Some Humoral Factors in Hypertension, in Zweifach, B. W., and Shorr, E.: Factors Regulating Blood Pressure, New York, Josiah Macy Jr. Foundation, 1947.

monium chloride (T.E.A.) usually further enhances the responsiveness, but only slightly. The sympathetic nervous system appears thus to be acting in a strongly inhibitory sense rather than the more usual augmentative role.

As Acheson and Moe³⁸ have shown, tetraethylammonium chloride produces its effect chiefly by blocking transmission through autonomic ganglions. The result of this demonstration has been the wide use of tetraethylammonium chloride as a diagnostic and therapeutic agent in clinical medicine, especially by Lyons, Moe and Hoobler and their groups.

Our interest began when we found that administration of large doses of the drug greatly augmented the vascular responsiveness to a variety of vasoactive substances, such as angiotonin, barium chloride, epinephrine and arterenol³⁹ (3,4-dihydroxyphenylethanolamine), and that in certain circumstances the lost responsiveness caused by repeated injections of renin was restored.^{37b} I would agree with Moe that the most probable explanation of this truly remarkable action is based on release of all inhibitory nerve impulses.

As it concerns hypertension, the fact emerges that normal animals are converted by repeated doses of tetraethylammonium chloride from "depressor" preparations to "pressor" ones in which the pressure rises instead of falling when tetraethylammonium chloride is given. The first dose of tetraethylammonium chloride gives a large fall, but on repetition less and less occurs until nothing but pronounced rises occurs. Part of the rise is probably due to adrenal stimulation as Acheson and Moe suggest, for as large pressor responses in adrenalectomized dogs were not observed. Destruction of the spinal cord itself is sufficient to insure only pressor responses. If the adrenal glands are removed from such animals, a pressor response is still obtained. Such animals are so exquisitely responsive to pressor stimuli that they remind one of the beginning phase of hypertension in some patients. Removal of both kidneys still further increases responsiveness, especially to renin and angiotonin. The effect is not immediate, however, a day at least being required, suggesting the possibility that a sensitizing agent is being retained or not destroyed, the prototype of which well may be the tetraethylammonium ion.

Removal of the liver, in contrast, greatly depresses vascular responsiveness. Despite the fact that arterial pressure may be temporarily well maintained, the response to a variety of agents is damped. For reasons not at all clear, tetraethylammonium chloride does not exert its augmenting action in any significant degree in these hepatectomized animals.

With only these crude facts at one's command, it is possible greatly to depress or abolish responsiveness or greatly to heighten it. If such factors participate significantly in the hypertensive patient, and surely they may, the amount of a pressor substance or nerve stimulus required to elevate arterial pressure would be irrevocably tied to the responsiveness of the vascular tree. Lacking the latter datum, even the accurate estimates of the amounts of pressor agents lose significance to an alarming degree.

Several years ago my co-workers and I found that plasma of hypertensive dogs exhibited greater than normal vasoconstrictive power when perfused with plasma through rabbit's ear vessels. As we pointed out, the amount was in no way proportional to the

height of the blood pressure. Further, the results are complicated by the presence of the vasoconstrictor which forms when blood clots. Thus any method in which pressor agents are sought in blood is subject to an incredibly large number of pitfalls. It is only recently that we have begun to appreciate the complexity of the depressor-pressor systems of the blood and to overcome the naïveté of our approach a decade or more ago. Whatever the assurance of our colleagues, our view has turned to one of humility before the complex equilibria of vasoactive substances in the blood and their interaction with the changing reactivity of the blood vessel substrate on which they act. The kidney is only one part of this relationship and, though of great importance, should not be given primacy to the exclusion of other controlling factors.

To return to the problem of vasoconstrictor in the hypertensive patient's blood, Solandt, Nassim and Cowan³⁹ found greater rises in arterial pressure when hypertensive dog's blood was cross transfused than when a normotensive dog's blood was used. In patients, according especially to Prinzmetal, this is not the case. Taylor, Prince and I have studied this problem recently. We found no difference between hypertensive and normal dogs on cross circulation. A non-epinephrine-like substance appears in the blood, especially in hypertensive dogs but by no means limited to them. The irregularity of its occurrence has doubtless contributed greatly to the current confusion. One must therefore await further evidence.

When the kidneys of dogs with long-standing hypertension were removed, the blood pressure did not return to normal as had been shown by Pickering⁴⁰ and others. Further, we found that the plasma retained its vasoconstrictor properties until the death of the animal. This, in conjunction with the fact that the blood vessels in such circumstances became more sensitive to vasoactive humoral agents, might possibly explain persistence of the hypertension. Indeed, some of the animals became so sensitive that normal amounts of pressor agents might have accounted for hypertension.

CONCLUSION

To those not deeply imbued with the sense of urgent need for the solution of the problem of hypertension, many of these studies must seem trivial or inadequate. So much so that to some the endeavor hardly seems worth pursuing. To the optimist, the price of success is trouble. That there is plenty of the latter all could agree. Whether their resolution will lead to success remains for the future to decide.

ABSTRACT OF DISCUSSION

DR. CARLOS JIMENEZ DIAZ, Madrid, Spain: My co-workers and I are studying the mechanisms of regulation of the stimuli causing hypertension. We have utilized the pressor effect of electric stimulation of the central end of the cut vagi. This effect is visible even after the hypophysis has been removed and also after a bilateral nephrectomy and adrenalectomy, but disappears when the cord is sectioned. One must accept that the stimuli pass to the nervous centers and descend to the vascular innervation by the spinal cord and sympathetic fibers. In a second series of experiments on crossed blood circulation we found that excitation in donor dogs produces a hypertensive answer in the receptor. We assume that the nervous action

38. Acheson, G. H., and Moe, G. K.: The Action of Tetraethylammonium Ion on the Mammalian Circulation, *J. Pharmacol. & Exper. Therap.* **87**: 220, 1946.

39. Solandt, D. Y.; Nassim, R., and Cowan, C. R.: Hypertensive Effect of Blood from Hypertensive Dogs, *Lancet* **1**: 873, 1940.

40. Pickering, G. W.: The Role of the Kidney in Acute and Chronic Hypertension Following Renal Artery Constriction in the Rabbit, *Clin. Sc.* **5**: 229, 1945.

on the arterial wall elicits the production of a chemical tonogenic substance. We have made also experiments on a divided dog, in which the superior and inferior parts of the dog's body are connected only by the spinal cord. Circulation of the superior part is maintained by his own heart, and the inferior is perfused by a pump. As we excite the vagi we increase the blood pressure not only in the superior but also in the inferior perfused part. The most interesting observation is that if we perfuse not with dog's plasma as in the earlier experiment but with saline serum the stimulation does not produce hypertension in the inferior part of the dog's body. The inference is: (1) that nervous action on blood pressure is initiated by the production of a pressor substance and (2) that these substances arise from the action of some secretion of the arterial wall on a preexisting substance in the blood plasma. Indeed we have prepared extracts of arterial wall, and we made incubation with the plasma's renin-substrate; the results are clear and constant: extractions of arterial wall are without effect, and when incubated with plasma the pressor effect is exactly the same as with renin plus renin-substrate. These experiments can bring new understanding of the problem of hypertension and indicate the main part that, in the regulation of blood pressure, in addition to other factors, a true internal secretion of the artery may play. It is possible that arterial hypertension, as other constitutional diseases, can be considered in the future as a variation in activity of enzymatic systems.

LOW SODIUM CHLORIDE DIETS IN HYPERTENSION

Effects on Blood Pressure

HENRY A. SCHROEDER, M.D.

MELVIN L. GOLDMAN, M.D.

PALMER H. FUTCHER, M.D.

and

MARLENE HUNTER, B.S.

St. Louis

The present study was made in an attempt to evaluate the effects of restriction of dietary sodium chloride on the blood pressure of hypertensive patients. For many years, diets low in sodium chloride (salt) have been advocated as a rational measure in the treatment of arterial hypertension. Their use, however, has not been altogether accepted, although in occasional patients striking reductions in blood pressure have been reported.¹ A critical evaluation therefore seemed necessary under as controlled conditions as possible, with the effects of hospitalization, bed rest, sedation and psychotherapeutic influences eliminated so far as practicable.² In planning our previous study² and the observations reported herein, we have selected low salt regimens which can be observed by a patient at home with relative ease.

During the course of this study, it soon became evident that beneficial results on the level of blood pressure did not occur in most hypertensive patients when other factors were controlled. This was in accordance with the past experience of one of us (H. A. S.). On

the other hand, it also became apparent that some patients were benefited insofar as their blood pressures were concerned by the restriction of salt, and it appeared important to attempt to differentiate the group favorably affected from that not affected. Since it was suspected from clinical observations that patients who would respond to the restriction of salt in their diets had certain characteristics in common, some patients were selected for this study because they exhibited these peculiarities. Therefore, the results here reported can in no way be examined statistically, as they involve a larger proportion of subjects whose blood pressures were influenced by salt restriction than would be found in the general hypertensive population.

METHODS OF OBSERVATION

Twenty-two patients were selected for study and admitted to a metabolic ward. In most instances, no changes in regimen were made for two to six weeks, in order that the blood pressures could be measured under controlled conditions. Measurements were made in the morning before arising and in the afternoon after half an hour of bed rest. The averages shown in table 1 were made from all readings during seven to ten days at the end of the control period and at the end of the period of restriction of salt. Most patients were ambulatory on the ward; a few remained in bed, but this factor was constant throughout the experiment. Diets consisted of the usual hospital menu, but a few patients ingested diets restricted as to salt during the control period with salt added in the form of capsules. Patients were not led to believe that the restriction of salt would be in any way beneficial, nor were they informed of the levels of their blood pressures.

The amount of sodium in the diet was calculated from standard tables³ and was expressed as sodium chloride. In 7 cases a diet composed of rice and fruit juices was used (Kempner diet⁴); in the others, protein was restricted only so far as was made necessary by salt restriction. Lately salt-poor milk (Ionolac,[®] Mead Johnson and Company) was used to increase the protein intake. Sodium chloride in the diet was restricted to 0.5 Gm. per day in 9 cases, to 1.0 Gm. in 12 and to 2.0 Gm. in 3.

RESULTS

Effects of Sodium Chloride Restriction on Blood Pressure.—In 13 of 22 cases, changes in average diastolic blood pressure of 9 mm. of mercury or less were observed after restriction of dietary salt (table 1). In 3 of these cases, the systolic blood pressure fell from 21 to 25 mm. of mercury and in 1 other, 15 mm. of mercury. No other effect on the progress of the disease was noted which could not be explained on the basis of rest and hospitalization. The conditions of 3 became worse. One (case 3), with poor renal function, died, probably as a result of salt deficiency initiated by the diet. In 1 (case 11), the clearance of urea fell from 33 to 15 per cent of normal and in another (case 9) fresh hemorrhages appeared in the eye-grounds. Six of the patients received diets containing 0.5 Gm. of sodium chloride, 5 received 1 Gm. and 3 received 2 Gm.

In 9 cases, the average diastolic blood pressure fell from 14 to 36 mm. of mercury, reaching levels below 100 mm. in 6 and below 90 mm. in 2. The systolic pressure likewise fell from 60 to 19 mm. of mercury (table 1). In most of these cases, symptomatic improvement occurred. Otherwise, changes in the status of the disease were not evident. Three of the 9 received diets containing 0.5 Gm. of sodium chloride,

Dr. Goldman is a National Institute of Health Postdoctorate Research Fellow.

From the Department of Internal Medicine, Washington University School of Medicine, and Barnes Hospital, St. Louis, under a grant-in-aid from the United States Public Health Service.

Read in a Symposium on Hypertension in a joint meeting of the Section on Experimental Medicine and the Section on Internal Medicine at the Ninety-Seventh Annual Session of the American Medical Association, Chicago, June 25, 1948.

1. For a review and bibliography of this subject, the reader is referred to Schroeder, H. A.: Low Salt Diets and Hypertension, *Am. J. Med.* 4: 578-587, 1948.

2. Details of this study, case histories of 12 of the patients studied and charts showing the variations in blood pressure of 9 have been published: Schroeder, H. A., Futcher, P. H., and Goldman, M. L.: The Effects of the "Rice Diet" upon the Blood Pressure of Hypertensive Individuals, *Ann. Int. Med.* 30: 713-732, 1949.

3. Sherman, H. C.: *Chemistry of Food and Nutrition*, ed. 6, New York, The Macmillan Company, 1941.

4. Kempner, W.: Treatment of Hypertensive Vascular Disease with Rice Diet, *Am. J. Med.* 4: 545-577, 1948.

and 6 received 1.0 Gm. On the whole, this group represented patients in less severe stages, 7 of them exhibiting minimum changes in their ocular fundi and all manifesting good renal function. The diastolic pressures of only 4 were 115 mm. of mercury or more at the end of the control period, while of the group which did not respond, all but 2 had diastolic pressures at this level or above.

Analysis of Patients Responding to Restriction of Salt.—Those patients who responded by a significant fall in blood pressure to restriction of salt were

mon to many and were not present in other cases. In addition, the response of their blood pressures to salt restriction usually occurred in a matter of a few days, and when salt was added to their diets, as in 4 cases, blood pressures became definitely elevated to or nearly to the control values.

The 6 patients in question were all women and all obese. They sometimes gave a history of obesity appearing comparatively rapidly, at puberty or after childbirth. Characteristic of these patients was the difficulty they experienced in attempting to lose weight.

TABLE 1.—*Response of Blood Pressure to Dietary Restriction of Sodium Chloride*

Case No.	Patient	Sex	Age, Yr.	Duration of Control Period, Yr.*	Average Blood Pressure at End of Control Period, Min. Hg.†		Sodium Chloride in Diet, Gm.	No. Days on Diet	Average Blood Pressure at End of Dietary Period, Min. Hg.†		Change, Min. Hg.	Renal Function‡	Ocular Fundi, Grade	Comment
1	S. T.	♀	35	15	235/120	1.0	56		210/118	-15/- 2	Excellent	II	General obesity	
2	P. S.	♀	30	6	204/128	1.0	40		208/127	+ 4/- 1	Good	I	Bilateral slight hydronephrosis; large neurogenic element	
3	S. K.	♀	56	4	232/119	0.5||	16		224/139	- 8/ 0	Poor	III	Died; uremia from sodium chloride deficiency	
4	V. R.	♀	41	10	168/113	1.0	44		169/110	+ 1/- 3	Good	I	Large neurogenic element	
5	F. W.	♀	23	1	183/115	1.0	50		162/118	-21/+ 3	Fair	II	Large neurogenic element	
6	K. E.	♀	30	2½	187/126	0.5	10		189/129	+ 2/+ 3	Fair	II	Left hemiplegia	
7	D. R.	♀	30	6	217/130	2.0	10		213/153	- 4/+ 5	Uremic	III	Chronic glomerulonephritis	
8	P. R.	♂	53	30	175/100	2.0	12		166/ 92	- 9/- 8	Uremic	III	Chronic pyelonephritis	
9	A. K.	♂	43	1½	204/119	0.5||	21		197/113	- 7/- 6	Fair	III	Early malignant stage; no response to sympathectomy #	
10	L. M.	♂	36	4½	198/134	0.5||	25		177/128	-21/- 6	Good	II	No response to sympathectomy #	
11	A. P.	♂	42	1½	256/160	1.0	30		251/163	- 5/+ 3	Poor	IV	Malignant stage	
					251/163	0.5||	90		226/162	-25/- 1	Poor	III		
12	A. B.	♂	44	10	222/139	0.5	21		209/130	-11/- 9	Good	IV	Malignant stage	
13	T. A.	♂	32	3½	265/140	2.0	13		201/150	- 4/+10	Poor	II	Effect of bed rest not controlled	
Significant Response														
14	A. F.	♂	39	1	168/112	0.5||	35		137/ 93	-31/-19	Excellent	0	Renal calculus, mild hypertension, blood pressure was not elevated by addition of 12 Gm. sodium chloride to diet	
15	W. D.	♂	43	2½	195/132	1.0	31		163/109	-32/-23	Good	I	Moderate neurogenic element	
16	C. O.	♀	38	22	156/107	0.5||	21		126/ 93	-30/-14	Good	I	Hirsutism without obesity; large neurogenic element; blood pressure elevated when 8 Gm. of sodium chloride added to diet	
17	L. S.	♀	42	11	191/108	0.5||	31		169/ 88	-22/-20	Good	I	Obesity of trunk and face; blood pressure returned to previous level when 6 Gm. sodium chloride added to diet	
18	L. C.	♀	33	7½	199/123	1.0	21		167/106	-32/-17	Good	I	Pronounced obesity of trunk and face; hirsutism; blood pressure elevated when 8 Gm. sodium chloride added to diet	
					160/119	1.0	24		164/109	-26/-10				
19	I. H.	♀	40	11	161/110	1.0	21		137/ 92	-24/-18	Good	I	Obesity of trunk and face; blood pressure elevated when 12 Gm. sodium chloride added to diet	
20	M. P.	♀	43	6	220/131	1.0	15		140/ 95	-60/-36	Good	I	Effect of bed rest not controlled; obesity of trunk and face	
21	M. L.	♀	45	1½	176/119	1.0	28		157/104	-19/-15	Excellent	III	Obesity of trunk and face; decided elevation of blood pressure with 10 mg. desoxycorticosterone acetate daily	
22	F. R.	♀	48	2	185/ 97	1.0	50		127/ 77	-58/-20	Good	II	Obesity of trunk and face; striae; effect of bed rest not controlled	

* Duration of hypertension.

† Average blood pressure for the last seven to ten days of the period of observation.

‡ Excellent—normal concentrating ability of kidneys and normal urea clearance; good—slight impairment of concentrating ability with normal urea clearance; fair—impairment of concentrating ability and subnormal urea clearance; poor—urea clearance below 50 per cent of normal without nitrogen retention; uremic—nitrogen retention in blood.

§ Studied in the Hospital of the Rockefeller Institute. ¶ Unknown duration, more than figure shown. || Rice diet (Kempner).

Lumbodorsal.

examined in an attempt to determine the presence or absence of common characteristics, or of differences from those who did not respond. Of the 9 favorably affected, 2 (cases 14 and 16) were in milder stages of the disease, one of them being a highly suggestible psychoneurotic person. One (case 15) appeared to be affected only after a relatively prolonged period (three weeks) on the diet, and in 1 (case 14) the later addition of salt had no unfavorable effect. It is uncertain, therefore, that salt restriction alone produced the changes observed. The other 6 appeared to belong to a definite but not completely defined group in that certain clinical and laboratory observations were com-

Their histories appeared to attest the ineffectiveness of reducing diets, and we have found that true in general. Low caloric diets used in the hospital seemed to be less effective in these persons than in other obese persons. Yet their basal metabolic rates were not abnormally low. The obesity was confined to the trunk, face and proximal parts of their extremities. Pale striae were present in 3 and brownish striae in 1. Hirsutism of some degree was found in 3, in 1 (case 18) requiring biweekly shaving of the face. Menstruation was irregular in 3. Four complained of a tendency to ecchymoses, minor trauma producing discolored bruises. In 2 cases a mottled dusky cyanosis of the extremities was noted.

Neither acne nor polycythemia was present. Oral glucose tolerance tests showed a diabetic type of curve in 3; in 1 it was normal, and in 2 it was not measured. One patient (case 17) had received insulin previously for glycosuria and hyperglycemia. All complained of moderate to severe headaches, localized in the occipital region in 4, in the frontal in 1 and in the vertex in 1 (table 2).

Albuminuria was absent, although in at least 3 cases blood pressure was at relatively high levels and the disease had been present for a considerable period of time. Abnormal microscopic elements in the urine were few or absent. When the intake of fluids was compared with the urinary output, 3 of these patients appeared to show usually a relatively low urinary

measured, the ratio of sodium to chloride was lower than that found by Selye⁵ in many hypertensive patients. In 3 patients in the group not responding to a low salt regimen, this ratio was elevated above 1.44, Selye's upper limit of normal.

Five milligrams of desoxycorticosterone acetate was injected intravenously or 10 mg. intramuscularly in 4 of these patients. These single injections were followed in all cases by prolonged elevations of the blood pressures, lasting from one to three days. Such a response is unusual, as most hypertensive persons will not derive such a long-sustained elevation of blood pressure from a single dose of this substance.

The general body configuration of these patients is worthy of comment. It resembles in some respects

TABLE 2.—*Signs Common to Subjects Responding to Dietary Restriction of Sodium Chloride*

Case No., Patient, Sex	Body Weight, Pounds	Striae *	Hirsutism †	Irregular Menses	Tendency to Echymoses	Dusky Cyanosis and Mottling	Headaches		Glucose Tolerance Curve ‡	Albuminuria	Response of Blood Pressure to Desoxycortico- sterone Acetate	Low Urine Output §	Plasma Electrolytes (Fasting)				Comment
							Location	Degree					Sodium, mEq./L.	Chloride, mEq./L.	Carbon Dioxide, mEq./L.	Ratio Sodium/ Chloride	
14 A. F. ♂	126	0	0	..	0	0	.....	None	.....	0	..	0	143.8	94	29.4	1.53	Mild hypertension and renal calculus
15 W. D. ♂	171	0	0	..	0	0	Occipital	Moderate	.....	+	..	0	143.0	105	26.9	1.36	Moderate neurogenic hypertension
16 C. O. ♀	122	0	+	+	0	0	Occipito- parietal	Severe	Normal	0	..	0	.....	100	23.3	....	Mild neurogenic hyper- tension
17 L. S. ♀	191||	+	+	+	+	0	Occipital	Moderate	Diabetic	0	+||	0	.....	105	....	....	Pseudo-Cushing's syn- drome #
18 L. C. ♀	259||	+	+	+	..	..	Frontal	Moderate	Normal	0	+||	+	141.6	109	27.1	1.30	Pseudo-Cushing's syn- drome #
19 I. H. ♀	171||	0	0	0	+	+	Occipital	Severe	.....	0	+||	0	145.3	110	20.8	1.32	Pseudo-Cushing's syn- drome #
20 M. P. ♀	154||	0	0	0	..	..	Vertical	Severe	.....	0	..	..	.....	106	....	....	? Pseudo-Cushing's syn- drome #
21 M. L. ♀	205||	+	0	0	+	0	Occipital	Severe	Diabetic	0	+||	+	140.7	110	23.7	1.28	Pseudo-Cushing's syn- drome #
22 F. R. ♀	253||	+	+	+	+	+	Occipital	Moderate	Diabetic	0	..	+	.....	...	....	....	Pseudo-Cushing's syn- drome #

* Pale, except those in case 21, which were brownish; they were distributed on arms, thighs and abdomen.

† Hirsutism—on face, chest or abdomen.

‡ By oral method.

§ Low urine output means that there was considerable discrepancy between the intake and output of fluids for periods of many days at a time, the urine volume being one quarter to one half of the intake. There was no correlation between this finding and the season of the year.

|| Obesity of trunk, face and proximal parts of extremities ("buffalo" type).

¶ The patient's blood pressure became significantly elevated above control values, after one injection of 5 mg. desoxycorticosterone acetate intravenously or intramuscularly and remained elevated for one to three days.

See text.

volume. This condition was not consistent throughout the period of observation, but it was noted that for many days the output of urine would vary from about 600 to 800 cc. per day, while the intake was 2,000 cc. or more. In 1 (case 22), who was carefully studied by control of the intake of fluids, the urine output remained below 800 cc. a day for thirty-four days, often being below 500 cc., and did not rise when the fluid intake was increased from 800 to 2,000 cc. per day. There was no gain in weight despite this discrepancy; the patient manifested profuse sweating. Antidiuretic substance was found in her urine.

In 3 cases, plasma sodium determinations were made and were within normal limits. Plasma chloride levels, however, appeared to be slightly higher than are usually found in this laboratory, varying from 105 to 110 milliequivalents per liter. In the 3 cases in which it was

that seen in Cushing's syndrome. When other suggestive signs and symptoms of Cushing's syndrome were looked for, some of them were found; but in no case were all of the classic observations of this condition present.

COMMENT

From a review of our cases, it would appear that restriction of sodium chloride in the diet, either by the use of the "rice diet" of Kempner or by other means, is usually ineffective when the condition is advanced and therapy becomes mandatory. In one type of case, however, restriction of sodium chloride appears to be definitely beneficial with respect to the level of blood pressure. In this type, restriction of salt appears to lower blood pressure when other factors are controlled,

5. Selye, F. L.: Biochemical Changes in Hypertension, *Canad. M. A. J.* 57: 325-330, 1947.

and addition of salt to the diet appears to raise it. The clinical observations in this group of patients are suggestive of an alteration in some of the functions of the adrenal cortex, although laboratory confirmation of such disturbances is so far lacking. Such a disturbance, if present, is not advanced enough to produce the classic observations of Cushing's syndrome, although many of its manifestations seem to be present to some degree. The condition in these cases has been called "pseudo-Cushing's syndrome."⁶

In view of the apparent differences in this obese group of patients from the usual patients with arterial hypertension, it is possible that these patients suffer from a different condition of which hypertension is only one manifestation. Once aware of this condition, one finds it relatively easy to identify. Recognition makes dietary restriction of salt of more certain benefit to the

changes which had occurred were somewhat reversed. Other influences than dietary ones cannot, therefore, be excluded in these 3 cases.

In general, every effort was made in this study to exclude the effects of influences other than dietary ones. One of these, hospitalization, has proved a very significant one in some patients (table 3).² It has therefore been our practice to require a control period in the hospital of about a month's duration before instituting any therapeutic procedure. In only 3 patients (cases 13, 20 and 22) was no control period used, although observations on them in the outpatient department had indicated sustained high levels of blood pressure for long periods. In 3 cases the control period was two weeks, and in the remainder (9 in the first group and 7 in the second, table 1) it lasted three to six weeks or more. If this relatively long period had not been used, the

TABLE 3.—Effect of Hospitalization on Blood Pressure *

Case No.	Patient	Sex	Average Blood Pressure First 7 Days After Admission, Mm. Hg.	Control Period, Days	Average Blood Pressure Last 7 Days of Control Period, Mm. Hg.	Change Control Period, Mm. Hg.	Total Change Control and Diet Periods, Mm. Hg.†	Additional Influences in Control Period	
								Bed Rest	Amount of Salt, Gm.
Poor Response to Salt Restriction									
3	S. K.....	♀	243/126	13	232/119	-11/- 7	-19/- 7	+	—
4	V. R.....	♀	193/126	39	168/113	-25/-13	-24/-16	0	—
5	F. W.....	♀	200/130	40	183/115	-17/-15	-36/-12	0	—
6	K. E.....	♀	169/110	39	187/126	+18/+16	.....	+	—
7	D. R.....	♀	218/151	11	217/150	- 1/- 1	.....	+	—
8	P. R.....	♂	175/100	12	166/ 92	- 9/- 8	.....	+	2.0
9	A. K.....	♂	212/122	26	204/119	- 8/- 3	-15/- 9	0	—
10	L. N.....	♂	189/127	51	198/134	+ 9/+ 7	.....	0	—
11	A. P.....	♂	259/169	31	251/163	- 8/- 6	-33/- 7	+	1.0
12	A. B.....	♂	222/160	28	222/150	0/- 1	.....	0	—
13	T. A.....	♂	205/140	13	201/150	- 4/+10	.....	+	2.0
Significant Response to Salt Restriction									
14	A. F.....	♂	165/103	32	168/112	+ 3/+ 9	.....	0	—
15	W. D.....	♂	195/129	28	195/132	0/+ 3	.....	0	—
16	C. O.....	♀	167/111	34	156/107	-10/- 4	-40/-18	+	—
17	L. S.....	♀	200/115	21	191/108	- 9/- 7	-31/-27	0	—
18	L. C.....	♀	180/112	23	199/123	+19/+11	.....	0	—
19	I. H.....	♀	166/121	35	161/110	- 5/-11	-29/-29	0	—
20	M. P.....	♀	220/131	15	140/ 95	-60/-36	.....	+	1.0
21	M. L.....	♀	183/113	105	176/119	- 7/+ 6	.....	0	—
22	F. R.....	♀	185/ 97	50	127/ 77	-58/-20	.....	+	1.0
23	D. B.....	♀‡	172/111	85	143/100	-29/-11	.....	0	—
24	J. O.....	♀‡	175/110	20	120/ 80	-55/-30	.....	0	—
25	E. C.....	♀‡	200/116	39	179/110	-21/- 6	.....	0	—
26	L. S.....	♀‡	170/110	26	164/105	- 6/- 5	.....	0	—

* Average figures for first seven days of control period not available in cases 1 and 2. Each was controlled for eight weeks.

† See table 1. This column reflects the changes which might have been attributed to salt restriction if control periods had not been used. Only the patients whose blood pressures fell during control period are listed.

‡ Studied for effect of hospitalization only.

patient and avoids for the patient the inconveniences of trial and error methods of dietary management.

The other patients who responded to the restriction of salt (cases 14, 15 and 16) either exhibited considerable susceptibility to psychotherapeutic influences, being easily suggestible, or were in mild stages of the disease. The response of their blood pressures to salt restriction occurred after a later interval than it did in the "pseudo-Cushing" group. In 1 (case 14), the addition of salt to the diet had no effect; in another,

diets would have appeared beneficial in 5 of the group in which a poor response was noted, and more beneficial in 3 of the others. It seems possible, therefore, that some reports of good results accruing from low salt diets have not taken these other influences into account.

SUMMARY AND CONCLUSIONS

Twenty-two patients with hypertension were placed on diets low in sodium chloride in the hospital in an attempt to evaluate the effects of such diets on the levels of their blood pressure. The effects of hospitalization and psychotherapeutic influences were controlled so far as possible.

In 13 patients, most of whom exhibited the disease in its severer stages; the response to salt restriction was poor. Three additional patients with milder forms of the disease manifested a lower level of diastolic pres-

6. By Dr. Willard M. Allen, of Washington University School of Medicine. It is probable that these cases are similar in many respects to those reported by Herrick, W. W.: Hypertension and Hyperglycemia, J. A. M. A. 81: 1942 (Dec. 8) 1923. In a review of 218 cases of "essential hypertension," Schroeder and Steele noted 7 cases which fitted into this category and 7 other obese women whose hypertension began with the menopause. In addition, 2 obese women exhibited elevated basal metabolic rates without hyperthyroidism. Some of these were benefited by restriction of dietary salt. Schroeder, H. A., and Steele, J. M.: Studies on "Essential" Hypertension: I. Classification, Arch. Int. Med. 64: 927-951 (Nov.) 1939.

sure; in 1 of these the change which occurred was not reversed by the addition of salt to the diet.

A group of 6 female patients are described who exhibited obesity of a characteristic distribution, and some but not all of the signs of Cushing's syndrome. In these, levels of blood pressure appeared to be directly related to the intake of sodium chloride, being lower when salt was restricted and higher when it was added. These patients probably suffer from a disturbance of which arterial hypertension is only one manifestation. It is suggested that there is an alteration of some of the functions of the adrenal cortex in such persons. In general, when the disease was relatively advanced and treatment was mandatory neither restriction of salt nor the rice diet appeared to be of much benefit.

ABSTRACT OF DISCUSSION

DR. DAVID AYMAN, Boston: Dr. Schroeder has presented one of the first series of controlled—although limited in number—observations on the effects of the rice and salt-free diets. It appeared clear that Kempner's studies, as he reported them, did not include the controls necessary in any careful evaluation of blood pressure. The universal demand for the diet by patients followed the unfortunate newspaper publicity which greets the announcement of any new method or treatment, so that patients have placed themselves on the diet without medical care or forced physicians to put them on the diet. Kempner's methods in general consisted of brief periods of control before the diet, so that a large number of his patients have been placed on the diet either at once or within a few weeks after arrival at Duke University. Dr. Schroeder has attempted to avoid this source of error by waiting three or four weeks before starting the diets. However, even such a period of waiting before treatment is not adequately long. Dr. Schroeder recognized this when he demonstrated in several patients that hospitalization alone caused significant drops in blood pressure, in 1 case to normal levels. It follows, therefore, that if all patients had been given the diet after thirty days of hospital rest and observation, further drop in blood pressure might well have occurred in some additional patients if he had waited ninety days before introducing the diet. Dr. Schroeder modified Dr. Kempner's study a bit by using a nightly barbiturate. This, together with a quiet hospital environment, might be enough gradually to lower blood pressure by progressive relaxation. The study that Dr. Schroeder has today presented is clearly of a small number of patients. I think, therefore, that on the basis of such a small number of patients it is unwise to estimate even roughly that blood pressures in 10 per cent of hypertensive patients will drop to normal levels on a salt-free diet. The effect of rapid weight reduction on blood pressure, as well as any specific diet effect, is involved in the studies of Kempner and Schroeder. Kempner admitted that it is common to have decided weight loss in the first twenty days of the diet. Schroeder's cases show the same weight drop. I would like to ask Dr. Schroeder whether he noticed any decreases in heart size, favorable changes in electrocardiograms or improved changes in the fundi, all of which Dr. Kempner frequently found with the rice diet. The diminution in heart size and improvement in electrocardiograms, nonprotein nitrogen levels and cardiac state, as reported by Kempner, merit some mention and some explanation. In Dr. Kempner's papers the striking effects on blood pressure, heart size, electrocardiographic observations and fundi, have been most often in patients with congestive heart failure or nephritis. In these two conditions the rice diet, with its restrictions of sodium and protein, is merely a more stringent form of low sodium and low protein diets already used for heart failure and nephritis.

DR. MILTON LANDOWNE, Chicago: When a patient is put in a hospital it may take a while for his pressure to become "stabilized," and during that period his blood pressure may fall. The reduction of blood pressure to a more basal level by hospitalization alone might also have been accomplished

by some other form of therapy for the ambulatory patient. Once the pressure has been lowered by hospitalization, however, the other therapy may not reduce it further. That may have been partly in the mind of Bryant and Blecha when they reported that a majority of ambulatory patients on a very low salt diet had a reduction of blood pressure. Because of their report my co-workers and I undertook to study a small group of patients in the clinic rather carefully, and we attempted to control the therapeutic and psychotherapeutic effects of placing them on a rigidly restricted salt diet. We put these patients on a diet calculated to be adequate except for its sodium content of less than 300 mg. per day. In addition, we gave these patients medication consisting either of lactose or of 4 Gm. of sodium chloride a day given in identical manner. We did twenty-four hour urinary analyses for sodium and creatinine once a week as a check on how well the patients were following the diet. I do not propose to report here on the results of our study, but will mention two pertinent points: First, only 1 out of 3 patients whom we had expected to be on the diet stayed within the limits of the diet as we defined it. Therefore, without urinary checks, one cannot assume that the patient is following a salt-restricted program. There is no report from the Michigan group as to how many of their patients followed the diet. Our data indicate that 1 out of 3 patients whom we put on a diet restricted in sodium to considerably less than 0.5 Gm. of sodium per day actually followed that diet to that degree. Second, while we did find an occasional patient whose blood pressure fell during the period of effective sodium restriction, there was certainly no overwhelming difference between the control and the experimental subjects when the variable factor was entirely or largely limited to the salt received.

DR. FREDERICK M. ALLEN, New York: Experiments which seek to extenuate the former error of denying the pressor effect of salt by depicting it as small invite comments epitomized as follows: 1. Animal experiments conclusively prove pressure elevation by salt. 2. Allen-Sherrill (1922) excluded psychic, weight, protein and other factors in 280 cases during four years. 3. Even in this first use of diets capable of producing salt deficiency, supervision prevented dangers. 4. Brief observations on a few patients of the class recognized as refractory by myself, Kempner and Grollman establish no scientific conclusions for the whole subject. 5. Just as in diabetes, failures in worst cases do not invalidate diet principle. 6. My distinction, twenty-two years ago, between symptom and disease of hypertension explains benefits not measured merely by pressure reduction and often apparent after years in initially refractory cases. 7. Symptomatic variations, physical and psychic influences must be weighed against death rate unaltered by symptomatic palliations, and rarity of hypertension among the insane with utmost excitations and depressions. 8. Preliminary rest makes pressure reduction in subsequent brief diet experiments appear as small as possible but misses distinction between transitory symptomatic effect and permanent specific diet effect. Diet keeps all but extremely hypertensive patients active and improved. 9. Frequent clearing of retinitis, congestive failure, headaches, dyspnea and other symptoms is unmistakable. 10. Permanent effects are paramount. Though I oppose operation, necessity of evaluating results in chronic disease during many years is recognized by surgeons, not by our medical opponents. Kempner's duplications of my results should prove similarly durable unless superfluous restrictions discourage the necessary lifelong fidelity. 11. I first demonstrated that vascular atony of shock requires sodium chloride solution, not plasma proteins. 12. Selye connects sodium chloride with etiology of hypertension. Therefore, though my research was cut off, I still submit that observations supporting salt restriction are superior in number, duration and validity. Appetizing diet encourages fidelity. Long ago, the public should have been taught to accept diet for hypertension as routinely as for diabetes. The waste of life during the past twenty years may continue for another ten years before all agree. My conclusion, based on unique experience in several thousand cases during twenty-eight years, is that saltless diet, especially when begun reasonably early, can specifically arrest

progressiveness, prevent complications and thus provide the first real control of deaths from hypertension.

DR. EUGENE FOLDES, New York: In regard to the effects of various diets on arterial hypertension, I should like to call attention to the antiretentional dietary which I introduced fifteen years ago. This diet is based on the postulate that the water content of the blood, and thus the circulatory blood volume, vary with the water content of the rest of the organism, so that measures which reduce the water content of the body reduce the circulatory blood volume. The antiretentional diet is further based on the concept that reduction of the circulatory blood volume is followed by reduction of the blood pressure and aims at such reduction of blood volume and blood pressure by the administration of a regimen in which food substances are selected according to their effects on the water and mineral metabolism. Food substances having diuretic action, such as proteins and vitamins, are employed in liberal amounts, while food substances which may lead to liquid retention, such as carbohydrates, fats, sodium chloride and water, are used sparingly. I found this diet effective in many cases of arterial hypertension, and the results were confirmed by others. These therapeutic results, when compared with those obtained by the salt-free and the rice diets, are not unfavorable to the antiretentional dietary. The person suffering from arterial hypertension has functions and needs other than those determined by his blood pressure. These functions and requirements are not always well served by the salt-free and the rice diets. Both of these diets are unpalatable and monotonous. Further, for the human being, sodium chloride is not an indifferent chemical which can be introduced in excessively high or excessively low amounts without damage. The exhaustion and other serious consequences of considerable sodium chloride losses are well known and are further demonstrated in 1 of Dr. Schroeder's cases. Occurrences of pseudo-uremia and influences of sodium chloride deprivation on the carbohydrate metabolism, sexual function and the like should also be considered. As to the rice diet, it is not only salt free but it is also poor in proteins and rich in carbohydrates, a combination which may lead to fatty infiltration of the liver and to all the attendant disturbances. In addition, the rice diet is poor in some of the naturally occurring vitamins and these vitamins cannot be adequately replaced by the administration of a preparation. In contrast, in the antiretentional dietary, consideration is given to the patient's needs other than the regulation of the blood pressure.

QUESTION: Is it possible that salt restriction would be more effective if kept at 200 mg. as outlined by Bryant?

DR. HENRY A. SCHROEDER, St. Louis: The psychotherapeutic influences on the patients were controlled so far as possible, but I will agree with Dr. Ayman that putting a patient in a hospital for three months is a definite psychotherapeutic procedure. These patients were told when they were given rice or low salt diets that this was an experimental procedure, that there had been reports of its being of some benefit, but that we did not know whether or not it was beneficial, and we asked for their cooperation. I would like to stress that in no way have we reproduced the Kempner regimen, which I have no doubt is beneficial in a certain proportion of cases. We merely tried to find out whether the benefit lay in the diet itself or was due to other influences. We were unable to perform a clearcut experiment in any of our patients or to add certain things, like protein, amino acids or sodium, to the diet as we had planned, in order to answer this question. All of our patients lost some weight when on a diet either of salt restriction or of rice. There were changes in the heart size in some, but I believe that changes in heart size or in the electrocardiogram, particularly with respect to the inverted T wave, are functions of the level of blood pressure, and when the blood pressure came down we did notice such changes. Anything which will bring the blood pressure down will often produce these changes; there is nothing specific about the diet. Pyrogens will do it as well. Sympathectomy will do it. Any so-called specific or nonspecific procedure will do it. I think that Dr. Allen deserves great credit for having introduced

the low salt diet into this country in 1922. My own personal interest in salt restriction goes back many years, particularly in regard to its effect on cardiac decompensation. Nothing would please me more than to find that salt restriction was of therapeutic benefit in all cases of hypertension. However, these are our results, and we must interpret them as carefully as we can. We cannot come to the conclusion that there is any specific benefit from salt restriction or from rice in all patients. I think it possible that in patients who do respond to a restriction of salt—and there are some whose response is dramatic—there is different causation, perhaps with more of an endocrine element than a renal or a nervous one. Those with the primary nervous or renal elements do not respond to these regimens as well as do the others. In reply to the question as to whether salt restriction would be more effective if kept to 200 mg. of sodium as outlined by Bryant, which is approximately 0.5 Gm. of salt, that is about the amount of sodium—200 mg.—or which is in the rice diet. We have used the 0.5 Gm. diet frequently.

DIAGNOSIS OF CANCER OF THE LARGE BOWEL

NEIL W. SWINTON, M.D.

HUGH F. HARE, M.D.

and

WILLIAM A. MEISSNER, M.D.

Boston

The diagnostic criteria for advanced malignant disease of the large bowel are well recognized, but the diagnosis of early cancer and the differential diagnosis of benign polyps, diverticulitis and carcinoma require the closest cooperation of the clinician, the radiologist and the pathologist.

In a previous presentation of this subject, comprising a review¹ of 100 cases of cancer of the rectum, 100 cases of cancer of the left colon and 100 cases of cancer of the right colon, it was noted that the chief complaints of the patients could be placed in three groups (table 1):

TABLE 1.—Symptoms of Carcinoma of the Colon and Rectum (300 Cases)*

Symptom	Location of Carcinoma, Percentage of Patients			Total, Per- centage
	Rectum	Left Colon	Right Colon	
Blood in stool.....	86	46	9	46
Altered bowel function.....	79	82	81	80
Abdominal cramps or pain.....	7	77	87	57
None	2	2	3	2.3

* Over 80 per cent of all patients with carcinoma of the colon and rectum complained of rectal bleeding.

SYMPTOMS

1. Rectal bleeding. Over 80 per cent of all patients with malignant disease of the large bowel will have associated rectal bleeding. This is the most significant symptom of cancer of the colon and rectum.

2. An alteration or change in bowel function. The mildly constipated patient who has been taking an

Read before the Section on Surgery, General and Abdominal, at the Ninety-Seventh Annual Session of the American Medical Association, Chicago, June 25, 1948.

From the Department of Surgery (Dr. Swinton) and the Department of Radiology (Dr. Hare), The Lahey Clinic, and the Department of Pathology, New England Deaconess Hospital (Dr. Meissner), Boston.

1. Swinton, N. W., and Higgenbotham, J.: *The Diagnosis of Carcinoma of the Colon and Rectum*, S. Clin. North America 18: 733-743 (June) 1938.

occasional laxative for years presents little of significance, but if increasing constipation or some other change in bowel function has been noted within recent months, complete studies are indicated.

3. Abdominal pain. This is usually a crampy, colicky-like pain associated with varying degrees of obstruction or nodular extension of the disease.



Fig. 1.—Benign mucosal polyp, showing regularity of gland, maturity of cells and absence of stromal invasion (eosin methylene blue stain $\times 50$).

Ninety-eight per cent of the patients at the clinic with proved carcinoma of the colon or rectum complained of one or more of these three symptoms. There are other signs and symptoms which may be significant. Unexplained anemia is frequently associated with a neoplasm of the right colon. An abdominal tumor may have its origin in the colon without associated colon or rectal symptoms.

Rectal bleeding, the commonest complaint of patients with malignant disease of the colon and rectum, in our experience has been the least well evaluated by physicians. It has too often been casually accepted, probably because it is so commonly experienced. Nearly all of us at one time or another have noted a drop or more of blood on the toilet tissue or in the bowl. Patients, however, are becoming increasingly cancer conscious. The publicity being given the subject of cancer, its early diagnosis and the significance of bleeding from any of the body orifices has resulted in an increase in the number of patients consulting their physician at the first appearance of rectal bleeding. It is of the utmost importance, therefore, to all of us, as physicians, that an adequate examination be made of these patients when they first present themselves.

Any patient with rectal bleeding should be considered to have malignant disease until proved otherwise. Any patient with rectal bleeding, a change in bowel function or unexplained abdominal pain should first have a careful inspection of the perianal area and anal orifice. Anal carcinoma is rare but does occur. A careful digital examination of the anal canal and rectum should follow. Fifty per cent of cancer of the large bowel can be palpated in this manner.

SIGMOIDOSCOPIC EXAMINATION

After digital examination of the rectum, an anoscopic visualization of the anal canal and a sigmoidoscopic examination of the rectum, rectosigmoid and low sigmoid regions should be performed. The origin of rectal bleeding most frequently is in the anal canal. Hemorrhoids, fissures, inflammatory conditions and other common diseases found in this region should be accurately classified. Hemorrhoids and hypertrophied anal papillae or true polyps of the anal canal rarely, if ever, result in malignant degeneration.

The majority of tumors will be found above the anal canal. They may be benign mucosal polyps or malignant tumors (fig. 1). The frequency and significance of benign mucosal polyps of the colon and rectum are not generally appreciated. Swinton and Haug² and Helwig³ reported large autopsy series, giving an incidence of mucosal polyps of the terminal bowel of 7 to 10 per cent for patients dying from all causes. There is an increasing incidence with age and a high percentage of multiplicity of these tumors. The relationship between these polyps and cancer is definitely established. All stages in the development of adenocarcinoma can be demonstrated histologically between polyps of this type and advanced malignant disease (figs. 2 and 3). Mucosal polyps of the large bowel are true tumors and definite premalignant lesions.

The criteria as to when a digital and sigmoidoscopic examination of the terminal bowel should be done are not adequate for the detection of premalignant lesions. Only one third of patients with benign mucosal polyps of the rectum and colon complain of rectal bleeding. A very small number have associated obstructive symptoms.

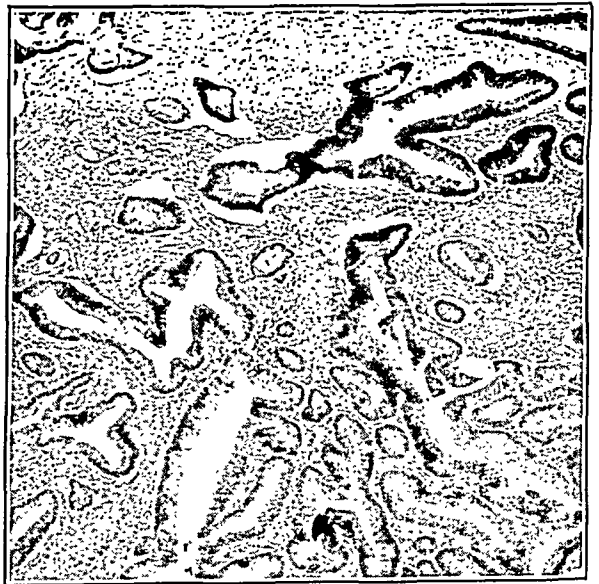


Fig. 2.—Early carcinoma arising at the base of a polyp, with atypical glands, atypical cells and invasion of stroma (eosin methylene blue stain $\times 50$).

It is our firm conviction that, if large numbers of these premalignant lesions are to be discovered, not only must every patient with any symptom referable to the

2. Swinton, N. W., and Haug, A. D.: The Frequency of Precancerous Lesions in the Rectum and Colon, *Lahey Clin. Bull.* 5: 84-88 (Jan.) 1947.

3. Helwig, L. C.: The Evolution of Adenomas of the Large Intestine and Their Relation to Carcinoma, *Surg., Gynec. & Obst.* 84: 36-50 (Jan.) 1947.

large bowel be carefully investigated but sigmoidoscopic examinations must be a routine part of every complete general examination. Only when a sigmoidoscope is considered as important a part of one's diagnostic equipment as the stethoscope, vaginal speculum, laryngoscope and otoscope will large numbers of these tumors be found and an appreciable number of patients saved from development of cancer.



Fig. 3.—Adenocarcinoma, moderate malignancy, arising in mucosal polyp (eosin methylene blue stain X 50).

DIFFERENTIAL DIAGNOSIS—BENIGN AND MALIGNANT POLYPS

The differential diagnosis between benign and malignant polyps is, at times, extremely difficult. When these tumors are within reach of the examining finger the induration, fixation and firmness of malignancy is pathognomonic. The soft nonindurated mucosal polyps will rarely reveal any evidence of cancer. Usually, however, reliance must be placed on the pathologist for the differential diagnosis. Tissue should be removed from these tumors for histologic examination whenever they can be visualized. This can be done as an office procedure. One must realize, however, in doing this that there will occasionally be troublesome hemorrhage from such rectal biopsies. For accuracy in the differential diagnosis of malignant degeneration in these tumors it must be remembered that cancer can arise in any portion of a mucosal polyp. The entire polyp, together with its base, should be studied histologically before a final diagnosis of the nature of these tumors can be established.

Of late, increasing numbers of patients are being referred to us with a tumor of the rectum or sigmoid for whom a biopsy has been performed and a diagnosis of cancer established. A review of the microscopic slides of these specimens coming with the patients and repeated biopsies of these tumors have, many times, failed to confirm the diagnosis of cancer. We believe that there may be a tendency among pathologists not dealing with polyps in considerable numbers to diagnose some of these borderline lesions as malignant a little more often than seems justified.

The importance of the accuracy of the histologic diagnosis of these tumors (polyps) cannot be over-emphasized. To a large extent, the decision as to the type and extensiveness of radical surgical treatment which will follow is based on the interpretation of the microscopic observations by the pathologist. The diagnosis of tumors in many other parts of the body as malignant growths may be of relative unimportance by comparison, since the treatment of a precancerous lesion and of cancer may often be similar or identical. However, when dealing with epithelial tumors of the large bowel, overenthusiasm in the diagnosis of malignancy may be extremely serious, since, with rare exceptions, the diagnosis of cancer is the only diagnosis which necessitates a radical surgical removal, frequently with permanent colostomy.

The microscopic recognition of cancer in a biopsy specimen removed from the rectum is not difficult if the tumor is well developed. The tumor shows atypical cells, irregularity of glandular structure and invasion of adjacent structures. There are borderline lesions, however, in which the criteria may not be so definite. The differential diagnosis between the benign but actively growing polyp and carcinoma arising in a polyp frequently must be made. The criteria used in this clinic for the differentiation have previously been outlined by Swinton and Warren.⁴ The diagnosis is based primarily on anaplasia, irregularity of architecture and invasion, at least two of the factors being present for the diagnosis of malignancy. One exception is definite lymphatic or blood vessel invasion, which is usually sufficient in itself for the diagnosis.



Fig. 4.—Adenocarcinoma with blood vessel invasion, showing invasion of large vein near center of field and attachment of tumor to vein wall (Verhoeff stain X 50).

Additional criteria which should be emphasized in the diagnosis of malignant disease in this region are mentioned.

1. Cancer must not be diagnosed on the mere presence of numerous mitoses in the tumor. Benign polyps often show many mitoses.

4. Swinton, N. W., and Warren, S.: Polyps of the Colon and Rectum and Their Relation to Malignancy, *J. A. M. A.* 113:1927-1933 (Nov. 25) 1939.

2. The presence of epithelial cells within vessels often occurs as an artefact produced by cutting the tissue. For the diagnosis of cancer, the intravascular epithelial cells should at least be associated with a thrombus and preferably by actually invading the vessel wall (fig. 4).

3. All portions of the biopsy must be examined before a negative report is made. Otherwise, a small focus of malignant change may be overlooked.

4. The diagnosis of cancer should never be made on borderline evidence. The pathologist should not feel compelled to diagnose tissue which is inadequate. The clinician and pathologist must both appreciate that repeated biopsies may be necessary before a definite decision can be made.

ROENTGENOGRAPHIC EXAMINATION

When symptoms suggest the possibility of organic disease in the colon or when examinations, as already discussed, have not revealed the origin of rectal bleeding or other abnormalities of bowel function, further examinations must be made of that portion of the colon above the reach of the 10 inch (25 cm.) instrument. For this region reliance must be placed on the observations of the radiologist. Malignant disease found in this region will approximate 30 per cent of the cancer encountered in the colon and rectum.

Patients selected for radiologic study of the colon should be selected on an individual basis and only after a careful history has been taken and physical, digital and sigmoidoscopic examinations of the lower bowel have been performed. It must be remembered that radiologic studies are not only important from the

point of view of making an original diagnosis but also may be indicated to determine the presence of multiple lesions. In our experience, 42 per cent of the polyps found have been multiple. Thus, the multiplicity of both benign and malignant tumors should be considered.

When advanced or large tumors of the colon are present, the preparation of the colon before radiologic studies are made is probably not too important, but if early or small lesions are to be demonstrated, the colon must be free of fecal material. It is our policy to prepare the



Fig. 5.—History of increasing constipation with loss of weight and rectal bleeding. On proctoscopic examination a mass was demonstrated in the lower left quadrant of the abdomen. Results of sigmoidoscopic examination were negative. A barium sulfate enema without preparation showed a tumor of the ovary with small bowel obstruction.

colon for this purpose by giving $1\frac{1}{2}$ (44 cc.) to 2 ounces (59 cc.) of castor oil the night before examination. A vigorous cathartic should not be given when an acute inflammatory process, ulcerative colitis,

intestinal obstruction or appendicitis is suspected (fig. 5).

On the morning of the examination, a tap water or saline enema is given three hours before the barium sulfate enema. If sigmoidoscopic examinations are performed using this same preparation they should be



Fig. 6.—Colon polyp demonstrated by contrast air enema.

made two to three hours before the barium sulfate enema radiograph is made, to allow evacuation of air which usually enters the colon at the time of the sigmoidoscopic visualization.

The routine barium sulfate enema radiograph is performed at the clinic as follows: a solution is made of 1 cup (235 milliliters) of barium sulfate plus 2 teaspoonfuls (8 to 10 milliliters) of tannic acid to each quart (0.95 L.) of warm water. The barium solution is allowed to enter the bowel slowly, the patient turning from side to side after filling of the ampulla so that clear visualization of the sigmoid can be obtained, particularly of those blind loops which extend posteriorly. After complete filling and observation fluoroscopically, roentgenograms should be taken in the posteroanterior and oblique positions so as to demonstrate all coils of the sigmoid. When a search is made for a lesion at the ampulla, lateral views of the ampulla should also be taken. The patient is then allowed to evacuate the colon and the three roentgenograms of the colon are again taken.

After this examination, if there is still a question of a lesion, particularly a polyp, a double contrast air enema of the colon should be considered.

There has been a tendency, probably more among clinicians than radiologists, to overemphasize the value of the contrast air enema. For those lesions involving the bowel the usual barium sulfate enema radiograph

is usually adequate. There are certain lesions which do not involve the bowel musculature, but which arise from the mucosa and extend into the lumen of the bowel, such as polyps, which can be better demonstrated by the contrast air technic (fig. 6).

When contrast air studies of the colon are made, a preparation similar to that already mentioned should be given. It is our policy at the clinic to carry out this study at a separate examination using a second preparation. A small amount of barium sulfate, a mixture of 1 cup to a quart of water, is used and the ampulla and sigmoid filled under fluoroscopic control. The patient is then allowed to evacuate and the colon filled with air. This allows an adequate demonstration of the mucosal markings of the colon. Stereoscopic roentgenograms are necessary for the most accurate study. These are taken with the patient in the prone and slightly oblique positions to demonstrate the coils of the sigmoid in relief. Both roentgenograms are taken while the patient holds a single breath to avoid motion. Even with examinations of this type we have had difficulty in demonstrating small mucosal polyps above the reach of the 10 inch (25 cm.) instrument. It has been our policy when such polyps are encountered to repeat the radiologic studies after a short interval, identifying the tumor at a second examination in the same location as that discovered at the first before submitting the patient to operation.

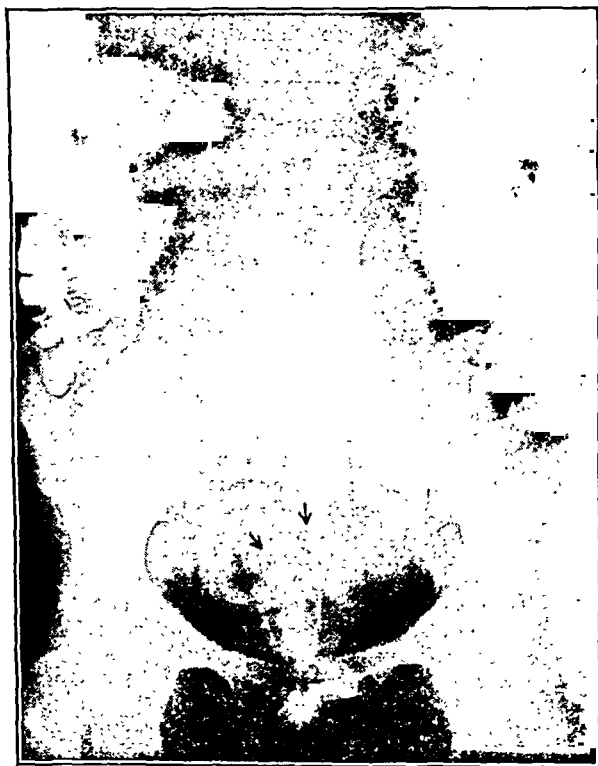


Fig. 7.—Demonstration of mucosal pattern in the large bowel. The loss of pattern in the rectum with irregularity is due to a large carcinoma of the rectum.

The limitations of the radiologic investigations of the rectum and sigmoid colon must be thoroughly appreciated. For the purposes of this presentation 161 cases were reviewed in which a barium sulfate enema roentgenogram of the colon was performed after a careful

history, physical examination, digital examination of the anal canal and sigmoidoscopic examination of the rectum and lower sigmoid. The results of this study are shown in table 2.

This reveals that it is not possible at the present time with our present known radiologic technics to diagnose

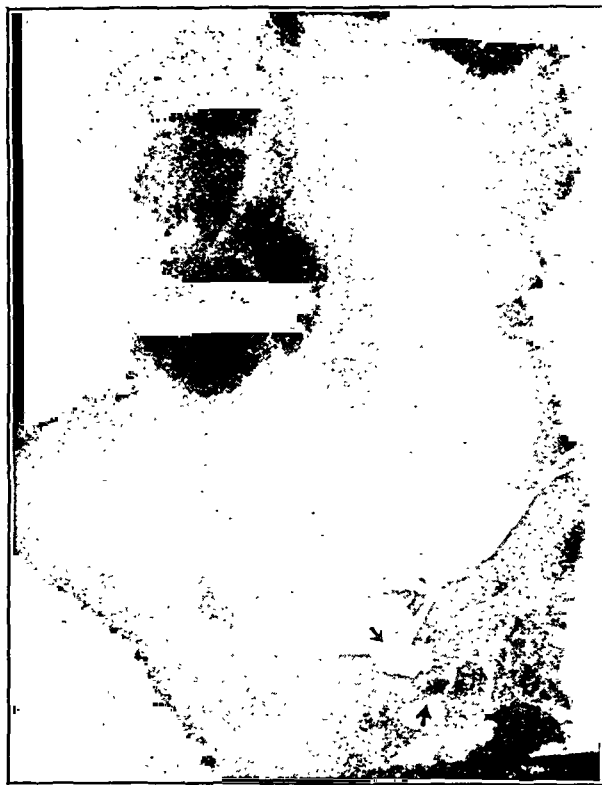


Fig. 8.—Diverticulitis with large bowel obstruction simulating a malignant growth.

many of the lesions of the ampulla of the rectum, the rectosigmoid area and, in certain instances, in the distal part of the sigmoid (fig. 7). The diagnosis of lesions of the colon beyond the reach of the sigmoidoscope is considered accurate. The bowel is usually accurately

TABLE 2.—Results of Radiographic Studies of Colon and Rectum (Barium Sulfate Enema and Contrast Air Technics)

Studied	Number of Patients	Percentage
	150	..
Rectal bleeding.....	62	41
Other symptoms.....	88	59
Polyps visualized with sigmoidoscope....	15	..
Polyps visualized with radiograph.....	5	..

observed in roentgenograms both in the full and empty states, particularly in the empty in which the mucosal markings are well demonstrated. The use of tannic acid has improved our previous technics. It must be emphasized again, however, that even in this region of the bowel, radiologic studies are not perfect and no hesitation should be made in repeating such studies when the diagnosis is uncertain.

Retained barium in the colon may be a serious complication at the time of operation. When operation

is to be performed soon after the barium mixture has been introduced into the colon, cathartics and enemas may be necessary to remove such barium before the surgical procedure is undertaken.

Much has been said and written on the differential diagnosis of organic disease of the colon. In our experience, the most important problem has been the differential diagnosis between malignant disease and diverticulitis of the sigmoid. This is a problem which cannot be definitely settled by radiologic study alone in many instances. In this group of patients, the importance of the history and physical observations, the presence or absence of rectal bleeding and the sigmoidoscopic appearance of the bowel below the lesion may be helpful. There will be a group of cases, however, which will require actual surgical exploration before a definite diagnosis can be established.



Fig 9.—Large polyp of the sigmoid colon simulating a malignant growth.

From the radiologic point of view the presence of a "shelf" at the beginning and at the end of the filling defect is strong evidence of malignant degeneration. The fact that mucosal markings of the colon in the involved lesion are usually destroyed when carcinoma is present, whereas they remain intact in diverticulitis, has not been of much assistance to us. The lesions of diverticulitis usually involve a larger portion of the colon than does carcinoma, but this is not pathognomonic (fig. 8).

SURGICAL EXPLORATION

There will also be a few instances in which the differential diagnosis between benign and malignant polyps cannot be established without surgical intervention.

On exploration, the differential diagnosis between cancer and diverticulitis of the sigmoid frequently cannot be established on inspection and palpation of the lesion. In these instances it has been our policy to

carry out a local resection of the involved bowel and have an immediate histologic examination performed. The pathologic recognition of cancer of the colon when the entire specimen is thus submitted usually is not difficult. Further immediate surgical steps can then be planned accurately on the basis of this examination.

When a polyp is found in the lumen of the colon through a colotomy incision, in most instances a long pedicle of normal mucosa will be encountered. Local excision is adequate for tumors of this type even though ultimate histologic study may at times reveal areas of early malignant degeneration. Local resection of the bowel and tumor may be necessary before a final decision from the pathologist can be given as to the presence of malignant disease and the extent of resection indicated (fig. 9).

SUMMARY

The symptoms and methods of examination necessary for the diagnosis of cancer of the colon and rectum are reviewed. The necessity for the routine use of the sigmoidoscope in every physical examination of adult patients for the detection of premalignant lesions is emphasized. The criteria for the histologic diagnosis of malignant disease in this region are given. The tendency of many pathologists to "overdiagnose" borderline lesions of this type is mentioned. The indications for and the technic of radiographic studies of the colon are given. The limitations of the barium sulfate enema and contrast air technics of radiographic study of the colon and rectum in the diagnosis of cancer are discussed.

ABSTRACT OF DISCUSSION

DR. HARRY M. WEBER, Rochester, Minn.: It is most important to remember that the patient with cancer of the colon may exhibit one, several, all or none of the symptoms of the disease that have been listed. Certainly there is a stage in the development of neoplasm of any internal organ when there are no clinical manifestations whatever of its presence. Obviously, then, a patient exhibiting one or several of the symptoms mentioned should undergo all of the special examinations described and in the order in which they were listed: inspection and palpation of the external anal region, digital examination of the rectum, competent proctosigmoidoscopic examination and competent roentgenologic examination of the colon. All of these examinations are necessary, regardless of the diagnostic yield of any one of them. The large intestine is notorious for its capacity to develop multiple neoplastic lesions. Frequently, for instance, an adenomatous polyp of the rectum is accompanied, followed or preceded by carcinoma of more mature proportions at a more orad level in the colon. Dr. Swinton and his co-workers pointed out that there is no certain way of knowing that any intestinal polypoid lesion is not cancer short of microscopic examination, not only of a part of the lesion but of the entire lesion. For practical purposes there is no reliable gross pathologic diagnosis of benignancy, once the presence of neoplasm is established. Hence such a polypoid lesion must be extirpated in toto, if for no other reason than to become certain of its malignant or benign nature by careful histologic study. To keep such a lesion under observation in situ until it shows advancing growth, induration, extension or other more definite evidence of malignant neoplastic change is to gamble unnecessarily with the patient's longevity. It is not certain that all cancers of the large intestine begin as polypoid lesions, but it is certain that a great many of them do. Thus the early diagnosis of intestinal cancer, even of intestinal precancer, is an actual possibility in this

day, and this diagnosis consists in the recognition of the small polypoid lesion. If such a polypoid lesion proves to be an adenomatous polyp it may be cancer at the time, but, if it is not, it will almost surely be cancer some day if its bearer lives long enough. This fact makes the clinical management of such a lesion obvious. With proctosigmoidoscopy and the roentgenologic examination of the colon, both assumed to be competently performed, we have the means of detecting these lesions even earlier in their development than they will manifest themselves by clinical signs and symptoms.

DR. WILLIAM H. DANIEL, Los Angeles: Dr. Swinton and his co-workers have clearly outlined the essential points in the diagnosis of cancer of the colon. Any of the three cardinal symptoms, however slight, are danger signals and must be proved innocent or serious by the proper examinations. The proctologist begins his search at the anus and attempts to visualize the bowel surface through the sigmoidoscope to at least 8 (20 cm.) or 10 (25 cm.) inches, using intravenous anesthesia if necessary. The barium sulfate enema should follow, to rule out higher lesions. If one is suspected, especially when streaks of dark blood are a constant observation, the double contrast enema should be given and repeated, to definitely rule out or confirm the presence of a polyp or beginning cancer. Since benign and malignant polyps are often associated with advanced carcinoma, it is reasonable to assume that the cancerous lesion itself may have originated as adenoma or a polyp. It is my practice and that of my colleagues to utilize the double contrast enema in every case in which a polyp is demonstrated by the sigmoidoscope, because of the tendency to multiplicity of polypoid lesions. In approximately 17,000 private patients there were 811 malignant lesions (4.7 per cent), including 32 anal epitheliomas and 74 polyps and adenomas (0.421 per cent). In the same group there were 581 patients (3.3 per cent) with benign adenomas and polyps. The majority of the polypoid lesions were found on routine sigmoidoscopic examination. Sections from several areas of the polyp should be studied by the pathologist in order to determine the degree of malignancy if present. I agree with the authors that the difference between a benign and malignant lesion depends on the pathologist who reads the slide. This is important, especially in the large villous adenomas, for which radical operation may be performed with sacrifice of the rectum when local treatment by fulguration usually is sufficient. The differential diagnosis between cancer and diverticulitis is not always simple. The roentgen observations may not be typical. A cancer may perforate the bowel, causing a perisigmoiditis and proctitis. Surgical intervention is indicated when there is any doubt, and then it may be impossible to differentiate by palpation, especially when the cancer is surrounded by an inflammatory process.

DR. NEIL W. SWINTON, Boston: I did not intend to imply that we hold our radiologists responsible for the diagnosis of lesions in the lower 10 inches (25 cm.) of the bowel. I do not believe that we have a local situation entirely. A large number of our physicians who see patients with rectal bleeding, and do or do not carry out a digital examination, have a roentgenogram of the colon taken, using a barium sulfate enema, and then inform the patient that there is nothing seriously wrong. The patient must have a sigmoidoscopic examination, preferably before roentgenograms of the bowel are taken.

Medieval Football.—In his historical essay on Florentine football (*Calcio*), Count Giovanni Bardi, in 1688, described medieval football in detail. . . . To a certain extent, football in Italy succeeded and supplanted the tournaments. Thus a *Gala Calcio* was held generally on grand occasions such as the visit of a foreign potentate or an important marriage. Two of the most famous games were performed in February, 1530, despite the siege of Florence, and in the summer of 1558, on the occasion of the nuptials of Dona Leonora de' Medici . . . and Alphonse d'Este, son of the Duke of Ferrara.—Joseph, Ludwig H.: *Ciba Symposia*, March-April, 1949.

LABORATORY ASPECTS OF STREPTOMYCIN

EMIL BOGEN, M.D.
Olive View, Calif.

In the few years since streptomycin was discovered and made available, it has already become established as an important agent in the treatment of many diseases.¹ Much enthusiasm has been evoked by the demonstration of its effectiveness in many hitherto refractory tuberculous lesions. Extensive resources have been utilized in its investigation, and much has been learned about it, but much still remains to be investigated.

Numerous other antibiotics besides penicillin and streptomycin have appeared promising from in vitro tests, but proved to be too toxic or feeble in animal experimentation. A few are undergoing trial, but none yet available have warranted clinical recommendation for tuberculosis. Many chemical agents have been found tuberculostatic, or tuberculocidal in vitro; some have shown promise in animal experiments, and several, including promin® (sodium p,p'-diaminodiphenyl-sulfone-N,N'-dixetrose sulfonate), promizole® (4,2'-diamino-diphenyl-5'-thiazole sulfone) diasone® (disodium-formaldehyde-sulfoxylate-diamino-diphenyl-sulfone) and para-aminosalicylic acid, are being studied in patients, but none so far tested approach the effectiveness of streptomycin.

CHEMICAL STRUCTURE

The chemical structure of streptomycin as N-methyl-glucosamido-streptosido-streptidine has been confirmed. Several chemical variants, such as streptomycin B and dihydrostreptomycin, have been identified. Terminology may now be based chiefly on chemical identity, rather than on origin or properties, though synthesis still remains for the future. Newer preparations, such as the streptomycin calcium chloride complex and crystalline streptomycin, as well as the chloride and sulfate, are being produced in greater quantities, purer, more soluble and stable and less toxic than the crude materials available to the earlier workers. The lessened cost of streptomycin, with the lowering of the average daily dose and the shorter duration of the treatment, has greatly reduced the economic limitations to its use.

Colorimetric and fluorometric methods of chemical assay for streptomycin have been introduced, but simpler and more sensitive tests for the determination of streptomycin levels in blood or urine are wanted. The maltol test may have more general application in assays of concentrated preparations. Improved technics and greater experience with dilution, slide and plate methods of bioassay for streptomycin have increased confidence in their dependability. With the lower dosage now found effective, however, it appears unnecessary to perform the routine blood level studies earlier recommended.

ABSORPTION

The few reports of the rate of absorption of streptomycin from various channels in animals and human beings are based generally on earlier, less precise, bioassay technics. They show, in general, highest concen-

Read before the Section on Miscellaneous Topics at the Ninety-Seventh Annual Session of the American Medical Association, Chicago, June 24, 1948.
1. Waksman, S. A.: *The Literature on Streptomycin 1944-1948*, New Brunswick, N. J., Rutgers University Press, 1948.

trations immediately after intravenous, about one hour after intramuscular and still later after subcutaneous administration. The maximum blood level obtained after an injection approaches about twice the dose given divided by the body weight. Oral administration does not usually result in enough absorption to be shown by blood levels, though traces may be found in the urine. Absorption following inhalation into the lungs in the form of sprays or aerosols, or in micronized form, or following deposition in the upper respiratory passages, mouth or other sites has been reported with differing results. Few data are available regarding its absorption from the pleura or peritoneal cavities. Its absorption

Micro-Organisms Susceptible to Streptomycin

<i>Actinomyces bovis</i>	++
<i>Aerobacter aerogenes</i>	+++
.....	+++
.....	+++
.....	+++
<i>Brucella melitensis</i>	+++
<i>Brucella suis</i>	+++
<i>Clostridium butyricum</i>	++
<i>Clostridium septici</i>	±
<i>Clostridium sordellii</i>	±
<i>Clostridium tetani</i>	±
<i>Clostridium welchii</i>	±
<i>Corynebacterium diphtheriae</i>	+++
<i>Eberthella typhi</i>	+++
.....	++
.....	+++
.....	++
<i>Diplococcus pneumoniae</i>	++
<i>Haemophilus influenzae</i>	+++
<i>Haemophilus pertussis</i>	+++
<i>Klebsiella ozaenae</i>	+++
<i>Klebsiella</i>	++
<i>Klebsiella</i>	+++
<i>Klebsiella</i>	++
<i>Leptospira icterohemorrhagiae</i>	++
<i>Haemophilus ducreyi</i>	+++
<i>Mycobacterium tuberculosis</i>	++++
<i>Mycobacterium leprae</i>	++
<i>Mycobacterium smegmace</i>	+++
<i>Neisseria gonorrhoeae</i>	++
.....	++
.....	+++
<i>Pasteurella tularensis</i>	++++
<i>Proteus vulgaris</i>	+++
<i>Pseudomonas aeruginosa</i>	++
<i>Salmonella aertrycke</i>	++
<i>Salmonella enteritidis</i>	+++
<i>Salmonella paratyphi</i>	++
.....	++
.....	+
.....	++
<i>Shigella paradyseae</i>	+++
<i>Staphylococcus albus</i>	+
<i>Staphylococcus aureus</i>	++
<i>Streptococcus faecalis</i>	+
.....	++
.....	+
<i>Vibrio cholerae</i>	++

into the blood stream from intramuscular injection cannot be controllably delayed by suspension in beeswax and oil, as with penicillin; but there is inadequate information regarding this or the effects of local cold applications or epinephrine and the like on absorption rate or on possible differences in the absorption rates of various compounds of streptomycin.

EXCRETION

Streptomycin is excreted, mainly in the urine, more slowly than is penicillin. It is eliminated chiefly by glomerular filtration. Carinamide or other substances which delay tubular excretion of penicillin do not, accordingly, have this effect on streptomycin. The effect of fluid restriction or other methods of lowering glomerular output appears slight. Streptomycin excreted in the urine may cause a weak reduction of ordinary sugar reagents, leading to reports of glycosuria. Other channels of excretion, such as the bile, feces and sputum, have been noted.

After the intramuscular injection of large amounts of streptomycin the concentration in the blood generally appears to be proportional to the amount given to any one animal. The rate of decline in this blood level does not appear to follow a straight line decrease, such as is seen with ethyl alcohol in the blood independent of concentration, but is closer to the logarithmic decline observed with penicillin or methyl alcohol, where the higher the blood level the greater is the amount excreted per time unit. After the injection of small amounts, streptomycin appears less regularly and disappears more rapidly from the blood stream. The rate of fall seems faster in dogs than in human beings. The concentration in the blood falls to one half of the previous level, in the average patient, in less than three hours, but may be greatly retarded in instances of renal retention.

DISTRIBUTION

Regarding the distribution of streptomycin throughout the bodies there are conflicting results based chiefly on studies in human beings and in a few cases on animal studies. It does not appear to diffuse through the tissue as readily as does penicillin, and there are differences in its final concentration in various organs. Thus, low levels have been noted in the spleen and liver and none in the brain. It appears to be distributed chiefly in the extracellular fluids, even that in the blood being found in the plasma rather than in the cells. More data are desired regarding the rate of distribution into various tissues and, also, the rate of return from these tissues back to the blood stream.

Trypan blue and certain other dyes show a selective predilection for the reticuloendothelial system and for lesions of tuberculosis. Streptomycin concentration in certain organs and lesions may be increased by coupling to the trypan dyes according to several studies. However, such increased concentration in the reticuloendothelial tissues or in the lesions do not appear to increase the therapeutic efficiency of the streptomycin.

TOXICITY

The toxicity of streptomycin has been found to be low for chick embryos, making possible the study of effects of streptomycin on mycobacteria, rickettsia and other organisms in such preparations, and the use of streptomycin to inhibit contaminations by susceptible organisms in the cultivation of resistant viruses, etc. Toxic effects have been noted with large doses in mice, rats, guinea pigs, rabbits, cats, dogs, monkeys and other animals. Most of our knowledge of the toxic properties of streptomycin, however, proceeds from the observations of treated patients.

Toxic manifestations may consist of allergic responses to pure streptomycin or to impurities in it. Sensitization may result from very small doses, by any route or even from casual contact by the nurse's handling of used syringes or in a neighboring patient exposed to escaping aerosol, with resulting dermatitis or other symptoms. Eosinophilia is frequent but unimportant. Acute histamine-like reactions early reported were probably due to impurities, but similar reactions may follow intravenous or even intramuscular injection in previously sensitized persons.

Local irritation seems chiefly due to impurities. It differs with various preparations of streptomycin and with different mode of administration. Simultaneous use of procaine hydrochloride is of little value in this connection. Renal irritation is common, but serious

renal damage leading to anuria appears to occur only with excessive dosage or with previous renal impairment leading to retention and high blood levels. Its danger is greatly reduced if not eliminated by the use of lower dosage. The hepatic and hemopoietic injuries encountered, though anticipated on the basis of animal experiments, have perhaps been coincidental, but must be seriously considered as they may otherwise be readily overlooked. Nutritional disturbances have been reported in animals as a result of elimination of vitamin forming intestinal bacteria by oral administration.

Complete and permanent loss of vestibular function develops in most patients receiving large doses for prolonged periods or who have excessive blood levels as a result of renal retention. With smaller, briefer or interrupted dosage the dysfunction may be only partial or temporary. With lower but still therapeutically active doses, vestibular damage may be completely averted. Experimentally similar disturbances have been observed in animals, especially the cat, and less readily in descending order in dogs, rabbits, rats and guinea pigs. Despite reports of degenerative changes in the vestibular nuclei, the exact nature and locus of the lesion involved is still obscure.

Deafness, though a distressing possibility, is so rare as to be practically negligible. The few cases reported have been generally among patients treated for tuberculosis meningitis, where the disease process, or the effects of the intrathecal injections, may be responsible. Local spinal cord or nerve injuries, including transverse myelitic syndromes, have resulted from intrathecal injection of large amounts or too concentrated or irritating preparations of streptomycin as well as from the trauma of frequent lumbar punctures. Paresthesias, especially of the face, are common, but fortunately mild and transitory. A few psychotic episodes have also been encountered. Other neurotoxic effects have been too rare or uncertain to establish etiologic relationship to the treatment.

Moderate but continuously sustained concentrations of streptomycin in the blood are more apt to be associated with toxic manifestations than are high peaks with intervening low levels. Toxicity may be reduced, therefore, by less frequent injections or by interrupted treatments. The clinical effectiveness of such dosage suggests that the therapeutic effect is not due to the same mechanism as that producing toxicity. Although antihistamine drugs may control some of the allergic manifestations of streptomycin sensitivity they do not seem to prevent vestibular damage. Desensitization by small doses has been reported as lessening vestibular damage, but this has not been confirmed.

MAXIMUM LIMITS

Deaths due to streptomycin have been observed in various species. The lethal component of commercial streptomycin has not been identified, and the mechanism of death in animals succumbing to it is still obscure. The earlier crude preparations of streptomycin killed animals in much smaller doses than do the purer products now available. There is also some variation in the toxicity of different lots of the same form. Nevertheless, much has been learned regarding lethal dose limits. Large animals withstand larger amounts than small ones. If the dose given is directly proportional to the body weight, however, large animals may be affected more than are small ones. If the effective dose depends on the total body fluids or of

the blood volume rather than of the body weight, it would be more nearly proportional to the two-thirds or three-fourths power of the weight than to the weight itself. Blood levels after known doses of streptomycin on animals of different size tend generally to confirm these conclusions. Blood levels of 500 micrograms per milliliter or more are found in the blood taken after death in experimental animals.

Clinically vestibular toxicity has also been more pronounced in small patients when a uniform dose has been given to all, but it has been more pronounced in large men when the dose given is in proportion to the body weight. On the basis of animal experiments less than 20 Gm. of streptomycin sulfate or about 400 micrograms per kilogram of body weight injected intramuscularly at one dose may be expected to kill the average human being. Much less than this might be fatal to sensitive persons or with more toxic preparations. Actually as much as 3 Gm. of streptomycin has been given patients at a single time, and this amount in divided doses during each day has been taken by many patients for several months without a fatality.

THERAPEUTIC DOSAGE

Studies, both in experimental animals and in patients, have yielded extensive data regarding minimal, maximal and optimal therapeutic daily dosage and individual dose and frequency of administration. The administration of about 2.0 mg. per kilogram of body weight or 0.1 Gm. in an average man, giving peak blood levels of about 4 micrograms per milliliter, appears to be the lowest daily dosage which will affect tuberculosis. Better results are obtained up to about five times these figures, at 10 mg. per kilogram of body weight or about 0.5 Gm. per day in human beings, giving blood levels of about 20 micrograms per milliliter. Increasing the dosage above these figures gives little improvement in results.

The streptomycin therapeutic effect on the tubercle bacillus, at least, is exerted by high peaks with intervening low blood levels, as well as by moderately low but continuous blood level with persistent exposure of organisms to its action according to both animal and clinical observations. Recent reports suggest that the same may be true of penicillin, despite previous beliefs.

ANTAGONISTS

No specific antagonist to streptomycin, similar to the para-aminobenzoic acid-neutralizing sulfonamide drugs, or the penicillinase-inactivating penicillin, has been established. Lipositol, extracted from brain tissue and soy bean lipids, hydroxylamine, semicarbazide, cysteine, ascorbic acid, 2,3-dimercaptopropanol (BAL) and other reducing agents have been reported to interfere with streptomycin, but the mechanisms involved need further study. Salts, sugars, serum, peptones, tweens® (a series of polyoxyalkylene derivatives of hexitol anhydride partial long chain fatty acid esters) and other constituents of the culture medium have also affected its activity in the hands of some workers, but not under other conditions. Increase in the activity of streptomycin as a result of the presence of enhancing factors has also been described.

BACTERIOSTATIC ACTION

Though all agree that streptomycin inhibits most tubercle bacilli *in vitro*, some observations suggest that streptomycin interferes with multiplication of tubercle

bacilli rather than with oxidation, growth or metabolic functions. Thus, tubercle bacilli inhibited by streptomycin have appeared larger and coarser or older than the same organisms growing in the absence of streptomycin. The tellurite test indicates that enzymatic processes continue in tubercle bacilli the multiplication of which has been inhibited by the presence of the antibiotic. Other studies of oxidative and other reactions have been made. Reports of bactericidal effects on stable cultures of tubercle bacilli or only on young growing cultures of these organisms, by several workers, have not been confirmed by others or in our laboratory (Western Trudeau Streptomycin Laboratory).

Delayed appearance of growth may be accounted for by complete inhibition of a fraction of the total organisms present rather than by partial inhibition of the entire culture. This is shown by a prolongation of the latent period before visible growth is noted, after which logarithmic growth curves manifest similar slopes. A variable latent period in the effectiveness of the antibiotic, that is, persistence of growth for a short period after the antibiotic has been added to a culture, especially with low concentrations of the antibiotic and large numbers of organisms, has been observed, though this seems to be absent when great excess of the antibiotic is present. On the other hand, despite clinical indications of prolonged effect, especially in animal experiments, *in vitro* observations fail to confirm the existence of a delayed persistent effect after the antibiotic has been completely removed from the culture medium.

STREPTOMYCIN RESISTANCE

The existence of streptomycin-resistant forms of acid-fast bacilli as of other organisms has been established. Repeated transplantation from subeffective concentrations of streptomycin in culture mediums has been used in order to obtain resistant forms, but, if heavy inoculations are made, gradual increase in concentration is unnecessary. Resistant tubercle bacilli have been rarely found in untreated patients. The general frequency of resistant forms in treated patients and their range and persistence has been confirmed. Discrepancies in the results with different methods of determining resistance have been reported. New mediums and culture methods are being developed which may facilitate the quantitative determination of resistant forms. Organisms resistant *in vitro* are also resistant to treatment in experimental animals and probably in patients.

Differences in the morphologic aspects, physiologic behavior, growth rate or virulence in the tubercle bacillus following the development of resistance have been reported, but my co-workers and I have not been able to confirm these observations at Olive View. Resistant forms may appear to differ morphologically from sensitive ones in the presence of streptomycin, since the resistant ones continued to multiply and so may show a greater variety of size and shapes, but when streptomycin is not present such difference may not be seen.

Stimulation of growth of susceptible organisms by concentrations too low to be bacteriostatic, or "hormesis," and the stimulation by, or even complete dependence of, resistant organisms on the antibiotic, such as has been reported for meningococci and other organisms, has also been reported with virulent tubercle bacillus, as well as with a related form. The progression

of tuberculosis in patients after their organisms have become resistant has been interpreted by some workers as representing such "hormesis" *in vivo*.

Resistant forms sometimes develop in mediums containing high concentrations of streptomycin, while other cultures inoculated at the same time with lower concentrations have failed to show any growth at all. The occurrence of these "skips," "saltations," "paradoxical zones" or "inversions" suggests that the appearance of resistant forms is a chance phenomenon, revealed in large numbers of organisms by the inhibition of more susceptible ones but otherwise independent of the presence of streptomycin in the medium. Clinically, also, resistant forms cannot be prevented or delayed by heavy continuous treatment and do not appear earlier or more frequently with little or intermittent treatment.

COMBINED TREATMENTS

In the test tube, as well as in experimental animals, sulfones and other agents which have a weak anti-tuberculous activity seem to combine with streptomycin to inhibit the growth of the organisms. Whether this is a true potentiation or synergism with increasing effect on combination or whether it is a mere additive or even partially additive effective is difficult to demonstrate. Sputum conversion or the disappearance of tubercle bacilli during streptomycin treatment is evidence of their susceptibility. When streptomycin treatment is combined with collapse therapy or other measures to control disease and stop the multiplication of the organisms, such sputum conversion occurs more frequently than when streptomycin alone is relied on. Patients now receiving treatment with combinations of streptomycin with collapse therapy, sulfones or other agents are being studied to see if they may be of clinical importance in delaying or preventing the appearance of resistant forms.

PATHOLOGIC STUDIES

Histologic examination of lesions which have responded to streptomycin treatment, both in animals and in human beings, shows pictures of regression, encapsulation and resorption or of persistence and progression similar to, though more frequent than, that encountered without streptomycin treatment. Most animal experiments have been performed with primary tuberculous infection, while most patients have been treated for lesions of the reinfection type. Results in a few animal experiments and a few children with primary infection who have been treated indicate, however, that the streptomycin is similarly effective in both forms.

Further experience has confirmed the emphasis on the location and age of the lesion rather than on immunologic character. Active tuberculous ulceration and granulations of the mucous membranes and draining sinuses from tuberculous lymph nodes or bones and joints have given the most strikingly uniform response. Recent acute miliary disseminations may fade away and tuberculous meningitis may show prolonged remissions, but recurrence or relapse and eventual failure are only too frequent. Fresh pulmonary exudates absorb rapidly and caseation encapsulates and shrinks, in experimental animals and in human beings, but the effects are too often incomplete. The lesions may recur or progress when the treatment is discontinued or the organisms become resistant. Fibrosis and cavitation resulting from destruction and replacement of pulmonary tissue are only symptomatically affected by the

treatment. The same is often true of renal and genital tuberculosis. Fistulas from tuberculosis of closed cavities in the body, as pleurocutaneous or bronchopleural fistulas in empyema, have also given disappointing results. With greater experience, physicians have become more conservative in assuming that a symptomatic response or apparent radiologic improvement will persist and have become more anxious to supplement streptomycin treatment by further surgical or chemotherapeutic measures.

SUMMARY

During the past year there has become available cheaper, purer and less toxic streptomycin, but it remains the only antibiotic of proved value in the treatment of tuberculosis. Its chemical identity has been established and chemical as well as biologic assay methods developed, but it has not yet been synthesized. It is absorbed only by parenteral routes, widely but not uniformly distributed in the body and excreted in the urine in a different manner than is penicillin. It appears to prevent multiplication without interfering with several other physiologic functions of tubercle bacilli, but the exact mechanism of its action is still obscure.

The blood levels after varying doses in different species of animals and in persons of different size have been studied. The minimal lethal doses and the toxic consequences of various doses and blood levels have revealed the limits of allowable dosage. Animal experiments and clinical experience have established the minimal effective daily dose that may be given. Smaller amounts given at greater intervals are safer and just as therapeutically valuable as the large amounts divided into frequent doses previously recommended.

Resistant forms of tubercle bacilli form the chief obstacle to its success. Combination of streptomycin with other forms of treatment, medical and surgical, offers at present the best hope of preventing the multiplication of these resistant forms. Indications for streptomycin have become more definite and its limitations are better appreciated, but much remains to be learned in order to utilize to the utmost this important advance in the treatment of tuberculosis.

ABSTRACT OF DISCUSSION

DR. ALLAN HURST, Denver: I would like to know whether Dr. Bogen has had any experience with the combination of streptomycin and promizole® (4,2'-diamino-diphenyl-5'-thiazole sulfone) as reported by Dr. Edith Lincoln. At the National Jewish Hospital, there is a patient who was treated at Bellevue Hospital and later reported as part of a series in the *Bulletin of the Johns Hopkins Hospital*. This girl of 15, with generalized tuberculosis, was reported successfully treated by a combination of promizole® and streptomycin. Since transfer to our institution evidence of renal tuberculosis has developed, with destructive changes in both kidneys, as well as joint manifestations. Treatment with promizole® is being continued at the request of Dr. Lincoln, but evidence has not been found that promizole® alone or in combination with streptomycin, has been of any real value in this case.

DR. EMIL BOGEN: My only experience with promizole® has been limited to a few tests and experiments and a single patient. My co-workers and I have had somewhat more experimental experience with diasone®, and recently rather considerably with promin® (sodium p,p'-diaminodiphenyl sulfone-N,N'-didextrose sulfonate) and similar diphenylsulfone agents. In the guinea pig, one can show slight retarding effects on tuberculosis from any of these agents; but none of them show anything comparable to the retardation shown by streptomycin alone.

There does seem to be some increase in the effectiveness of streptomycin when it is combined with a diaminodiphenyl-sulfone agent. In renal involvement, we have had some rabbit experiments in which the combination seems much more effective on the inhibition of renal lesions, particularly when we had added promin® intravenously, which is rather rapidly excreted. We obtain rather high concentrations of this in the urine, sufficient to cause inhibition of tubercle bacilli, and this treatment, combined with streptomycin or given to patients who have already had organisms resistant to streptomycin after previous treatment for renal tuberculosis, has shown gratifying clinical results. In renal tuberculosis, particularly, in spite of the impressive results shown in the exhibit of the New York work of the Veterans Administration, our own experience has been that organisms are apt to recur following a period of treatment, and we feel that combined treatment in this particular instance is indicated.

CONSTRICTION OF THE INTERVERTEBRAL FORAMEN

A Cause of Nerve Root Pressure

LEE A. HADLEY, M.D.
Syracuse, N. Y.

The intervertebral foramen, exit of the nerve root from the spinal canal, is limited in front by the intervertebral disk and portions of the adjacent vertebral bodies. Above and below are the pedicles, while posteriorly occur the superior and inferior articular processes, with the ligamentum flavum. This opening, which is the site of movement, is normally five or six times as large as the diameter of the nerve which passes through it, thus allowing a generous reserve cushion space. Nerve foramina, not the site of movement, are only slightly larger than the nerves which traverse

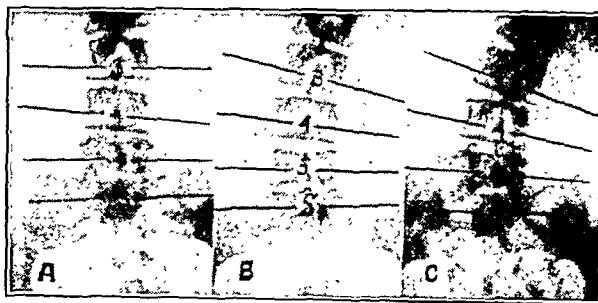


Fig. 1.—Roentgenograms of a portion of the spine of a stenographer, age 18. She had lifted a typewriter down from a high shelf and had experienced sudden pain down left leg. The transverse lines indicate the planes of the disk surfaces and relative sizes of the foramina (interpedunculate distances). A, bending to the left (painful side), the fourth lumbar foramen was maintained as large as possible. B, attempting to stand upright, with listing of the lumbar part of the spine away from the painful side. C, bending away from painful side, normal flexion. The disks are wedge shaped, thinner on the concave side. The diagnosis of fourth lumbar disk herniation was confirmed by operation.

them. In the spine this is noted in those cases of nonsegmentation in which adjacent vertebral segments remain congenitally fused. Here the foramen is much smaller, smooth in margin and usually round or slightly oval in shape.

Certain movements of the cervical and lumbar parts of the spine cause normal physiologic constriction of the foramen diameter. Dorsal extension and lateral flexion may decrease the diameter by as much as one third. In the cervical region, constriction also

Read before the Section on Radiology at the Ninety-Seventh Annual Session of the American Medical Association, Chicago, June 23, 1948.
The Department of Anatomy and the Department of Pathology of the College of Medicine, Syracuse University, assisted in this study.

results from rotation. These facts may prove useful in eliciting or evaluating the patient's symptoms.

A radiograph of the lumbar part of the spine made with the patient standing at the full limit of lateral flexion will normally show the intervertebral disks wedge shaped, the narrow edge toward the concavity of the curve. In this anteroposterior view, the distance between the pedicles will be noted materially decreased on the side toward which the patient is bending.

In certain patients with symptoms of nerve root pressure, the upper and lower plane surfaces of the corresponding disk remain parallel. The foramen is not allowed to become smaller on lateral flexion toward the affected side, although normal wedging may take place at this level when the patient bends in the opposite direction (fig. 1). The adjacent disks may show normal wedging in both directions. Patients with limitation of movement from painful back conditions exhibit a more generalized restriction and absence of wedging.

In addition to the physiologic foramen constriction just described, encroachment on these openings may result from trauma, either fracture or dislocation.

So-called osteoarthritis is responsible for many cases of intervertebral foramen encroachment with consequent restriction of the reserve cushion space. This condition is not true arthritis but rather a noninflammatory degenerative process, more properly termed arthrosis or spondylosis. With this degeneration, thin-

Bony spur formation projects backward from the disk in front, or spur formation may project forward from the margin of the posterior articulation. The foramen becomes hour glass shaped.

Because of an incline to the plane of the posterior articulation, when the disk becomes thinned, the lower vertebra may become wedged forward—a reverse



Fig. 3.—Spondylolisthesis; the fourth lumbar disk is forward on the fifth. Disk substance is bulging into the foramen, and the nerve is flattened into a thin ribbon-like structure.

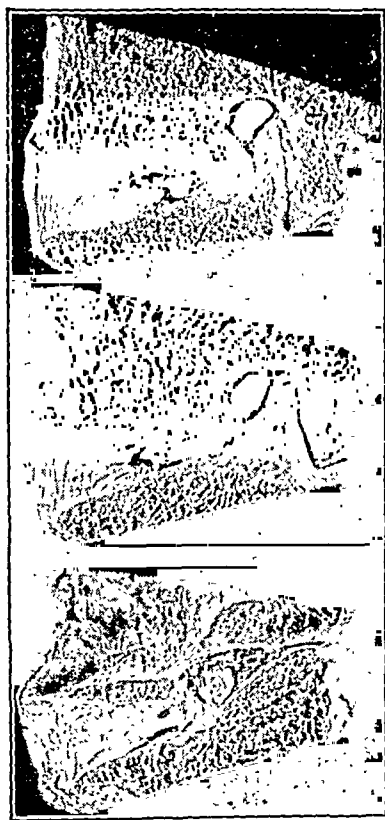


Fig. 2.—Serial sections of a normal fifth lumbar disk, foramen and posterior articulation. The top is medial, the bottom is lateral.

ning of the disk results, sclerosis of the vertebral body margins develops and the vertebral bodies come to lie more closely in contact. This approximates the pedicles decreasing the cephalocaudal diameter of the foramen.

spondylolisthesis—decreasing the anteroposterior diameter of the foramen. Along with this subluxation, the upper tip of the lower articular process becomes thrust forward into the opening (fig. 4).

There may be hyperplasia or ossification of the ligamentum flavum.

Examination of the lumbar region in cadaver material has frequently shown a bulging of disk substance backward and laterally into the foramen, especially at the levels of the fourth and fifth lumbar segments. This may occur well out in the lateral portion of the opening. At this level the disk forms the lower anterior border of the foramen, so that bulging of disk substance displaces the nerve upward and backward against the unyielding uppermost pedicle. The nerve structure may become compressed, so that its normal oval shape is flattened or altered to the shape of a triangle (fig. 5), and fibrotic changes with adhesions may develop in and about the nerve where it passes through the foramen. In these circumstances, the usual relationship between the size of the nerve and the diameter of a movable opening through which it passes is no longer the normal of about 1 to 5 and the cushion space is lost.

It would seem from these cadaver studies that changes within the intervertebral foramen may frequently occur which are compatible with the clinical picture of nerve root pressure.

"Herniation of the intervertebral disk" has unfortunately come to be a popular diagnosis applied to the condition in patients with symptoms of nerve root pressure. Although the pressure may be at any point along the root, it is usually sought in the spinal canal, too often without success.

Williams and Yglesias¹ in 1933 advised "facetec-tomy" to enlarge the intervertebral foramen in patients with intractable sciatica. Gray² of London, after reporting 2 cases in which there were symptoms of nerve root pressure cured by posterior joint arthrec-tomy where no disk protrusion was found, remarked, "Evidently the intervertebral disc is not the only factor." This author, in treating 298 patients with sciatica, operated on 55 by arthrectomy for arthritis of the posterior joint. Twenty-five were cured. In this country, Briggs³ has used arthrectomy to "decom-press" the intervertebral foramen. The cadaver studies here reported would seem to confirm the logic of such an operation.

Gray, in reporting on the postoperative roentgeno-grams of 17 patients who had had disks removed, found narrowing of one or more disks; this had not been visualized in the preoperative roentgenograms in 10 of them. Thus resulted a late posterior joint sub-luxation and presumably foramen encroachment. He warned against curettage of the disk during operation for this reason, stating, "Only the part that is loose should be removed, and no more."

Certain authorities now condemn the use of contrast myelography as being unreliable and have stated that the neurologist should be able to diagnose nerve root pressure by his clinical examination without it. Radio-graphs in the standing-lateral-bending position, as well as careful roentgen studies of the foramina, should be of some assistance. If nerve root pressure occurs in the intervertebral foramen, it can hardly be visualized by contrast medium within the dural sheath, nor can it be cured by operation solely within the spinal canal.

resistant cases may require operation. If operative intervention becomes necessary, not only the roomy spinal canal but the much smaller movable foramen must be investigated. This investigation must extend well out to the lateral side of the foramen structure. Decompression of the intervertebral foramen may be necessary.



Fig. 5.—Herniation of disk substance (1) into the intervertebral foramen compressing the fifth nerve root into triangular shape (2).

It would seem that these openings at the "cross-roads" between the peripheral nervous system and the movable skeletal support merit much greater attention than they have received in the past.

ABSTRACT OF DISCUSSION

DR. L. H. GARLAND, San Francisco: The author's thesis bears the respectability of years, as well as the hearty concurrence of spinal manipulators at large—but I am not sure that either proves it. In his belief that foraminate changes are an established factor in many conditions diagnosed as nerve root pressure, Dr. Hadley makes several statements which bear review: (1) That the intervertebral foramen is normally five times the diameter of the corresponding nerve. Anatomically this applies only in the upper cervical and in the thoracic areas. In the lower cervical and the lumbar areas the nerves virtually fill their respective foramina, at least in most adult spines. (2) That degenerative spinal bone changes (arthrosis and spondylosis are bad terms) are often associated with intervertebral disk narrowing and subluxations of the posterior spinal articulations, with resultant nerve pressure. Clinically one sees many persons with hypertrophic spinal changes (including posterior osteophytes in the lower cervical area), thinned disks and articular offsets—and absolutely no symptoms. Therefore, it is difficult to believe that significant nerve pressure often results from such. (3) That reverse spondylolisthesis is an entity which may result in "thrusting forward an articular process into the foramen." This, I believe, is a *rara avis*—if existent at all. There is considerable trouble in assessing the relationship of the various posterior articular processes and the relative sizes of the intervertebral foramina in living persons. Roentgenograms (stereo-oblique) are simple to make but difficult to duplicate. Slight differences in positioning and in the projection of the central ray may cause decided variation in the roentgen shadows of these structures. "Reverse" olisthesis is often an illusion, produced by variation in contour of the posterior margins of adjacent vertebral bodies. Apparent sub-



Fig. 4.—(1) A thinning fifth lumbar disk with reverse spondylolisthesis; (2) bulging of the disk substance into canal; (3) nerve root section; (4) subluxated articular process, encroaching on the foramen and impinging against the pedicle (5); posterior articular processes (6) do not register opposite each other. Perineural cushion space is almost completely absent.

Some patients will be relieved by rest alone, others by radiation applied to the nerve roots, while the most

1. Williams, P. C., and Yglesias, L.: Lumbosacral Facetec-tomy for Post Fusion Persistent Sciatica, *J. Bone & Joint Surg.* 15: 579 (July) 1933.

2. Gray, C.: The Causes and Treatment of Sciatica Pain, *Internat. Abstr. Surg.* 85: 417, 1947; in *Surg., Gynec. & Obst.*, November, 1947.

3. Briggs, H., and Keats, S.: Laminectomy and Foraminotomy with Chip Fusion, *J. Bone & Joint Surg.* 29: 328 (April) 1947.

luxations of articular facets (zygapophyseal joints) may also be secondary to positioning or technic. Both conditions (reverse slip and subluxation) do occur, but infrequently, and narrowed disks are not necessarily concomitant. Conversely, narrowed disks may be seen without grossly displaced facets, or evident foraminate narrowing. Therefore, I wonder whether the symptoms of nerve root pressure are not more likely to be due to soft tissue changes (degenerative, traumatic, etc.), rather than to alterations of foraminate shape or size. In either event, I believe that etiologic conclusions from roentgen studies are not always tenable. I would like to ask the author a few questions: (1) How many cadavers have been sectioned in these studies? (2) What percentage of compressed nerves secondary to articular subluxations were found? (3) Did review of the symptoms indicate good correlation?

DR. HENRY BRIGGS, East Orange, N. Y.: From operating and widely exposing foramina in over 100 patients and making explorations in many more, I am convinced that foraminate constriction is a common cause of back disability. Except in early stages, following a nuclear protrusion, foraminate constriction practically always follows some collapse of the intervertebral space. In teen ages the compression probably occurs after rupture of nuclear material into a vertebral body. As the bodies approximate, the disk bulges like a collapsing bellows and the ligamentum flavum thickens and bulges also. The disk bulge always carries out into the foramina in this group. In adults, after simple degeneration or degeneration with herniation, the same compression of the intervertebral space occurs and all the multiple manifestations described by Dr. Hadley follow. I have found all of them at operation, even a constriction that caused recurrent severe sciatica occurring seven years after a ruptured nucleus had been removed at the same level. The two common conditions that baffle me in operations on the low part of the back are the sucked back protrusions, called concealed disks, and the foraminate root oppressions. To determine the presence or absence of the first I have been in the habit of scraping the disk clean for inspection and palpation. To determine the latter adequately, part of the anterior surface of the inferior pedicle has to be removed by what I call an undermining foraminotomy. I am beginning to find evidence now that some of my explorations are followed by a late disk collapse. I wonder whether it is safe thoroughly to explore two and three disks in a search for pathologic changes. I find myself turning to the use of ethyl iodophenylundecylate (pantopaque®). As Dr. Hadley has pointed out, no contrast studies will solve the foraminate problem entirely, particularly at the lumbosacral level. Some of my best results have been in spines showing decided so-called hypertrophic arthritis, in which I have performed a wide opening of one or more foramina by adding to an arthrectomy a removal of part of the pedicles to their bases, doing what I call a complete foraminotomy. My guide for these operations has been disk collapse as shown on the lateral roentgenograms.

DR. LEE A. HADLEY, Syracuse, N. Y.: I wish to thank the men who have discussed my paper. Relative to Dr. Garland's question, I have been interested in studying the cadaver spines for the past eighteen years. I am sorry to have given Dr. Garland the idea that I feel that the spur, by itself, causes symptoms. Of course, one must differentiate between a harmless spur that projects laterally from the vertebral body and one that projects backward into the foramen. Many patients with spurs projecting into the foramen do not have symptoms. That condition, however, decreases or eliminates the normal protective reserve cushion space around the nerve. When the patient with such a condition inadvertently steps off a curb or gets a "snap the whip" effect to his neck from an automobile collision, he is likely to have nerve root pressure symptoms. Charles Gray, in *Surgery, Gynecology and Obstetrics* for November 1947, published an excellent article on this subject. It bears out some of the conclusions which I have enumerated, although his point of view was that of the surgeon. One cannot disregard the fact that in many cadavers, the nerve root is found to be definitely compressed into an abnormal shape by the surrounding structures.

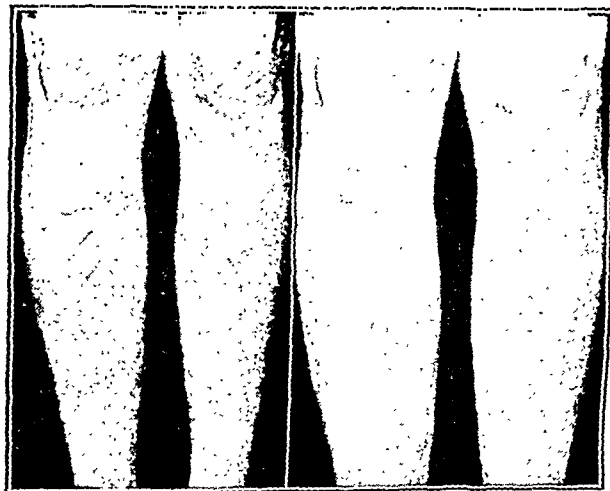
Clinical Notes, Suggestions and New Instruments

AN EARLY SIGN OF FEMORAL THROMBOSIS

GERALD H. PRATT, M.D.
New York

The early diagnosis of thrombosis of the deep veins of the legs is one of the most difficult, as well as most important diagnoses doctors have to make. The condition, frequently, is unsuspected until embolism occurs. This missed diagnosis may cause a serious or a fatal complication. While surgical or anticoagulant therapy, or a combination of the two, can reduce effectively these complications, the diagnosis must be made first.

In a previous report on the diagnosis and treatment of thrombosis of the deep veins of the leg, I briefly mentioned the presence of three dilated veins over the tibia as an early sign.¹ Since then, this phenomenon has been observed so consistently that the term "sentinal" veins has been coined for it. I believe that these veins are the earliest objective sign of deep vein thrombosis and that attention should be directed to their presence so that effective therapy can be started. I have observed this sign early in over 80 per cent of the patients with pathologic clotting.



"Sentinal" veins. Dilated veins over the tibia, an early sign of thrombosis. In the illustration on the right, the process on the right leg preceded that on the left by two days.

It has been proved that the thrombosis which causes pulmonary embolism originates in most instances in the veins of the calf (Roessle,² Frykholm³ and Neumann⁴). This pathologic clotting results from a combination of factors, of which three are fundamental and constantly present. These three are: (1) an abnormal change in the blood clotting factor in the patient, (2) stasis of the blood flow and (3) endothelial irritation or injury.

The stasis and endothelial irritation may result from the trauma on the veins from bed rest alone. The clotting and thrombosis begin in the veins of the calf muscles and progresses to the popliteal vein. It propagates along the lining of the vein wall before occluding it. The first veins to dilate due to this obstruction are the ones opening directly into the popliteal vein, particularly branches of the anterior tibial vein. The collateral vessels are sufficiently abundant so that dilatation of the main veins with edema occurs very late, actually when the clotting has progressed to completely occlude the popliteal vein lumen. At such time, either embolism occurs or the obstruction is complete and edema results. These three small veins over

From the Vascular Clinic of St. Vincents Hospital, New York, and New York University.

1. Pratt, G. H.: *S. Clin. North America* 28:341, 1948.

2. Roessle, R.: *Virchows Arch. f. path. Anat.* 300:180, 1937.

3. Frykholm, R.: *Surg., Gynec. & Obst.* 71:307, 1940.

4. Neumann, R.: *Virchows Arch. f. path. Anat.* 301:708, 1938.

the tibia empty into the saphenous and the anterior tibial vein system, are superficial and unsupported by musculature and therefore dilate very early.

This sign was present 84 times in 109 instances of thrombosis and lead to the early diagnosis. It is an earlier sign than the so-called Homans' sign. It is caused only by thrombosis, while the Homans sign may be positive in the presence of any inflammation of the skin or soft tissues in addition to a thrombosis.

This sign joins the other early diagnostic points which I have reported after studying 90 cases of fatal embolism and several hundred of nonfatal thrombosis.⁶ These signs are: (1) pain in the popliteal space or calf, (2) tenderness over the involved vein areas, (3) slight cyanosis of the part compared to the other one, (4) abnormally elevated pulse rate and temperature, (5) fear of impending disaster (many patients are aware that something is wrong), (6) very mild edema, (7) a small nonfatal embolism (25 per cent of the patients have a small embolism before a fatal one) and (8) "sentinal" veins as described.

Since most of these signs are subjective, an objective sign will be helpful in earlier diagnosis and treatment of this increasingly important syndrome.

Council on Pharmacy and Chemistry

NEW AND NONOFFICIAL REMEDIES

The following additional articles have been accepted as conforming to the rules of the Council on Pharmacy and Chemistry of the American Medical Association for admission to New and Nonofficial Remedies. A copy of the rules on which the Council bases its action will be sent on application.

AUSTIN SMITH, M.D., Secretary.

METHENAMINE-U. S. P. (See New and Nonofficial Remedies 1948, p. 122).

The following dosage form has been accepted:

THE WARREN-TEED PRODUCTS COMPANY, COLUMBUS 8, OHIO

Tablets Methenamine: 0.3 Gm. and 0.5 Gm.

METHADONE HYDROCHLORIDE (See New and Nonofficial Remedies 1948, p. 25).

The following additional dosage form has been accepted:

ABBOTT LABORATORIES, NORTH CHICAGO, ILL.

Syrup Methadone Hydrochloride: 1.25 mg. per 4 cc., 473 cc. and 378 liter bottles.

METHIONINE (See THE JOURNAL, Oct. 9, 1948, p. 430).

The following dosage form has been accepted:

WALKER VITAMIN PRODUCTS, INC., MOUNT VERNON, N. Y.
Capsules Methionine: 500 mg.

GOLD AND SODIUM THIOSULFATE-N. F. (See New and Nonofficial Remedies 1948, p. 524).

The following dosage form has been accepted:

E. S. MILLER LABORATORIES, INC., LOS ANGELES 14

Solution Gold Sodium Thiosulfate: 25 mg. and 50 mg. Flacons.

OXIDIZED CELLULOSE (See New and Nonofficial Remedies 1948, p. 432).

The following additional dosage form has been accepted:

JOHNSON & JOHNSON, NEW BRUNSWICK, N. J.

Hemo-Pak Absorbable Gauze Packing Strip (4 ply): ½" x 5" (1.27 by 12.70 cm.) in sealed tube.

U. S. patents 1,939,235 and 2,232,990.

Council on Foods and Nutrition

The following water-packed fruits have been accepted as conforming to the Rules of the Council.

JAMES R. WILSON, M.D., Secretary.

The Pratt-Low Preserving Company, Santa Clara, Calif.

PRATTLow BRAND YELLOW CLING PEACHES consists of the fruit itself, packed in water without any added sugar or salt.

Analysis (submitted by manufacturer).—Moisture 91.9 per cent, ash 0.3 per cent, fat (ether extract) 0.1 per cent, protein (N X 6.25) 0.4 per cent, crude fiber 0.3 per cent, carbohydrates (by difference) 7.0 per cent, ascorbic acid 3.9 mg. per hundred grams.

Calories.—0.31 per gram; 8.8 per ounce.

Use.—For use in diets of patients on restricted sugar intake.

PRATTLow BRAND BARTLETT PEARS consists of the fruit itself, packed in water without any added sugar or salt.

Analysis (submitted by manufacturer).—Moisture 91.1 per cent, ash 0.2 per cent, fat (ether extract) 0.1 per cent, protein (N X 6.25) 0.2 per cent, crude fiber 0.6 per cent, carbohydrates (by difference) 7.8 per cent, ascorbic acid 1.5 mg. per hundred grams.

Calories.—0.33 per gram; 9.4 per ounce.

Use.—For use in diets of patients on restricted sugar intake.

PRATTLow BRAND UNPEELED APRICOT HALVES consists of the fruit itself, packed in water without any added sugar or salt.

Analysis (submitted by manufacturer).—Moisture 91.8 per cent, ash 0.4 per cent, fat (ether extract) 0.1 per cent, protein (N X 6.25) 0.5 per cent, crude fiber 0.3 per cent, carbohydrates (by difference) 6.9 per cent, ascorbic acid 3.9 mg. per hundred grams.

Calories.—0.31 per gram; 8.8 per ounce.

Use.—For use in diets of patients on restricted sugar intake.

PRATTLow BRAND FRUIT COCKTAIL, consisting for the most part of pears, peaches and pineapple with some grapes and maraschino type cherries, is packed in water without any added sugar or salt.

Analysis (submitted by manufacturer).—Moisture 89.0 per cent, ash 0.3 per cent, fat (ether extract) 0.1 per cent, protein (N X 6.25) 0.4 per cent, crude fiber 0.4 per cent, carbohydrates (by difference) 9.8 per cent.

Calories.—0.42 per gram; 11.9 per ounce.

Use.—For use in diets of patients on restricted sugar intake.

PRATTLow BRAND KADOTA FIGS consists of the fruit itself, packed in water without any added sugar or salt.

Analysis (submitted by manufacturer).—Moisture 87.4 per cent, ash 0.4 per cent, fat (ether extract) 0.1 per cent, protein (N X 6.25) 0.5 per cent, crude fiber 0.8 per cent, carbohydrates (by difference) 10.8 per cent.

Calories.—0.46 per gram; 13.0 per ounce.

Use.—For use in diets of patients on restricted sugar intake.

The following products have been accepted as conforming to the Rules of the Council.

JAMES R. WILSON, M.D., Secretary.

Maple Island Farm, Inc., Stillwater, Minn.

MIF INFANT FOOD consists of fresh, clean pasteurized milk, corn syrup solids, ferrous gluconate, vitamin A, vitamin D, thiamine hydrochloride, niacinamide and ascorbic acid.

Analysis (submitted by manufacturer).—Milk fat 21.0 per cent, milk proteins (N X 6.38) 23.0 per cent, lactose 32.0 per cent, dextrins, glucose and maltose, 17.0 per cent, ash, 5.0 per cent, moisture 2.0 per cent.

Calories.—4.75 per gram; 135.00 per ounce.

Vitamins and Minerals.—

	Per Hundred Grams
Vitamin A	2,600.00 U.S.P. units
Vitamin D	700.00 U.S.P. units
Thiamine Hydrochloride	0.65 mg.
Riboflavin	1.00 mg.
Niacinamide	6.50 mg.
Ascorbic acid	26.00 mg.
Calcium	750.00 mg.
Phosphorus	500.00 mg.
Iron	5.00 mg.

Use.—For infant feeding.

The Lynne Corporation, Oakland, Calif.

LYNNE BRAND DEHYDRATED GOAT'S MILK, a spray-dried, homogenized whole goat's milk.

Analysis (submitted by manufacturer).—Water 2.0 per cent, total solids 98.0 per cent, ash 6.5 per cent, fat 27.0 per cent, protein (N X 6.38) 26.5 per cent, lactose (by difference) 38.0 per cent.

Calories.—5.0 per gram; 142.0 per ounce.

Use.—As a replacement for cow's milk in special diets.

5. Homans, J.: New England J. Med. 235: 163 and 193, 1946.

6. Pratt, G. H.: New York State J. Med. 46: 1825, 1946. Footnote 1.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

535 NORTH DEARBORN STREET - - - CHICAGO 10, ILL.

Edited by

MORRIS FISHBEIN, M.D.

Assistant Editor, AUSTIN SMITH, M.D.

Associate Editors

JOHNSON F. HAMMOND, M.D.

RICHARD J. PLUNKETT, M.D.

Editor for Current Medical Literature, GEORGE HALPERIN, M.D.

Assistant to the Editor, JEWEL F. WHELAN

Subscription price - - - - Twelve dollars per annum in advance

Cable Address - - - - "Medic, Chicago"

Please send in promptly notice of change of address, giving both old and new; always state whether the change is temporary or permanent. Such notice should mention all journals received from this office. Important information regarding contributions will be found on second advertising page following reading matter.

SATURDAY, JUNE 4, 1949

THE GROWTH OF MEDICAL GROUP PRACTICE

A study of group practice, begun by Dr. G. Halsey Hunt and Dr. Marcus Goldstein in 1946, has been reported in two articles in *THE JOURNAL* and in a more recent communication on the growth of groups published elsewhere.¹

The purpose of the study is thus stated:

An estimation of the stability of this form of medical practice (group practice) therefore should be of specific interest. The present report attempts such an estimation based on longevity and growth in staff members of a fairly large proportion of existing groups.

The sample from which Dr. Goldstein's information was derived was 98 medical groups in existence during 1947. The field work was conducted by members of the United States Public Health Service on routine duty who visited certain selected groups along their route of travel. These 98 groups include more than one fourth of the 368 groups listed by Hunt in the 1946 survey.²

These 98 existing groups are examined with respect to the relationships between size and age of groups, size of community in which the groups are located, increase in the size of the groups from the date of inception, and physician "turnover." The data reaffirm previous results.³ The largest number of groups are found in communities of less than 10,000; the groups in the larger population centers tend to have more members. Dr. Goldstein finds that the mean age of 98 existing groups is 19.9 years; most of them retain the majority of their original members and 82 per cent

of these groups have increased in size since their beginning.

By "stability" the survey apparently attempts to measure the success and popularity among physicians of group organization as a method of practicing medicine. If several organizations of a certain type for practicing medicine (groups) have been in existence for some time and have lost few members for causes other than death, the investigator assumes that the stability of this type of organization has been demonstrated. This study cannot, however, be considered a definitive study of the mortality or stability of groups but must rather be considered as merely a study of surviving groups in 1947. Examination of the successes supplies no information on the failures and thus on the stability of group practice as a whole. Knowing only the numbers who survived through a given span of years, an actuary cannot establish a mortality table; he must know also the original number alive at the beginning of the period. Only the strong survive in nature, and this is probably true also for group practice.

At the beginning of his article Dr. Goldstein notes that an examination of disbanded groups would be necessary for a complete discussion of the growth of medical groups. His conclusion limits the evidence of stability to "many instances."

This study contributes to our knowledge of medical groups, but should be read in its true setting as an interesting, retrospective study of existing groups. The paper also throws some light on medical vacancies among groups that should be of interest to physicians beginning practice. Some 42 of the examined groups are planning to increase their staffs; otolaryngologic specialists are in most demand and general practitioners the least.

STREPTOMYCIN

In 1944, Herrell reported that "a rather striking suppressive effect on the course of tuberculosis of guinea pigs was obtained" by treating the animals with streptomycin at varying intervals. As nearly as arbitrary numerals could express it, the tuberculosis index of infection controls was 81.9 as compared with 2.8 for the treated.¹ At the time streptomycin was said to have a suppressive effect on human tuberculosis infection in guinea pigs in addition to being well tolerated by the animals. However, not all early students were so enthusiastic.² In the fall of 1946 and after it had been demonstrated that streptomycin had definite therapeutic potentialities in the treatment of clinical tuberculosis, large quantities of streptomycin became available for clinical tests. Such tests were urgent because of the numerous reports of cures and for the purpose

1. Hunt, G. H.: Medical Group Practice in the United States; III. Report of a Questionnaire Survey of All Listed Groups, 1946, J. A. M. A. 135:904-909 (Dec. 6) 1947. Goldstein, M. S.: Medical Group Practice in the United States; IV. Organization and Administrative Practices, J. A. M. A. 136:857-861 (March 27) 1948; Medical Group Practice in the United States; V. Growth of Groups, Journal Lancet 69:42-46 (Feb.) 1949.

2. Hunt, G. H.: Medical Groups in the United States, 1946, U. S. Public Health Service, Division of Public Health Methods, February 1947.

3. Group Medical Practice, Bureau of Medical Economics, Chicago, American Medical Association, 1940, p. 24.

1. Herrell, W. E.: Penicillin and Other Antibiotic Agents, Philadelphia, W. B. Saunders Co., 1945, pp. 317-318.

2. Corper, H. J., and Cohn, M. L.: The Tubercle Bacillus and Fundamental Chemotherapeutic and Antibiotic Action, Yale J. Biol. & Med. 19:1-22, 1946.

of determining (1) the types of pulmonary tuberculosis most likely to benefit from the use of streptomycin; (2) the most satisfactory methods and frequency of treatment; (3) the optimum daily dosage; (4) the optimum duration of treatment; (5) the most timely integration of streptomycin with other therapeutic procedures; (6) the significance of less sensitive strains to the drug; (7) the significance of serious toxic manifestations, and (8) relapse of the disease.

Results in summary form³ are now available on 332 patients with pulmonary tuberculosis treated with streptomycin. The degree of therapeutic efficiency of streptomycin is definitely related to the character of the pulmonary disease, with improvement greater in predominantly acute disease than in predominantly chronic disease. As the progression of chronic tuberculosis is fundamentally related to the occurrence of acute episodes, the great potentialities of the strategic use of short courses of streptomycin to combat such episodes should be stressed. Larger doses of streptomycin appeared to be favored over smaller daily doses, but this advantage was often minimized or nullified by severe toxic manifestations incident to larger dosage. Hope is placed in the future use of dihydrostreptomycin to solve this. However, many of the questions poised in 1946 are still unanswered. The "drug fastness" is unquestionably a significant factor in limiting the effectiveness of the antibiotic streptomycin. The phenomenon appears to be common to both streptomycin and dihydrostreptomycin.⁴ Significantly, the failure to close cavities and suppress sputum in a larger percentage of patients and the relapse of the disease with increasing frequency after time has elapsed suggest the limitations of this antibacterial therapy for this characteristically chronic disease. The absolute necessity of using more definitive treatment, notably collapse therapy, to obtain more lasting results is emphasized also.

Even after such enormous amounts of clinical data have been accumulated many of the questions regarding the exact mechanism of action of streptomycin in vitro and in vivo remains a mystery. Although it now appears that streptomycin and allied antibiotics are beneficial agents in pulmonary tuberculosis in only definitely defined conditions and periods of infection, and then only within the limitations of "drug fastness," a wholehearted and serious effort should be made to determine the mechanism of action of streptomycin in tuberculosis. In this way and this way only will its inadequacies be overcome and a better understanding of tuberculosis itself ensue. Review of the history of chemotherapy in tuberculosis is disheartening. Tuberculosis is still a disease of major significance, and sanatoriums are still necessary.

TONSILLECTOMY DURING EPIDEMIC POLIOMYELITIS

THE JOURNAL,¹ March 21, 1942, warned that poliomyelitis, particularly the bulbar form, greatly increased in children after tonsillectomy or adenoidectomy in epidemic areas. Reports of Stillerman, Fischer, Maxwell, Marks, Top, Aycock and Sabin were cited. Since that time avoidance of such operations during epidemics has been almost universally adopted. Recently, otolaryngologists seem inclined to the belief that a causal relationship does not exist between the two and that bulbar poliomyelitis following tonsillectomy is probably purely coincidental. Cunning,² as a result of a survey conducted at the request of the American Laryngological, Rhinological and Otological Society, based on questionnaire survey data covering 1947, felt that the operation should not be indefinitely postponed simply because summer months are the months that poliomyelitis is prevalent. Cunning's report and other factual material relating to this question were recently reviewed by Faber.³ Data on 4,331 cases of poliomyelitis occurring in twenty-five states during 1947 which had been reported by Cunning were reexamined. Incidence of the bulbar type of poliomyelitis was noted to be 25 per cent in the group who had been subjected to tonsillectomy within two months of onset. Incidence of the bulbar type in the entire group was 11.7 per cent. Corresponding figures for 1946 showed an incidence of 29 per cent bulbar type of poliomyelitis among the post-tonsillectomy cases as compared with 15.4 per cent of the bulbar type in the entire group. Thus the incidence of cases of bulbar type was more than twice as great in patients who had been subjected to tonsillectomy as in those who had not been. A previous statistical study by Anderson⁴ of poliomyelitis in Utah in 1943 showed incidence of cases of bulbar type in the general child population to be 25 per 100,000 as compared with 404 per 100,000 in children who had recently had tonsillectomies. Faber concluded that proofs previously offered for a causal relationship between incidence of poliomyelitis and tonsillectomy during epidemic times were still valid and that evidence for this had not been refuted by the Cunning survey.

The weight of past and recent evidence favors the existence of such a relationship. As tonsillectomy is an elective operation which rarely requires immediate surgical attention, the preventive attitude of delay is justified. Until conclusive evidence is presented that such procedures do not increase incidence of poliomyelitis the inadvisability of operation during periods of epidemic poliomyelitis should be emphasized.

1. Tonsillectomy and Poliomyelitis, editorial, J. A. M. A. 118:980 (March 21) 1942.

2. Cunning, D. S.: Tonsillectomy and Poliomyelitis, Arch. Otolaryng. 46: 575 (Nov.) 1947; Tonsillectomy-Poliomyelitis Survey, Laryngoscope 58: 503 (June) 1948.

3. Faber, H. K.: Adenotonsillectomy and Poliomyelitis, Pediatrics 2: 255 (Feb.) 1949.

4. Anderson, J. A.: Poliomyelitis and Recent Tonsillectomy, J. Pediat. 27: 68 (July) 1945.

3. Riggins, H. M., and Hinshaw, H. C.: Streptomycin-Tuberculosis Research Project of the American Trudeau Society, Am. Rev. Tuberc. 59: 140-167, 1949.

4. Feldman, W. H.; Karlson, A. G., and Hinshaw, H. C.: Dihydrostreptomycin: Its Effect on Experimental Tuberculosis, Am. Rev. Tuberc. 58: 494-500, 1948.

Current Comment

MULTIPLE SCLEROSIS SURVEY

The National Multiple Sclerosis Society announces a statistical research on the prevalence and geographic, climatologic and racial characteristics of multiple sclerosis. Dr. Leonard Kurland, epidemiologic statistician of the United States Public Health Service, is directing the survey in the field. Already New Orleans has been surveyed, and surveys are in process in San Francisco and in Denver. The society anticipates that the complete survey will require about a year for completion. Announcements are being made from radio stations concerning the survey with the hope that known cases will be reported to the National Multiple Sclerosis Society, 270 Park Avenue, New York City, giving the name of the patient. This plan has been endorsed by several official agencies.

REGISTRATION UNDER THE HARRISON NARCOTIC ACT

Physicians who are registered under the Harrison Narcotic Act or under the Marihuana Tax Act must effect registration on or before July 1 to avoid a penalty. Each year, despite the annual warnings in *THE JOURNAL*, this requirement is overlooked by some physicians and unpleasant consequences follow. Failure to register adds a penalty of 25 per cent to the tax payable and in addition subjects the physician to the possibility of a fine not exceeding \$2,000 or imprisonment for not exceeding five years, or both. As an act of grace the Commissioner of Internal Revenue has in past years given some tardy registrants the choice between paying sums by way of compromise, a procedure authorized by law, or accepting criminal prosecution. If this procedure does not produce the required promptness in reregistration, the commissioner will have no other alternative than to institute criminal prosecution.

THE RUTGERS INSTITUTE OF MICROBIOLOGY

Dr. Robert C. Clothier, president of Rutgers University, has announced that the University will establish an Institute of Microbiology costing approximately \$1,000,000. Dr. Selman A. Waksman will be its first director. Funds for a \$1,000,000 building to house the institute and a grant of \$250,000 toward its operating expenses will come from royalties on the streptomycin patent. Operating income will be provided in part by the royalties, with University funds and grants from private sources making up the remainder. Dr. Waksman, an alumnus of Rutgers and a member of its staff for more than twenty-five years, assigned his patent to the Rutgers Research and Endowment Foundation with the understanding that any net profits would be used to further research, particularly in microbiology. The new institute will not only give Dr. Waksman and his associates greatly increased facilities for expanding research in microbiology but will make possible an increased program of graduate teaching to insure a supply of young men and women trained to

carry on this work. Establishment of the new Institute of Microbiology as a major branch of the state university will, according to Dr. Clothier, permit a full scale exploration of the potentialities of micro-organisms as instruments for human betterment. Equally important with the fundamental and applied research will be instruction at the graduate level so that greater numbers of future scientists can benefit from the learning and experience of Dr. Waksman. Dr. Waksman's decision to place the proceeds from the royalties accruing from his discoveries into further scientific research is another measure of the stature of this outstanding scientist. Streptomycin, the antibiotic drug which provided the long-sought treatment for many forms of tuberculosis, influenza meningitis, cholera, plague, stubborn urinary and blood infections, certain intestinal infections and undulant fever, was patented by Dr. Waksman in 1945. This and eight other Waksman patents have been assigned to the Research and Endowment Foundation. "Evidence is accumulating," states Dr. Waksman, "that we have but scratched the surface of the potentialities of microbiology, not only in medicine, but in agriculture, industry and all other fields of human endeavor."

AMPHETAMINE INTOXICATION

Popular attention has again been directed by radio commentators and others to the fact that benzedrine® has been used by prisoners as a means of stimulation. Since benzedrine®, or amphetamine, is the chief ingredient of inhaling devices widely used in the United States, access to the product is not difficult. Actually a Congressman has prepared a bill suggesting that amphetamine be placed on the narcotic list, although the drug is not in any sense a narcotic, nor is there any evidence that it is addictive. The persons who use amphetamine are apparently those who try all sorts of drugs as stimulants of sensation, including alcohol, marihuana and bromides as well as the usual narcotic preparations. The prisoners who use amphetamine usually open the inhaler and remove the filler. When the filler is soaked in alcohol or water, the drug passes into solution, and if the entire contents of an inhaler are taken at one time, definite stimulation results. Recently evidence became available that women were smuggling the drug into certain prisons. The effects of the stimulation are manifest in irritability; prisoners start fights and even riots, and may resort to sexual attacks. Some newspapers have referred to the use of the product by the "teen agers," who in some instances have dropped the fillers into carbonated or alcoholic drinks with the hope that the stimulus resulting will enable them to perform more efficiently in the more excitable forms of dancing—such as "jitter-bug," "cut a rug" and what not! Indeed among the "teen agers" this form of stimulation is now known as a "bene jag." The lives of those responsible for the control of the drugs seem to be a continuous succession of attempts to meet new problems resulting from the unwarranted use of drugs for purposes unrelated to medicine.

ORGANIZATION SECTION

Official Notes

ESTABLISH NATIONAL COMMISSION ON CHRONIC ILLNESS

A National Commission on Chronic Illness was formally launched May 20 at a luncheon meeting in Chicago, at which time Mr. Leonard W. Mayo, Cleveland, vice president of Western Reserve University, was installed as chairman of the commission. The speaker at the luncheon was Dr. Leonard A. Scheele, Surgeon General of the U. S. Public Health Service, whose subject was "The Turning Point in Our Care of the Chronically Ill."

The commission is an outgrowth of the Joint Committee on Chronic Disease, set up in 1946 through the cooperative efforts of the American Hospital Association, the American Medical Association, the American Public Welfare Association and the American Public Health Association. In May 1948 the National Health Assembly, held in Washington, D. C., recommended that the Joint Committee on Chronic Disease be expanded to a national commission, with increased membership, backing and responsibilities. The joint committee constituted itself a National Interim Commission on Chronic Illness, under the chairmanship of Dr. James R. Miller of Hartford, Conn., who, as a representative of the American Medical Association, was one of the original members of the Joint Committee on Chronic Disease.

Office space for the commission is being provided by the American Medical Association, which, with other voluntary health and medical organizations, is supporting the commission's work by a financial contribution. The members of the interim commission representing the four national professional organizations remain as members of the permanent body. They are, in addition to Dr. Miller, who becomes vice chairman of the permanent commission: J. Douglas Colman and Dr. Albert A. Snoke, representing the American Hospital Association; Dr. Thomas A. McGoldrick, representing the American Medical Association; Drs. Dean W. Roberts and Edward S. Rogers, representing the American Public Health Association, and Dr. Ellen C. Potter and Judge Thomas S. Waxter, representing the American Public Welfare Association.

The Commission will have thirty members, all of whom will serve without remuneration. They include prominent citizens from all parts of the country, representing the broad fields of industry, medicine, education, labor, farming, religion, public health and hospital administration, as well as the general public. Among them are: S. Bruce Black, president of the Liberty Mutual Insurance Company, Boston; Miss Sarah Blanding, president of Vassar College; Joseph W. Fichter, Master of the Ohio State Grange; Walter Reuther, president of the United Auto Workers, C. I. O.; Dr. Thomas Parran, dean of the Graduate School of Public Health, University of Pittsburgh; Dr. Ward Darley, dean of the School of Medicine, University of Colorado; Karl P. Meister, Executive Secretary, Board of Hospitals and Homes of the Methodist Church, and Mrs. Joseph T. Ryerson of Chicago.

The commission will have expert counsel and guidance from a group of thirty-two technical advisors, selected on the basis of their accomplishments in the five fields which will be most pertinent to the commission's work: clinical problems (including prevention and research); institutional care (including hospitals and nursing homes); noninstitutional care; rehabilitation and convalescence, and community problems. The technical advisors held all day meetings to draw up a program of objectives for the new commission. Chairmen for these group meetings were Dr. Ernst Boas, New York; Dr. Jack Masur, National Institutes of Health, Bethesda, Md.; Dr. Martin Cherkasky, New York; Dr. Howard Rusk, New York, and Dr. Lester Breslow, chief of the Chronic Disease Division, California State Department of Health.

SEVEN STATES NOW

Three more states have recently joined the parade of state legislatures which have petitioned the United States Congress not to pass legislation providing for compulsory health insurance. This makes a total of seven states to date expressing objection from one or both houses to the federalization of medicine. The latest state legislatures to act are Michigan, Florida and Maryland. The Delaware legislature passed such legislation, but it was vetoed by the Governor.

Washington Letter

(From Our Regular Correspondent)

May 30, 1949.

Compulsory Insurance Chief Issue as Hearings Open

Some of the nation's leading opponents and defenders of national compulsory health insurance testified before Senate and House committees during the first week of hearings on the Taft, Hill and Thomas-Murray-Dingell bills. The House hearings have been recessed until June 7, but those under way in the Senate are being continued until the week of June 13, when there will be a one week hiatus.

Senate committee witnesses in the first week, beginning May 23, included J. Donald Kingsley, Assistant Federal Security Administrator; Senators Taft and Hill; Dr. Louis H. Bauer, for the American Medical Association; Dr. Lowell S. Goin, California Physicians' Service; Dr. Carl O. Flagstad, American Dental Association, and Seymour E. Harris, Americans for Democratic Action.

Among those who appeared before the House committee, whose hearings opened on May 20, were Dr. R. L. Sensenich, American Medical Association; Dr. Channing Frothingham and Albert D. Lasker, Committee for the Nation's Health; Dr. Flagstad and Mr. Kingsley.

Public attendance was large at both hearings. Senator James E. Murray (Democrat, Montana) and Representative J. Percy Priest (Democrat, Tennessee) presided over the respective sessions.

Dr. Bauer described the Thomas-Murray-Dingell plan (S. 1679) as "an extreme example of compulsory paternalism, wrong in principle, impossible of practical operation and contrary to our established ways and habits of life and political principles." With reference to the supply of physicians, he observed that medical education does not present an acute problem and it can take care of the needs without government intervention.

Dr. Sensenich, whose direct statement was substantially the same as that presented on the other side of the Capitol by Dr. Bauer, underwent intensive questioning by members of the Priest committee, particularly Representatives Sadowski (Democrat, Michigan), O'Hara (Republican, Minnesota), Biemiller (Democrat, Wisconsin) and Wilson (Democrat, Oklahoma). In the course of interrogation, Dr. Sensenich brought out the following points: Adoption of the American Medical Association policy on government aid to medical schools is in abeyance pending outcome of current investigations on the subject; passage of the National Science Foundation bill is favored by the American Medical Association; insinuations that the American Medical Association is attempting to hold down the number of medical students in this country are without foundation in fact.

Dr. Goin, in his testimony, struck back at accusations made against the American Medical Association's educational campaign, especially by Representative Dingell (Democrat, Michigan) in the statement which he read to the Priest committee on the opening day (May 20) of the hearing.

"The American Medical Association—openly, frankly and honestly—is engaged in a National Education Campaign to give

the people the facts about compulsory health insurance and the facts about voluntary health insurance," he said. "We frankly oppose the first and we enthusiastically favor the second. We hope and believe that the American people, given the facts, will agree with us."

If this campaign, he added, is lobbying, then "it is lobbying in the finest American tradition and every doctor is proud of his part in the program."

Testimony in support of compulsory health insurance legislation was offered by Dr. Frothingham, Mr. Lasker, Mr. Kingsley and Professor Harris, who is professor of economics at Harvard.

Support of the various national health bills they are co-sponsoring was presented to the Murray committee by Senators Taft (S. 1581), Hill (S. 1456) and Thomas (S. 1679). "There is no question that S. 1679 would lead to nationalization and socialization of medicine," Senator Taft stated under a brisk interrogation by Senator Humphrey, a co-sponsor of that measure.

Antibiotic Certification Bill Advances

The House on May 16 passed H. R. 3151, which would add aureomycin, bacitracin and chloramphenicol to the list of drugs which must undergo federal inspection before distribution. On the same day, a companion bill (S. 1867) was introduced in the Senate to expedite consideration in that branch of Congress of the proposed amendment to the Federal Food, Drug and Cosmetic Act of June 25, 1938. Under present law, samples from every batch of insulin, streptomycin and penicillin manufactured for sale must be tested in Washington laboratories of the Food and Drug Administration prior to release in trade channels. The new legislation, if enacted and approved by the President, will make aureomycin, bacitracin and chloramphenicol (chloromycetin®) subject to the same controls.

Health Assembly Report Due In July

July 13 is the tentative publication date for "America's Health: A Report to the Nation," the official résumé of the National Health Assembly held in Washington in May 1948. The volume, containing some 400 pages, will carry findings and recommendations of each of the fourteen professional sections into which the assembly was divided. In addition, there will be a chapter on international cooperation for protection and promotion of public health. The book is being published by Harper's, and its price is expected to be \$4.50. Special discounts will be granted on quantity orders, as well as orders by accredited delegates to the Assembly.

Bureaucracy "Out of Control," Says Sen. Byrd

"It appears that the bureaucracy is out of control with respect to personnel and drastic action is necessary," Senator Harry F. Byrd (Democrat, Virginia) warned on May 19. The senior senator from Virginia, one of the foremost Democratic opponents of compulsory health insurance, asserted that the federal payroll has increased by 146,541 employees since January 1948.

Coming Medical Meetings

American Medical Association, Atlantic City, June 6-10. Dr. George F. Lull, 535 N. Dearborn St., Chicago 10, Secretary.

American Association of Railway Surgeons, Chicago, Drake Hotel, June 30-July 2. Dr. Chester C. Guy, 5800 Stony Island Ave., Chicago 37, Secretary.

American Neurological Association, Atlantic City, Chalfonte-Haddon Hall, June 13-15. Dr. H. Houston Merritt, 710 W. 168th St., New York 32, Secretary.

Idaho State Medical Association, Sun Valley, June 20-23. Dr. Alfred M. Popma, 220 N. First St., Boise, Secretary.

Maine Medical Association, Poland Spring, Poland Spring House, June 19-21. Dr. Frederick R. Carter, 142 High St., Portland 3, Secretary.

New Hampshire Medical Society, Newcastle, Hotel Wentworth, June 14-15. Dr. Carleton R. Metcalf, 5 S. State St., Concord, Secretary.

Society for Investigative Dermatology, Atlantic City, Ritz Carlton Hotel, June 11-12. Dr. S. William Becker, 55 E. Washington St., Chicago 2, Secretary.

Society of Biological Psychiatry, Atlantic City, Chalfonte-Haddon Hall, June 12. Dr. George N. Thompson, 1136 W. Sixth St., Los Angeles, Secretary.

Medical Legislation

STATE LEGISLATION

Alabama

Bills Introduced.—H. 46 proposes an appropriation of \$3,000,000 annually to a hospital and planning construction fund. H. 124 proposes the creation of a state medical education board to provide loans and scholarships for students desiring to study medicine. H. 131 proposes to provide for twenty-five scholarships for the study of medicine at the University of Alabama Medical College, the persons selected to be chosen by the State Board of Health in consultation with the Dean of the University of Alabama Medical College. Recipients accepting a scholarship must agree to practice medicine for five years after the completion of medical training in an area of the state designated by the State Board of Health or else repay the amount of the scholarship immediately. H. 178 and S. 187 propose the creation of a scholarship program for advanced study in nursing to be administered by the state board of nurses' examiners and registration. S. 160 proposes to authorize the state board of health to provide an annual program throughout the state for the early diagnosis of cancer. Persons would be urged to report voluntarily to a duly licensed physician of their choice for an official examination, and anyone unable to pay the cost of such examination could register with the county health officer and arrange for a free examination. S. 198 proposes to provide for the examination of all children having congenital or acquired malformations. The county health officer would urge the parents of such children to arrange for an examination by a practicing pediatrician, orthopedist or physician of the parent's choice. If the parents are not able to pay for such examination the county health officer would make the examination or arrange to have it made at a "Well-Baby Clinic" or some other qualified clinic.

California

Bill Introduced.—S. 961 proposes the enactment of regulations for the licensing of analytical toxicologists and defines analytical toxicology as the analysis of any substance for the detection of poison.

Connecticut

Bill Introduced.—S. 1046 proposes to eliminate from the exemption section of the medical practice act persons practicing massage or Swedish movement.

Florida

Bills Introduced.—H. 189 proposes to bind the state by a regional compact looking toward the establishment and maintenance of jointly owned and operated regional educational institutions in the Southern states in the professional, technologic, scientific, literary and other fields so as to provide greater educational advantages and facilities for the citizens of the several states who reside within such regions. One of the institutions to be operated by this regional group would be the Meharry Medical College of Nashville, Tenn. H. 763 proposes the establishment of a medical school and college in Imperial Polk County, Fla. H. 775 proposes to authorize the state board of health to conduct research relating to the causes, prevalence and prevention of diabetes, to distribute information obtained therefrom for education of the public and to purchase at the lowest and best bid from a reliable manufacturer insulin of high quality for distribution for the treatment of indigent persons suffering from diabetes. H. 1087 proposes that no person, partnership, association or corporation shall establish, conduct or maintain a chiropractic hospital, sanatorium or related institution in the state without first obtaining a license from the State Chiropractic Board of Examiners. S. 550 proposes that the tuberculosis board shall provide adequate facilities for the compulsory isolation and treatment of persons found to be suffering from tuberculosis. S. 837, to amend the law relating to dead bodies, proposes that whoever buys, sells or has in his possession for the purpose of buying or selling or trafficking in the dead body of any human being shall be punished by imprisonment; provided, however, that nothing would prohibit the obtaining, dissecting, using and disposing of dead bodies for the purpose of teaching or other appropriate university research by any medical school, dental school, school of nursing or other university research or teaching unit which is a part of a regularly established or chartered institution of higher learning under the laws of the state of Florida.

Illinois

Bill Introduced.—H. 937 proposes regulations for the organization of health services plan corporations to furnish voluntary health services. A voluntary health services plan is defined as a plan or system under which medical, hospital, dental, nursing and related health services may be rendered to a subscriber or beneficiary at the expense of a health services plan corporation.

Oklahoma

Bill Introduced.—S. 301 proposes to authorize the state department of public health to create and maintain a cancer control division to promote a program for the prevention of cancer.

Texas

Bill Introduced.—H. 915 proposes to amend the 1949 basic science law by exempting therefrom graduates of schools of the healing arts who have been enrolled in their respective schools for at least one year prior to the time this act became law and who have attended the schools under the G. I. Bill of Rights and were bona fide residents of the state at the time they entered the military service, provided that this section shall not apply to any person who entered the military service after Jan. 1, 1946.

GOVERNMENT SERVICES

SECRETARY OF DEFENSE

UNIFICATION OF MEDICINE IN THE ARMED SERVICES

Acting to unify administration and operation of the medical services of the armed forces, Secretary of Defense Louis Johnson has established a medical services division within the Office of the Secretary of Defense.

The Secretary's directive provides for the appointment of a director of medical services for the National Military Establishment. He will have responsibility and authority to establish and control general policies, standards and programs for the medical services of the three military departments and related National Military Establishment agencies. In addition, Secretary Johnson set up an autonomous medical department for the Air Force, which heretofore has been served by personnel from the Army Medical Department. The new Air Force Medical Department will be headed by Major General Malcolm C. Grow, the Air Surgeon, who will retain that title.

The three military medical departments will retain their entity under Secretary Johnson's directive, but will operate under supervision by the National Military Establishment Medical Services Division similar to the strategic direction which the Joint Chiefs of Staff give to the unified commanders of the military departments.

The Director of Medical Services may be a civilian or an officer of one of the armed services. He will be appointed by the Secretary of Defense. His duties are defined as: (1) establishment and control of general policies, standards and programs for the medical services of the three military departments and appropriate agencies of the National Military Establishment; (2) to exercise general direction, authority and control over administration and utilization of personnel and facilities of the medical services of such departments and agencies through the heads thereof, and (3) such other duties with respect to the medical services of the National Military Establishment as the Secretary of Defense may direct.

In creating the National Military Establishment Medical Services Division and providing for an autonomous Air Force

Medical Department, Secretary Johnson acted on the advice and recommendation of his Medical Advisory Committee, to which a recommendation of the Joint Chiefs of Staff that studies be made of measures intended to produce a unified National Military Establishment Medical Service was submitted. Charles Proctor Cooper, president of the Board of Trustees of Presbyterian Hospital in New York, is chairman of this committee, which is composed of eleven civilian physicians and dentists, the Surgeons General of the Army and Navy and the Air Surgeon.

With the establishment of the Air Force Medical Department, Secretary Johnson authorized the transfer to it for temporary duty of 100 Army and 100 Navy medical officers to help meet the shortage of medical personnel in the Air Force.

General hospitals serving Army and Air Force personnel will continue to be operated by the Army. Secretary Johnson also directed that general hospital training facilities of the Army and Navy be made available to the Air Force Medical Service on an equitable basis.

FIRST MEDICAL VOLUNTEERS CONGRATULATED

Secretary of Defense Louis Johnson on May 13 congratulated the first two young professional men who responded to the appeal for volunteers to overcome the shortage of physicians in the armed forces.

They are: First Lieut. James L. Patterson Jr., of Duncan, Okla., the first physician to volunteer for the Army, and Lieut. (jg) Milton M. Lownes Jr., of Philadelphia, the first physician to volunteer for the Navy.

The ceremony was held in the office of the Secretary of Defense in the Pentagon. The two young volunteers were introduced to Secretary Johnson by the heads of their respective medical departments, Major General Raymond W. Bliss, Surgeon General of the Army, and Rear Admiral Clifford A. Swanson, Surgeon General of the Navy.

ARMY

NATIONAL GUARD OFFERS COMMISSIONS TO MEDICAL GRADUATES

The 1949 medical school graduates who are not enrolled in R.O.T.C. medical units are being invited to accept commissions in the National Guard, Major General Kenneth F. Cramer, Chief, National Guard Bureau, announces.

Persons graduating from accredited medical schools this summer and beginning to serve their internships may be commissioned immediately as first lieutenants in the National Guard without previous military service.

"Under this program, young doctors and dentists are afforded an opportunity to identify themselves with National Guard outfits in more than 2,000 cities and towns throughout the forty-eight states, the District of Columbia, Hawaii and Puerto Rico," General Cramer stated.

Those who served in a commissioned capacity during World War II may receive commissions one grade higher than normally called for by the unit vacancy to which they would be assigned, provided they served in the higher grade during the war.

Doctors are particularly needed in time for service with the National Guard during the coming summer field training—most extensive in Guard history, with some 5,000 federally recognized Army and Air units participating.

R. O. T. C. SUMMER TRAINING

Medical students from professional institutions with one year or more of active military duty will participate in the summer training camp program at one of eight Army general hospitals instead of the previously planned training at the Medical Field Service School, Fort Sam Houston, Texas. This change is designed to place primary emphasis on military medicine, omitting a number of subjects of a purely military nature.

These revisions do not affect other medical R. O. T. C. students who are nonveterans. The nonveteran group will take part in the summer training program conducted at Fort Sam Houston.

Attendance at the general hospital camps is limited to students who have completed the sophomore year of their respective professional field in college. A qualified veteran, slated for Army general hospital training, may attend the field school at Fort Sam Houston if he so desires.

The period of the summer training program is June 13-September 9. This period is divided into two separate camps. The first will open June 13 and the second July 31; each lasting six weeks. The only exception to this Department of the Army ruling is for the first camp conducted at Letterman

General Hospital, San Francisco. There training will be given to medical students only, beginning May 31 and ending July 9.

During the summer at the Army general hospitals, these students will receive a minimum of orientation concerning military matters and, for the most part, will spend their time in the wards. They will attend as many of the regular formal teaching exercises as can be integrated into their program. Residents, interns and the attending staff assigned to the general hospital will furnish the bulk of the teaching. With few exceptions, the Army hospitals in which R. O. T. C. students will train are at present participating in medical training programs in nearby civilian institutions.

The eight Army general hospitals to be utilized this summer are as follows: Walter Reed, Washington, D. C.; Oliver, Augusta, Ga.; Percy Jones, Battle Creek, Mich.; Brooke, Fort Sam Houston; Fitzsimmons, Denver; Letterman, San Francisco; Madigan, Tacoma, Wash., and Valley Forge, Phoenixville, Pa.

ADVANCED TRAINING IN CIVILIAN INSTITUTIONS

The following Army Medical Department officers have been selected for advanced training in civilian institutions:

Joseph A. Connor Jr., Major	George Washington University School of Medicine, Wash- ington, D. C.	Internal medicine
Thomas P. Jernigan III, Capt.	Baltimore City Hospitals	Medicine
Marvin D. Blackburn Jr., Capt.	St. Paul's Hospitals, Dallas 4, Texas	Pathology
John B. Sheffer, First Lieut.	Buffalo General Hospital	Pathology
John J. Carter, First Lieut.	University Hospital, Little Rock, Ark.	Obstetrics and gynecology
William P. Barron, First Lieut.	University Hospital, Little Rock, Ark.	Pediatrics
William W. Tucker, First Lieut.	Franklin Hospital, San Fran- cisco	Medicine
Richard B. Johnson, First Lieut.	Indianapolis General Hospital	Intern training
Francis P. Martin, First Lieut.	Kings County Hospital, Brooklyn	Intern training

NAVY

NAVY LOANS 100 MEDICAL OFFICERS TO THE AIR FORCE

The Secretary of Defense on May 13, 1949, directed that thirty-five Naval medical officers be assigned temporarily to the U. S. Air Force for duty; sixty-five additional Navy medical officers are to report at a later date to be set by the Director of Medical Services of the National Military Establishment. The services of these doctors are urgently required by the Air Force until such time as doctors are procured to staff its own medical department.

This directive should not be construed as an indication that the Navy Medical Department is in excess, or has obtained its quota, of medical officers as the result of the current procurement program for doctors.

Regular and reserve medical officers now on active duty, and inactive reserve medical officers may volunteer for assignment to the Air Force. Those who request overseas duty will be permitted to take their families to the overseas Air Force facilities. These doctors will not be commissioned in the Air Force but will serve as Naval medical officers and wear the Navy uniform while so serving.

It is contemplated that, if those who volunteer have not already qualified as flight surgeons or aviation medical examiners, they will be ordered to Randolph Field, Texas, for a four week course of instruction in the technic of aviation examination and then assigned to Air Force facilities within the continental United States for duty, provided they have not previously indicated a preference for overseas duty. The maximum tour of duty with the Air Force has been set at two years.

Regular and active officers should submit applications to the Bureau of Naval Personnel via the Bureau of Medicine and Surgery. Inactive reserve officers should submit applications to the commandant of their local Naval District. Applications should be submitted prior to June 15, 1949.

REAR ADMIRAL ADAMS RETIRES

Rear Admiral John C. Adams, M.C., a pioneer naval flight surgeon, was transferred to the retired list on April 1 after more than thirty years of naval service. For outstanding services as flight surgeon in charge of the Division of Aviation Medicine, Bureau of Medicine and Surgery, during World War II, he was awarded the Legion of Merit. He received the John Jeffries Award from the Institute of Aeronautical Sciences for contributions to aviation in medical research for 1945.

NEW REGULAR OFFICERS

The following reserve medical officers have been appointed to the Medical Corps of the Regular Navy: Comdr. William S. Lawler, Lowell, Mass.; Comdr. Hermann J. Lukeman, New York, and Lieut. (jg) Victor G. Benson, Soldier's Grove, Wis.

FIRST ACTIVE DUTY AT NAVAL FACILITIES

The following lieutenants (jg) of the Medical Reserve Corps have been nominated for their first active duty at the Naval medical facilities indicated:

Name	Residence	Naval Facility
Adams, Barnette E. J., Jr.	New Orleans	Air Technical Training Center, Memphis, Tenn.
Austin, Robert R.	Dixon, Ill.	Naval Hospital, San Diego, Calif.
Kutschbach, Melvin A.	Houston, Texas	Naval Hospital, Corpus Christi, Texas
Settimi, Albino L.	Whittier, Calif	Naval Hospital, Corona, Calif.
Shershin, Peter H.	Clifton, N. J.	Naval Training Station, Newport, R. I.
Van Dwyne, Charles M.	Pontiac, Ill.	Naval Dispensary, San Francisco

APPOINTMENT FOR POSTGRADUATE INSTRUCTION

The following medical officers have been nominated for postgraduate instruction: Comdr. Robert B. Johnson, York, Neb., to a residency in orthopedic surgery at the Naval Hospital, Oakland, Calif., and Lieut. (jg) Donald W. Grimes, Palmetto, Fla., to a residency in internal medicine at the Naval Hospital, Long Beach, Calif.

PERSONALS

Comdr. Ralph Volk, M.C., U.S.N.R., of Rutland Heights, Mass., has been nominated for recall to active duty and will be assigned to the Naval Hospital, St. Albans, N. Y., on completion of a course in internal medicine at Harvard Medical School, Boston.

Commander Peter G. Kroll of Mt. Carmel, Pa., and Lieutenant Francis H. McCullough Jr. of Jackson Heights, Long Island, N. Y., medical reserve officers, have requested recall to active duty and have been nominated to courses of instruction as residents in thoracic surgery and orthopedic surgery at the Naval Hospital, St. Albans, Long Island, N. Y., and the Naval Hospital, Philadelphia, respectively.

Commanders Chalmers R. Carr and Donald C. MacKinnon and Lieut. Comdr. William Charles Mulry have recently been certified by the American Boards of Surgery, Otolaryngology and Radiology, respectively.

Lieut. John H. Hege of Dover, Pa., and Lieut. (jg) Edward D. Loweccey of Pittsburgh have been nominated for their first active duty in the Regular Navy Medical Corps as residents, respectively, in internal medicine at the Naval Hospital, Bethesda, Md., and in internal medicine at the Naval Hospital in Philadelphia.

Lieut. Charles E. Weber of Rochester, N. Y., and Lieut. (jg) Roger K. Wallace of Ravenna, Neb., have been appointed to the Regular Navy Medical Corps from an active reserve status.

Medical News

(Physicians will confer a favor by sending for this department items of news of general interest: such as relate to society activities, new hospitals, education and public health. Programs should be received at least two weeks before the date of meeting.)

CALIFORNIA

Book Plates of Physicians.—The Huntington Library at San Marino is developing a collection of book plates of physicians. Doctors who have book plates of their own or of others are invited to forward copies to the library to be entered in the collection.

New School of Tropical Medicine.—A School of Tropical and Preventive Medicine is to be developed in Loma Linda, in conjunction with the School of Medicine of the College of Medical Evangelists. Both graduate and undergraduate medical students will be given training in tropical medicine. Special short courses will be conducted for nonmedical missionaries preparatory to their departure for overseas posts. Dr. Harold N. Mozar, assistant professor of internal medicine of the school of medicine, has been named director of the new unit. During World War II Dr. Mozar served in New Guinea and was chief of the Communicable Diseases Section of the 47th General Hospital.

Medical Care Section Established.—A new Section in Medical Care Administration has been established by the School of Public Health at the University of California, Berkeley. This new curriculum complements the school's existing programs in hospital management and public health administration. Qualified graduate students may major in medical and hospital administration courses leading to the M.P.H. degree. Dr. Edward S. Rogers, dean of the school, heads the joint division. Dr. E. Richard Weinerman will be in charge of developing the new medical care curriculum. Drs. Sydney S. Norwick, Berkeley, and Dean A. Clark, New York, are part time visiting lecturers in the new section. A small research staff, headed by Charlotte F. Muller, Ph.D., is now engaged in medical economics field studies. The section will also be a repository of factual data in medical economics, and will serve as a source for consultation in problems of medical care, offering technical aid and other help to interested persons or organizations.

CONNECTICUT

Medical Service Plan.—Connecticut Medical Service enrolled 70,000 members in its first ten weeks of operation, representing 772 industrial and business firms. The plan was first offered to the public on February 14. Physicians participating in the plan numbered 1,272 as of May 15. This represents more than 85 per cent of the 1,479 physicians whose type of practice normally includes services covered by the plan. The number is increasing with the continued arrival of new agreements at the state medical society office. Robert S. Judd, president of the Connecticut Medical Service, has announced that the plan expects to pay surgical and maternity bills in volume from now on. The number of subscribers in the surgical plan now represents about 3½ per cent of Connecticut's population.

DISTRICT OF COLUMBIA

Hachmeister Memorial Lecture.—Hachmeister, Inc., of Pittsburgh, has established the A. C. Hachmeister Memorial Lectureship in the department of pharmacology of Georgetown University School of Medicine in memory of its founder and first president. Dr. C. Heymans, professor of pharmacology at the University of Ghent and Nobel Prize Laureate in medicine, 1938, delivered the first lecture May 4 on "The Role of Pressor and Chemo-Receptors in the Regulation of Respiration."

ILLINOIS

Commission for Handicapped Children.—Dr. Gerald M. Cline of Bloomington has been appointed a member of the Illinois Commission for Handicapped Children succeeding Dr. Bert I. Beverly, deceased. The commission is made up of the respective heads of the State Departments of Public Welfare, Public Health, Public Instruction and Labor, together with nine interested citizens appointed from the state at large by the Governor. The commission functions as a coordinating, fact-finding and stimulating agency charged with developing a more adequate statewide program for physically and mentally handicapped children. Dr. Cline is a native of Illinois, a

veteran of World War I and a graduate of the University of Illinois College of Medicine, Chicago. He has been engaged in the practice of medicine since 1922, specializing in pediatrics and allergy. He is also on the advisory committee to the Division of Services for Crippled Children.

Chicago

Free Roentgen Examinations on Northwest Side.—A communitywide chest roentgenologic survey will be held during July and August on the near Northwest Side, which has one of the highest tuberculosis rates in Chicago. The Tuberculosis Institute and the Municipal Tuberculosis Sanitarium will conduct the survey using their two mobile x-ray units. Beginning July 5 free examinations will be made.

Award Willard Gibbs Medal.—The Chicago section of the American Chemical Society awarded its Willard Gibbs Medal May 20 to Peter J. W. Debye, Ph.D., of Cornell University, New York, in recognition of his work with high polymers, the giant molecules that make up rubber, plastics and proteins. Dr. Debye formerly was director of the Max Planck Institute in Berlin.

Home Care for Cancer Cases.—Michael Reese Hospital, under a grant from the Illinois Division of the American Cancer Society, will supply free home care for indigent cancer patients on an experimental basis. The program supplements one already in operation for heart patients. The service is being expanded to include patients with arthritis, diabetes and neurologic disease. Eight physicians from the hospital staff have been assigned to the four month cancer care program.

Acting Head of Division of Anesthesia.—Dr. Max S. Sadove, assistant professor of anesthesia at the University of Illinois College of Medicine, has been promoted to associate professor and acting head of the division of anesthesia. Dr. Sadove, a graduate of the University of Maryland School of Medicine and College of Physicians and Surgeons, Baltimore, has been on the faculty for the past two years. Following his release from the army medical corps after five years' service, he served a residency in anesthesia at the Veterans Administration Hospital, Hines. He will continue to serve as consultant in anesthesia at Hines and at the City of Chicago Municipal Tuberculosis Sanitarium.

KANSAS

Society News.—The Kansas Psychiatric Society elected the following officers for the year ending April 1950: Dr. Clarence J. Kurth, Wichita, president, and Dr. Frank F. Merker, Topeka, secretary-treasurer.

Community Honors Fifty-Year Practitioner.—A city-wide celebration for Dr. James A. McLaughlin, Wichita, was held by the citizens of Greensburg, where he has spent the greater part of fifty years of practice. An open house and tea were held in the community building, and a dinner for all friends and relatives took place at the Baptist Church.

KENTUCKY

Annual Health Conference.—The first annual conference on health in Kentucky will be held June 23 at Warren Memorial Presbyterian Church, Louisville. The all day session will present a statewide view of health problems including those pertaining especially to tuberculosis, mental illness, rural health, medical care and school health.

Appoint Director of Blood Center.—Dr. Alberta B. W. Baugh, Louisville, has been appointed technical director of the Red Cross Regional Blood Center, which was opened by the Mayor of Louisville May 18. The center will collect and supply blood in an area within a 75 mile radius of Louisville. Dr. Baugh is a graduate of the University of Louisville School of Medicine, 1939.

MAINE

Dr. Ames Resigns Hospital Post.—Dr. Forrest B. Ames, Bangor, president of the Maine Medical Association, resigned April 1 as head of the department of roentgenology at Eastern Maine General Hospital after twenty-six years of service. He is opening a private practice in Bangor.

Anniversary Reunion at Jackson Laboratory.—An open invitation has been issued to attend the Roscoe B. Jackson Laboratory's Twentieth Anniversary Reunion of visiting investigators and summer students at Bar Harbor August 18-21. The reunion will be part of the four-day observances, during which dedication ceremonies for the rebuilt laboratory will take place. Because of the destruction of some of the records during the fire of October 1947, the laboratory does not have a complete list of former associates and students. If any one of these

wishes to attend any part or all of the anniversary reunion, he should get in touch with the laboratory at once as there is still a shortage of housing accommodations in Bar Harbor, and full details will be sent.

MASSACHUSETTS

Dr. Cohn Named University Professor.—Edwin J. Cohn, Ph.D., professor of biological chemistry and chairman of the Division of Medical Sciences, Harvard Medical School, Boston, has been appointed a university professor. He is one of four scholars especially chosen for work on the frontiers of knowledge and will be free of obligation to any individual school or department within the university. He will continue his research in physical biochemistry. Dr. Cohn's appointment follows the retirement of Prof. Roscoe Pound, who was the first scholar to hold a university professorship. Dr. Cohn has served in the department of physical chemistry at the medical school since 1922, and has been professor of biological chemistry and head of the department since 1935. He is a graduate of the University of Chicago, 1917, and a recipient of the John Phillips Memorial Medal of the American College of Physicians, 1946, the Passano Award, 1945, and the Alvarenga Prize of the College of Physicians of Philadelphia, 1942. He serves at present on the Panel on Hematology of the U. S. Public Health Service and on the Committees on Blood and Blood Derivatives of the American Red Cross and the National Research Council. He has been an honorary consultant to the Medical Department of the Navy since 1942.

NEW HAMPSHIRE

State Medical Meeting.—The annual meeting of the New Hampshire Medical Society will be held at the Hotel Wentworth, New Castle, June 14-15 under the presidency of Dr. Clarence E. Dunbar, Manchester. Out of state speakers include:

John R. Paul, New Haven, Conn., Clinical Considerations of Acute Poliomyelitis.

J. William Hinton, New York, Significance of Abdominal Pain.

David S. Grice, Boston, Orthopedic Problems and Their Management in the Newborn.

Wallace E. Herrell, Rochester, Minn., Present Status of Antibiotic Therapy.

Frank H. Lahey, Boston, Surgical Management of Lesions of the Terminal Ileum, Colon and Rectum.

Basil C. MacLean, Rochester, N. Y., The Hoopskirts of Hospital Finance.

On Tuesday morning there will be a symposium on the Economic Phases of Hospital Administration with James M. Langley, Concord, president of the Blue Cross in New Hampshire, as moderator. Round table conferences in seven specialties are scheduled for Wednesday morning. At the annual banquet Tuesday at 7 p. m. Sherman Adams, governor of New Hampshire, and Dr. George F. Lull, Secretary, American Medical Association, Chicago, will be the speakers.

NEW YORK

Research on Hemorrhagic Shock.—A grant of \$29,370 has been made to the University of Buffalo by the Veterans Administration for research on red blood cells in relation to hemorrhagic shock. The one year grant was made through the National Research Council, and is renewable as the project continues. The research will be headed by Dr. John D. Stewart, professor of surgery and chairman of the department of surgery in the medical school. There will be three major investigators: Dr. L. Edgar Hummel, a hematologist; Joseph G. Hoffman, Ph.D., a biophysicist, and Dr. Irving Rudman, Buffalo, a surgical assistant, besides three technicians. The project, known as "Physiological Adjustment to Hemorrhage and the Fate of the Transfused Red Blood Cell," will involve the use of radioisotopes, which will be obtained through the Atomic Energy Commission.

New York City

Dr. Selye to Address Alumni.—New York Medical College, Flower and Fifth Avenue Hospitals Alumni Day will be held June 7. Included in the activities will be the second annual Alumni Lecture by Dr. Hans Selye, professor of experimental medicine and surgery, University of Montreal Faculty of Medicine, at 11 a. m. on "Hypertension as a Disease of Adaptation." The annual banquet will be held at 6:30 in the Grand Ball Room, Ritz-Carlton Hotel.

Report on Examinations for Tuberculosis.—The New York Tuberculosis and Health Association reports that 9,119 chest roentgenograms were taken by the Bronx Tuberculosis and Health Committee last year, and 2,783 families and individuals were aided in their health programs. More than 50,000 persons attended meetings, lectures, motion pictures and exhibits

held under committee auspices. During the year 3,842 parochial school pupils had received audiometer tests, and 54 hearing defects requiring attention had been discovered. Dr. Nathan B. Van Etten was reelected chairman of the committee.

OHIO

Personals.—Dr. Morris Schaeffer, assistant professor of pediatrics at Western Reserve University. School of Medicine, Cleveland, and director of the contagious department of the Cleveland City Hospital, has resigned from these posts, effective June 30, and will leave Cleveland to assume new responsibilities as director of the Virus and Rickettsial Research and Epidemiology Branch of the Communicable Disease Center of the U. S. Public Health Service.—Dr. John A. Toomey has returned from his sabbatical leave in Florida to resume his duties as head of the contagious department.—Dr. Calvin L. Baker, superintendent of Dayton State Hospital, has been appointed commissioner of mental hygiene for Ohio.

Short Courses in Poliomyelitis.—At the department of contagious diseases, City Hospital, Cleveland, Dr. John A. Toomey will direct a series of short training courses in poliomyelitis. The dates of the courses for physicians are July 18-23, August 8-13 and August 29-September 3. The National Foundation for Infantile Paralysis will pay the expenses of the enrollee, providing the chairman of his local chapter approves. Meals may be purchased at the hospital, but each enrollee is responsible for his own hotel reservations. There will also be courses for nurses and physical therapists. For complete programs write to Dr. Toomey, City Hospital, Cleveland.

PENNSYLVANIA

Society News.—The Pennsylvania Academy of Ophthalmology and Otolaryngology at its annual meeting April 22-24 in Harrisburg installed Dr. Daniel S. DeStio, Pittsburgh, president and chose Drs. Jay G. Linn, Pittsburgh, president elect, Benjamin F. Souders, Reading, secretary, and Bruce A. Grove, York, treasurer.

Philadelphia

Ex-Interne-Resident Dinner.—The annual dinner of the Ex-Interne-Resident Association of the Hospital of the University of Pennsylvania will be held at the Hotel Sylvania, Philadelphia, June 10 at 6:30 p. m. Subscription will be \$5. Reservations may be secured from John W. Frost, M.D., Hospital of the University of Pennsylvania.

Temple University News.—Recent staff appointments at Temple University Medical School and Hospital include Drs. George D. Vaughan Jr., Philadelphia, instructor in proctology; George W. Russell, Philadelphia, assistant instructor in psychiatry, and Sydney A. Ellis, Boston, associate professor of pharmacology. Recent gifts totaling \$1,388 have been made to the Psychiatric Department Research Fund, and \$5,100 has been received for research in ophthalmology.

New Course in Anesthesiology.—A comprehensive eight month course in anesthesiology will be offered in the Graduate School of Medicine of the University of Pennsylvania beginning in October. The chairman of the newly created department is Dr. Robert D. Dripps, professor of anesthesiology, Graduate School of Medicine, and director of anesthesiology at the Hospital of the University of Pennsylvania. The program will provide training in basic as well as clinical sciences. The university's announcement said that new approaches in pedagogy will characterize the course. Panel discussions and presentations of clinical cases will supplement formal lectures. This section is to be headed by Drs. Julius H. Comroe Jr., Seymour S. Kety, David L. Drabkin and William E. Ehrlich. In an attempt to assure a broad clinical foundation for the anesthesiologist, it was explained, training in cardiology, neurology and radiology will be provided. Clinical preceptorships will be served in eight to ten Philadelphia hospitals in which there are departments of anesthesia staffed by physicians. The course is not intended to compete with or replace a required and supervised residency in anesthesiology in an accredited hospital. Designed after careful thought and with the advice of the American Board of Anesthesiology, it is offered as a supplement, or precursor, to such resident training.

Pittsburgh

\$300,000 Gift for Medical Library.—The University of Pittsburgh has received a gift of \$300,000 from the Maurice and Laura Falk Foundation to construct a medical library in the proposed new school of medicine. The library will be known as the Maurice and Laura Falk Library, and its initial collection will include more than 50,000 volumes. It is to be located on the first floor of the new school and will be officially the library of the Allegheny County Medical Society.

SOUTH CAROLINA

Personal.—Dr. Harry F. Wilson, Columbia, has been elected director of the Division of Laboratories of the South Carolina State Board of Health. He has been serving as acting director of laboratories since July 1947, as well as director of the Division of Industrial Health.

State Medical Association Meeting.—The annual meeting of the South Carolina Medical Association was held at the Ocean Forest Hotel, Myrtle Beach, May 17-19 under the presidency of Dr. Robert B. Durham, Columbia. Guest speakers included:

Edward B. Sheehan, Boston, Carcinoma of the Endometrium.
Frank P. Coleman, Richmond, Va., Treatment of Fractured Ribs.
H. Hudnall Ware Jr., Richmond, Va., Management of Some Usual Obstetrical Difficulties.

WASHINGTON

Breakfast Study Club in Tacoma.—The Tacoma chapter of the American Academy of General Practice has organized a breakfast study club, which will meet on Friday mornings to consider ways and means of making the family doctor available to all people of Tacoma and to keep him abreast of the latest developments in medical science. All physicians are invited to participate in the discussions.

Allen Lecture.—The second annual Raymond B. Allen Lectureship, honoring the president of the University of Washington, was held May 27. The lectureship consisted of a symposium on The Medical Aspects of Nuclear Energy with the following participants: Dr. Joseph G. Hamilton, associate professor of experimental medicine and radiology, University of California, Berkeley, and Dr. Simeon T. Cantril, associate clinical professor of radiology, University of Washington School of Medicine, director of the Tumor Institute, Swedish Hospital, Seattle. This lectureship is sponsored by the local chapter of the Phi Beta Pi Medical Fraternity.

WEST VIRGINIA

Society News.—Dr. Garnett P. Morison, Charles Town, was elected president of the West Virginia Academy of Ophthalmology and Otolaryngology at the annual spring meeting held at Martinsburg May 13-14. Dr. Melvin W. McGehee of Huntington and Dr. Frederick C. Reel of Charleston were reelected secretary and treasurer, respectively.

Temporary Licensing of Interns and Residents.—At a meeting of the public health council at Charleston May 12 regulations were promulgated for the temporary licensing of interns and residents. The regulations were adopted to provide means to alleviate to some extent the critical doctor shortage in rural areas, especially coal mining communities. Participating interns and residents must be graduates of class A medical schools and must be serving in hospitals fully accredited by the American Medical Association or the American College of Surgeons. Applicants and sponsors will be given letters of authorization by the secretary of the medical licensing board, and legal responsibility will be assumed by the sponsor, who will be required to report to the licensing board and the hospital whether or not the services of the relief physician are satisfactory. The time spent on relief work by a doctor shall not exceed thirty days each twelve months of hospital service, and the sponsor will be required to spend a reasonable length of time with the relief doctor for indoctrination. The participating physician will take care of all regular reports, filing of birth and death certificates and communicable disease reports. The relief doctor's signature will be valid on all state documents, insurance papers and compensation reports during the relief period.

WISCONSIN

Veterans Hospital Clinical Day.—Woods Veterans Hospital will hold a Clinical Day program June 30 at the hospital to which all physicians are invited. Drs. Michael F. Koszalka and Albin J. Krygier will be chairmen of the morning and afternoon sessions respectively.

Personal.—Dr. James C. Sargent, clinical professor of urology at Marquette University, Milwaukee, and a captain in the Naval Medical Corps Reserve, has been appointed a member of the Board of Reserve Consultants to the Surgeon General of the Navy.

Research on Arthritis and Rheumatism.—An intensive study of arthritis and rheumatism will be initiated at the University of Wisconsin following a gift of \$10,300 from the Thomas E. Brittingham Trust Fund. Dr. Daniel M. Angevine and Dr. Charles H. Altshuler of the department of pathology,

who have been conducting histochemical studies of rheumatic disease for two years, will receive \$5,300 to finance their work. Four thousand dollars will be used for electromyographic apparatus for the study of muscular changes in arthritic conditions. Dr. Charles V. Seastone of the department of microbiology will use \$1,000 of the gift to investigate sensitization reactions to streptococci in rheumatic and arthritic states.

ALASKA

Anchorage Medical Society.—This society, which was recently organized through the efforts of Colonel Stanley W. Matthews, M.C., U. S. Army, will hold meetings each month, alternating between Anchorage and the 183rd Army General Hospital. The society is open to all physicians, civilian or military, in good standing who live in the vicinity of Anchorage. Officers elected for the current year are: Colonel Matthews, president; Dr. George G. Davis, Anchorage, vice president; Dr. Milo H. Fritz, Anchorage, secretary, and Major Robert B. Franklin, M.C., U. S. Army, treasurer.

PUERTO RICO

Legislation for School of Tropical Medicine.—The Insular Legislature has approved a bill to authorize the Superior Board of Education of the University of Puerto Rico to establish a school of medicine, giving the board also jurisdiction over the administration of the School of Tropical Medicine, San Juan, now operating under the guidance of Columbia University, New York. The School of Tropical Medicine is now under the direction of a board of trustees, five of whom are members of the Superior Board of Education of the University of Puerto Rico, and two of Columbia University. The director and the members of the faculty of this school serve at the will of the board of trustees of Columbia University. The bill, now pending approval of the governor, will change the administration, giving jurisdiction to the University of Puerto Rico.

GENERAL

Phi Chi Luncheon.—Phi Chi medical fraternity will hold a luncheon June 9 at 12:45 p.m. at the Ambassador Hotel in Atlantic City, N. J. Tickets will be available at the Phi Chi registration desk in the fraternity and alumni registration area at Convention Hall.

Railroad Surgeons Meeting.—The annual meeting of the American Association of Railway Surgeons will be held at the Drake Hotel, Chicago, June 30 to July 2, under the presidency of Dr. Raymond B. Kepner, Chicago. A symposium on Intrathoracic Disorders is scheduled for Thursday afternoon and another on Bone and Joint Lesions for Friday afternoon.

Proctology Meeting.—The newly organized International Academy of Proctology will hold its first meeting at the Marlborough-Blenheim in Atlantic City, N. J., June 10. The scientific program will include motion picture films of rectal surgery. Papers on proctologic subjects will be presented by Drs. Earl J. Halligan, Jersey City, N. J.; Edgar M. Scott, Birmingham, Ala.; Caesar Portes, Chicago, and William Lieberman, Brooklyn.

Pamphlets on Cancer Sites.—The American Cancer Society in cooperation with the National Cancer Institute, Bethesda, Md., has prepared four cancer pamphlets. The sites considered are: (1) the breast, and (2) female generative organs, where nearly 40 per cent of cancers fatal to women start; (3) the digestive organs, which account for nearly 50 per cent of all cancer deaths, and (4) the mouth and respiratory tract, including the lungs and bronchus, where reported cancer mortality in men has increased over 300 per cent in the last fifteen years. The pamphlets can be obtained without charge through most of the local or state offices of the society's sixty-one divisions or the national office at 47 Beaver Street, New York City.

Dr. Burnell Succeeds Dr. Selby at General Motors.—Dr. Max R. Burnell, Flint, Mich., will become medical consultant to General Motors Corporation effective July 1, succeeding Dr. Clarence D. Selby, who is retiring after fourteen years of service. Dr. Burnell, a graduate of the University of Michigan Medical School, Ann Arbor, 1918, has been medical director of the AC Spark Plug Division of General Motors since 1931, when he organized it as one of the first certified industrial medical departments in America. Its modern equipment and advanced technics have long been recognized as outstanding in medical circles throughout the country. For many years Dr. Selby has served as a special lecturer at the School of Public Health of the University of Michigan, where, after his retire-

ment, he will assist in the development of a program in the field of industrial health. Last year Dr. Selby inaugurated a cooperative program between the company and medical schools whereby graduates from these schools are able to take their internship in General Motors plants (THE JOURNAL, March 26, p. 864).

Committee on Habit-Forming Drugs.—The World Health Organization has selected Dr. Nathan B. Eddy as chairman of its Expert Committee on Habit-Forming Drugs. Dr. Eddy has been a leader in investigating the use of narcotics in the control of pain in cancer. In 1939 he shared with Dr. Lyndon F. Small of the National Institutes of Health the first annual award of the American Pharmaceutical Manufacturers Association for discovery of the drug metopon. Among his university appointments is that of research professor in pharmacology at the University of Michigan from 1930 to 1939. Dr. Eddy is also secretary of the Committee on Drug Addiction and Narcotics of the National Research Council.

American Society for the Study of Sterility.—This society will hold its annual conference at the Hotel Strand, Atlantic City, N. J., June 6-7 under the presidency of Dr. Lyman W. Mason, Denver. Those presenting papers by invitation include:

Samuel R. M. Reynolds, Ph.D., Brooklyn, Problems in Uterine Physiology and Their Interpretations.

Samuel R. Meaker, Boston, Ovarian Resection for the Relief of Sterility.

Marvin R. Thompson, Ph.D., New York, Nutritional Requirements in Human Reproduction.

James L. Royals, Pittsburgh; Carlton N. Price, Washington, and Paul Titus, Pittsburgh, Hysterosalpingography—Dangers and Their Prevention.

William H. Perloff, Philadelphia, Extraction of Human Hyaluronidase from Human Testes and Semen.

The speaker at the annual dinner Monday at 7 p. m. will be William W. Greulich, Ph.D., of the National Research Council, whose subject will be "Hiroshima and Nagasaki, 1947 and 1948."

Publication on School Health Policies.—Contributing toward the improvement of health programs for school children, which is one phase of the general theme of the 1949 Child Health Day May 1, more than 105,000 copies of "Suggested School Health Policies"—a charter for school health—have been distributed by the Health Education Council. "Suggested School Health Policies" not only has contributed to building a healthier America for American children, but has also contributed to the rehabilitation of the Japanese school system. American Military Government teams have ordered this 48 page guide for use in developing up-to-date school health policies in Japan. The booklet was prepared by a committee representing fifteen national organizations concerned with health and education. It may be obtained from the Order Department, American Medical Association, 535 N. Dearborn Street, Chicago, Ill. The price of the booklet is 25 cents; single copies are free to persons engaged in health education. The booklet can also be ordered in quantity from Health Education Council, 10 Downing St., New York 14.

National Vitamin Foundation.—Dr. E. Gifford Upjohn, vice president, the Upjohn Company, Kalamazoo, Mich., was elected president of the National Vitamin Foundation for 1949 at the annual meeting of foundation members in New York. Dr. Upjohn succeeds Basil O'Connor, New York, president of the American Red Cross, who was named to the newly created position of honorary chairman of the Board of Governors. J. Paul Folsom, Lederle Laboratories Division, American Cyanamid Company, New York, was elected board chairman. Dr. Robert S. Goodhart, scientific director, in his annual report revealed that by the end of 1948, the foundation's third year, a total of \$186,633.72 has been appropriated for grants-in-aid for research and educational activities. A total of 30 grants-in-aid have been made to 17 institutions for the support of 23 research projects. During 1948, 7 grants-in-aid were continued and 7 new research projects instituted, according to the report. Among educational activities assisted with grants from the foundation during 1948 were publication of the "Handbook on Clinical Nutrition" of the Food and Nutrition Board of the National Research Council, toward which \$12,000 was contributed, and a grant to Washington University School of Medicine, St. Louis, of \$1,225.42 to defray costs of its Nutrition Symposium. As part of its educational activities, the foundation also spent \$10,312.17 to arrange about 4,500 bookings of the foundation's motion picture "Strange Hunger." The foundation's board of governors was increased to eighteen members. Newly elected members were Mr. W. R. McHargue, E. R. Squibb & Sons, New York, and Dr. Ernest H. Volwiler, Abbott Laboratories, North Chicago, Ill.

FOREIGN

Postgraduate Courses in Vienna.—Postgraduate courses for physicians and surgeons are now being offered at the University of Vienna in Austria, which, for the first time since the war, is opening its postgraduate school for doctors from overseas and is able to provide suitable living accommodations.

Anderson-Berry Medal Award.—A David Anderson-Berry silver-gilt medal, together with a sum of money amounting to about 100 pounds, will be awarded in 1950 by the Royal Society of Edinburgh to the person, who, in the opinion of the Council, has recently produced the best work on the therapeutical effect of roentgen rays on human diseases. Applications for this prize are invited. They may be based on both published and unpublished work and should be accompanied by copies of relevant papers. Applications must be in the hands of the general secretary, Royal Society of Edinburgh, 22 George Street, Edinburgh 2, by March 31, 1950.

Australian Postgraduate Federation.—A federation to be known as the Australian Postgraduate Federation in Medicine has been formed with the object of encouragement and advancement of postgraduate medical education, work and research in Australia. In addition the federation will deal with matters common to more than one postgraduate committee, and particularly with the arrangements for visits of teachers to Australia. The formation of the federation will in no way limit the committee in the exercise of its own independent functions in its own state. The members of the federation are the Melbourne Permanent Post Graduate Committee, the Post-Graduate Committee in Medicine in the University of Sydney, the Post Graduate Committee in Medicine of the University of Adelaide, the Postgraduate Medical Education Committee of the University of Queensland, the Western Australian Post Graduate Committee (British Medical Association) and the Tasmanian Post-Graduate Committee in Medicine. Provision has been made to admit to membership organizations from New Zealand or elsewhere on certain conditions. A president, vice president and an executive committee will be appointed each year and the executive committee will be elected from persons nominated by the postgraduate committee of the state chosen for this purpose by the federation.

Israeli Medical School Opens.—The Hebrew University-Hadassah Medical School, the first medical school to be established in Israel, opened its doors May 17 as a joint undertaking of the Hebrew University and Hadassah, the women's Zionist organization of America. Until security conditions permit continuation of construction on Mt. Scopus, the site of the present 400 bed Rothchild-Hadassah-University Hospital, the school will be housed in four hospital units totaling initially over 300 beds in the city of Jerusalem proper. A class of 50 has been admitted, and a like number will be admitted in April 1950. By 1951 the first regular class will be admitted to the full six year course of instruction, the first two years of which will cover the premedical studies and the last four years the standard American medical course. Nearly \$4,000,000 of the necessary \$5,500,000 needed to complete school building program has been raised.

One of the first visiting professors is Dr. Samuel Standard, New York University College of Medicine-Bellevue Medical Center, who will inaugurate instruction in surgery at the school. Among members of the faculty are Bernhard Zondek, gynecology; A. Feigenbaum, ophthalmology; S. E. Franco, pathologic anatomy; Saul Adler, parasitology, and L. Olitzki, bacteriology.

Marriages

JAMES A. VAUGHN JR., West Palm Beach, Fla., to Dr. Phyllis A. Petersen of Baltimore, in March.

JOHN ROBERT SHELL, Lawrenceville, Va., to Miss Betty Jane Moseley of Lake Charles, La., April 23.

ERNEST RANDOLPH TRICE to Miss Virginia Dorsey Brown, both of Richmond, Va., May 7.

LEE R. SANBORN to Mrs. Hildegard Tropp Wolf, both of Angola, N. Y., February 14.

WILLIAM BERNARD YEGGE to Miss Marion Agnes Fleisch, both of Denver, January 19.

EDWARD C. RAFFENSPERGER to Dr. Mary Ames both of Harrisburg, Pa., April 9.

JOHN J. LITZ, New York, to Miss Carolyn Weir of San Francisco, in April.

Deaths

Charles Wesley Adams, Franklin, N. H.; Boston University School of Medicine, 1884; member of the American Medical Association; on the staff of the Franklin (N. H.) Hospital and Memorial Hospital in Concord; formerly mayor; bank president; died March 12, aged 85, of heart failure.

Thomas John Barb * Roby, Texas; University of Oklahoma School of Medicine, Oklahoma City, 1921; on the staff of the Fisher County Memorial Hospital, where he died February 24, aged 61, of pneumonia.

Karl Mikael Beck * Waukegan, Ill.; Loyola University School of Medicine, Chicago, 1918; formerly county physician and superintendent of Lake County General Hospital; died March 19, aged 55.

Nathan Berger * New York; Long Island College Hospital, Brooklyn, 1917; on the staff of the New York Eye and Ear Infirmary; died February 12, aged 56, of carcinoma of the stomach.

Kenneth Edwin Blair * Detroit; Northwestern University Medical School, Chicago, 1938; on the staffs of Grace and Holy Cross hospitals; died February 28, aged 38.

John Blake, Detroit; Detroit College of Medicine, 1907; died March 15, aged 66, of carcinoma of the colon.

William Floyd Boze, Carthage, Tenn.; University of Tennessee Medical Department, Nashville, 1892; for many years county health officer; died March 11, aged 79.

Joseph Bernard Brain * Isabella, Pa.; University of Pittsburgh School of Medicine, 1927; served overseas during World War II; died in the U. S. Veterans Administration Hospital, Aspinwall, March 19, aged 45, of coronary thrombosis.

William Norwood Breckinridge, Fincastle, Va.; University of the South Medical Department, Sewanee, Tenn., 1904; member of the American Medical Association; served during the Spanish-American War and World War I; for many years county coroner and mayor of Fincastle; died March 21, aged 73, of angina pectoris.

Wallace McMurray Burroughs, St. Charles, Ill.; Northwestern University Medical School, Chicago, 1893; member of the American Medical Association; died March 25, aged 78, of chronic myocardial degeneration.

Lewis Angus Wood Burch * Phoenix, Ariz.; Rush Medical College, Chicago, 1897; member of the American Society of Anesthetists; died recently, aged 73.

J. Willard Caldwell, Steamboat Rock, Iowa; St. Louis College of Physicians and Surgeons, 1901; served during World War I; died March 24, aged 68.

Harry Edward Castle, San Francisco; Rush Medical College, Chicago, 1905; died March 29, aged 74, of hypertensive cardiovascular disease.

Burt Thomas Church * North Hollywood, Calif.; University of Nebraska College of Medicine, Omaha, 1923; died March 12, aged 50.

George Henry Cottral * Savanna, Ill.; Marion-Sims-Beaumont Medical College, 1903; served during World War I; died in the Kahler Hospital, Rochester, Minn., March 16, aged 73, of carcinoma of colon.

Samuel Wright Crittenden, Wakefield, Mass.; Dartmouth Medical School, Hanover, N. H., 1898; Medical School of Maine, Portland, 1898; member of the American Medical Association; formerly medical officer in charge of the U. S. Veterans Hospital and on the staff of State Hospital in Boston; died March 26, aged 91, of cerebral hemorrhage and arteriosclerosis.

Stanton Curry * Peekskill, N. Y.; New York University, University and Bellevue Hospital Medical College, 1898; an Associate Fellow of the American Medical Association; on the staff of Peekskill Hospital; bank president; died March 26, aged 79, of lymphatic leukemia.

James Bayard Gregg Custis * Washington, D. C.; New York Homeopathic Medical College and Hospital, New York, 1907; served during World War I; on the staff of the National Homeopathic Hospital; for many years affiliated with Florence Crittenton Home; died February 28, aged 66, of coronary occlusion.

Fred Beam Cyphers, Duncan, Neb.; Lincoln (Neb.) Medical College, 1905; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1907; member of the American Medical Association; affiliated with St. Mary's and Lutheran hospitals in Columbus; died in the Mayo Clinic, Rochester, Minn., March 22, aged 65, of carcinoma.

Robert Anthony Davis, Ludington, Mich.; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1906; served on the staffs of the Woman's and Providence hospitals in Detroit and the Paulina Stearns Hospital; died March 29, aged 84.

William Earl Dawson, Hookerton, N. C.; Jefferson Medical College of Philadelphia, 1920; member of the American Medical Association; died recently in Raleigh, aged 54, of coronary thrombosis.

George Valentine Dorsheimer * Dewey, Okla.; University Medical College of Kansas City, Mo., 1913; on the staff of the Memorial Hospital, Bartlesville, where he died March 16, aged 73, of carcinoma.

Robert Lee Dossett, Tullahoma, Tenn.; University of Tennessee Medical Department, Nashville, 1908; mayor; served as state senator; for many years city health officer; member of the Coffee County Court; died in the Gartly-Ramsay Hospital, Memphis, March 27, aged 68, of pneumonia, following a broken hip received in a fall.

John Frederick A. Drew, Portland, Ore.; Northwestern University Medical School, Chicago, 1896; died March 13, aged 82, of cerebral hemorrhage.

Thomas Nelson Duncan, Onaway, Mich.; St. Louis University School of Medicine, 1903; died in Cheboygan March 6, aged 71.

Roland Jordan Dunn * Chicago; Rush Medical College, Chicago, 1897; on the staffs of St. Anne's and Bethany hospitals; died March 10, aged 73, of cerebral thrombosis.

Elling H. Ellingsen, Calmar, Iowa; Bennett College of Eclectic Medicine and Surgery, Chicago, 1898; died March 12, aged 87, of hypostatic pneumonia and arteriosclerotic heart disease.

Samuel Henry Freeman, Nashville, Tenn.; Meharry Medical College, Nashville, 1928; professor of anatomy and surgery (orthopedic) at his alma mater; chief physician and head of the health department of Tennessee A. & I. State College; affiliated with Hubbard Hospital; died March 24, aged 50, of coronary heart disease.

Rolland Edward Gardner, Reynoldsburg, Ohio; University of Louisville (Ky.) School of Medicine, 1929; member of the American Medical Association; died March 24, aged 47, of coronary thrombosis.

Edgar James Gilray, Cuba, N. Y.; University of Buffalo School of Medicine, 1891; member of the American Medical Association; formerly medical superintendent of Erie County Hospital in Buffalo; died in Cuba Memorial Hospital March 27, aged 82, of arteriosclerosis.

George Spaulding Greene, Dowagiac, Mich.; Detroit College of Medicine, 1897; member of the American Medical Association; served during World War I; formerly practiced in Gary, Ind., where he was on the staff of Mercy Hospital; died in Pawating Hospital, Niles, March 22, aged 73, of cerebral hemorrhage.

James Anthony Guilfoil * San Francisco; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1911; served during World War I; affiliated with St. Francis Hospital and Southern Pacific Hospital, where he died March 7, aged 61, of coronary occlusion and arteriosclerotic hypertensive heart disease.

Joseph A. Haluska * Detroit; Magyar Királyi Pázmány Petrus Tudományegyetem Orvosi Fakultása, Budapest, Hungary, 1923; served on the city planning commission; on the staff of St. Joseph's Hospital, where he died March 12, aged 49, of pulmonary emboli and portal cirrhosis.

Benjamin Charles Hamilton Sr., Jefferson, Iowa; College of Physicians and Surgeons, Keokuk, 1882; member of the American Medical Association; died March 20, aged 89.

Charles Carter Hamilton * Philadelphia; State University of Iowa College of Medicine, Iowa City, 1923; specialist certified by the American Board of Radiology; member of the New England Roentgen Ray Society; on the staff of Chestnut Hill Hospital; died in the University of Pennsylvania Hospital March 28, aged 51, of bronchopneumonia.

Bell DeVan Hansell * Okolona, Miss.; College of Physicians and Surgeons, Memphis, Tenn., 1911; formerly medical director and owner of a hospital bearing his name; died March 7, aged 61.

Charles Herbert Haskins, Saranac Lake, N. Y.; Yale University School of Medicine, New Haven, 1923; served during World War I; accidentally drowned recently, aged 53.

Bernard N. Hatcher, Baltimore; University of West Tennessee College of Medicine and Surgery, Memphis, 1914; died in Provident Hospital recently, aged 58, of hypertensive cardiovascular renal disease.

Robert J. Heavenridge, Hannibal, Mo.; Central Medical College, St. Joseph, Mo., 1897; died in March, aged 76.

Jeannette Potter Himmelsbach, Buffalo; University of Buffalo School of Medicine, 1890; died March 12, aged 81, of cerebral thrombosis.

Joseph Howerton Hopper, Willisburg, Ky.; Hospital College of Medicine, Louisville, 1898; member of the American Medical Association; died February 3, aged 72, of organic heart disease.

Harold Lee Hurley Ⓢ Jackson, Mich.; Detroit College of Medicine, 1913; past president of the Jackson County Medical Society; fellow of the American College of Surgeons; served during World War I; on the staffs of the W. A. Foote Memorial and Mercy hospitals; died March 11, aged 58, of cardiac failure.

Dennis Bliss Jarrell, Beckley, W. Va.; College of Physicians and Surgeons, Baltimore, 1915; member of the American Medical Association; served overseas during World War I; on the staff of Raleigh General Hospital; died March 30, aged 62, of primary spinal atrophy.

Francis H. Jenkins, Italy, Texas; Chattanooga (Tenn.) Medical College, 1902; died in Columbus, Ohio, March 9, aged 75.

Arthur Henry N. Juengel, St. Louis; St. Louis University School of Medicine, 1908; died March 8, aged 66, of heart disease.

Edmond Norbert Landry, New Iberia, La.; Medical Department of Tulane University of Louisiana, New Orleans, 1911; member of the American Medical Association; for many years parish coroner; on the staff of the New Iberia General Hospital; died March 19, aged 62, of coronary thrombosis.

Isaac Newton Lear, Vandergrift, Pa.; Western Pennsylvania Medical College, Pittsburgh, 1896; died March 18, aged 82, of carcinoma of the prostate.

Carlton George Lee, Highland Falls, N. Y.; University of Alberta Faculty of Medicine, Edmonton, Alberta, Canada, 1925; member of the American Medical Association; served in the Canadian Air Force during World War I; served during World War II; died in the Veterans Administration Hospital, Castle Point, March 25, aged 57, of amyloidosis of the kidney, liver and spleen.

Edwin Lewis, Claremore, Okla.; Central Medical College of St. Joseph, Mo., 1903; died in February, aged 86.

Samuel Lichtenstein, Kecoughton, Va.; University of Georgia Medical Department, Augusta, 1912; died February 21, aged 57.

James Hugh McClelland, Livermore, Calif.; Cooper Medical College, San Francisco, 1912; died in the Veterans Administration Hospital December 18, aged 60.

Crawford Ward McCormick, Detroit; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1913; member of the American Medical Association; on the staff of Delray General Hospital; died March 24, aged 60, of coronary occlusion.

William Raymond McDannell, Los Angeles; the Hahnemann Medical College and Hospital, Chicago, 1905; died March 16, aged 74, of hypertensive heart disease.

Samuel James McDonald, Newton, Mass.; Harvard Medical School, Boston, 1901; member of the New England Ophthalmological Society; served as an examiner for the draft board during World Wars I and II; for many years affiliated with St. Elizabeth's Hospital and the Massachusetts Charity Eye and Ear Infirmary in Boston; died March 28, aged 74, of cerebral thrombosis.

Allister Francis MacDougall Jr., Stillwater, Okla.; Boston University School of Medicine, 1944; certified by the National Board of Medical Examiners; served during World War II; died March 14, aged 28.

George McIntyre, East Saugatuck, Mich.; Illinois Medical College, Chicago, 1904; also a graduate in pharmacy; served during the Spanish-American War and World War I; at one time practiced in Chicago, where he was medical inspector for the board of health and affiliated with Ravenswood and St. Elizabeth's hospitals; died March 30, aged 75, of myocarditis.

Edwin Everett Madden, Forest Park, Ill.; Reliance Medical College, Chicago, 1909; died in March, aged 72.

Jesse Krekore Marden, Claremont, Calif.; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1898; formerly a missionary in Turkey and Greece; died recently, aged 76.

Henry Louis Martin, Detroit; Detroit College of Medicine and Surgery, 1922; on the staffs of Providence Hospital and Holy Cross Hospital; died March 17, aged 58, of coronary occlusion.

Thomas Patrick Martin Ⓢ Carbondale, Pa.; Medico-Chirurgical College of Philadelphia, 1905; served during World War I; fellow of the American College of Surgeons; on the staff of St. Joseph's Hospital; died March 13, aged 71, of acute cardiac failure.

Edward Joseph Meehan, Lowell, Mass.; Jefferson Medical College of Philadelphia, 1947; served a residency at St. John's Hospital; a veteran of World War II; died March 17, aged 26.

Angus Washburn Morrison Ⓢ Wayzata, Minn.; Johns Hopkins University School of Medicine, Baltimore, 1910; formerly on the faculty of the University of Minnesota Medical School, Minneapolis; served during World War I; member of the American Psychiatric Association and the Central Neuropsychiatric Association; for many years on the staff of the Minneapolis General Hospital; died in Eitel Hospital, Minneapolis, recently, aged 65, of carcinoma of lung.

Charles Robert Nelson, Oakland, Calif.; Western Pennsylvania Medical College, Pittsburgh, 1895; member of the American Medical Association; on the staff of the Samuel Merritt Hospital; died February 27, aged 77, of arteriosclerosis and coronary occlusion.

William Henry Nix, Worthington, Pa.; Jefferson Medical College of Philadelphia, 1905; member of the American Medical Association; died recently, aged 73, of hypertension and coronary artery disease.

James Jarvis Parker Ⓢ Elizabeth City, N. C.; Temple University School of Medicine, Philadelphia, 1939; on the staff of Albemarle Hospital; died March 27, aged 34, of coronary thrombosis.

George Floyd Phelps, Drexel Hill, Pa.; Jefferson Medical College of Philadelphia, 1907; served on the staffs of the Jefferson and Philadelphia General hospitals in Philadelphia, New Jersey State Hospital in Trenton, and the Pennhurst State School in Spring City; died March 10, aged 78, of hypertensive cardiovascular disease.

Minor Wallace Pitts Ⓢ Luling, Texas; American Medical College, St. Louis, 1893; past president of the Caldwell County Medical Society; on the staff of the Luling Hospital; died March 20, aged 80, of coronary occlusion.

Clarence Virgil Porterfield, St. Clairsville, Ohio; Starling-Ohio Medical College, Columbus, 1913; president of the county board of health; member of the board of education; died March 17, aged 61, of pulmonary embolism.

Harry Blackburn Pryor, Ashland, Mo.; University of Louisville (Ky.) Medical Department, 1911; member of the American Medical Association; served overseas during World War I; died in March, aged 61.

Gail Kelvin Riddelsperger Ⓢ Warren, Pa.; University of Buffalo School of Medicine, 1933; fellow of the American College of Surgeons; on the staff of Warren General Hospital; died March 15, aged 44.

Mary Caroline Reed Stratton, Denver; Northwestern University Woman's Medical School, Chicago, 1892; died March 19, aged 80, of coronary thrombosis.

George Ross Taylor Ⓢ Akron, Ohio; Western Reserve University School of Medicine, Cleveland, 1924; member of the Summit County Board of Health; served on the staffs of the Wadsworth (Ohio) Hospital and the Citizens Hospital, Barberton; died February 6, aged 50, of coronary occlusion.

Thomas H. Turner, Auburn, Ky.; University of Tennessee Medical Department, Nashville, 1893; member of the American Medical Association; died in Princeton, Ind., March 18, aged 81.

Rufus Whitis Ⓢ Dallas, Texas; Jefferson Medical College of Philadelphia, 1884; died February 22, aged 89.

Leslie Arno Yaeger Ⓢ Trenton, N. J.; University of Maryland School of Medicine and College of Physicians and Surgeons, Baltimore, 1921; served during World War I and World War II; school physician; affiliated with St. Francis Hospital, where he died February 28, aged 56, of hepatitis.

Louis Augustus Zerega di Zerega, Staten Island, N. Y.; College of Physicians and Surgeons, medical department of Columbia College, New York, 1889; died in Staten Island Hospital March 15, aged 84.

Foreign Letters

TURKEY

(From Our Regular Correspondent)

ANKARA, April 19, 1949.

Treatment of Toxic Diffuse Goiter with Thiouracil and Methylthiouracil

Dr. Huseyin Salor of the Istanbul-Pera Municipal Hospital has published observations on 6 patients treated with thiouracil and methylthiouracil. The patients were between 28 and 42 years of age; 4 were women and 2 were men. All were suffering from thyrotoxicosis. The treatment was divided into two periods. During the first period the patients were given a daily dose of 0.30 to 0.40 Gm. thiouracil and 0.20 to 0.25 Gm. methylthiouracil for an average of two weeks. By this time the basal metabolism of all 6 patients and the cholesterol of the blood had become normal again. The feeling of oppression and other hyperthyroid symptoms had disappeared. This treatment had no effect on exophthalmia. Frequent blood examinations and leukocyte counts revealed no abnormalities. During the second period the patients were given a daily dose of 0.15 to 0.20 Gm. thiouracil and 0.05 to 0.10 Gm. methylthiouracil. This dosage was continued for two to three months. In 2 of the 6 patients symptoms of relapse appeared, and they were given another two weeks' treatment. Toxemia or idiosyncrasy symptoms were absent. The patients have been discharged and are being followed up to find out whether it will be necessary to repeat the treatment from time to time.

Fiftieth Anniversary of the Gülhane Hospital

The Gülhane Hospital at Istanbul-Sarayburnu was established in 1898 by Dr. Rieder Pasha. The medical students graduating from the Military Academy Medical School with the rank of captain were required to attend there a one year theoretic and practical course followed by another examination. Drawing lots, they were then assigned to their respective positions. Those having passed the examination with the highest marks were retained at the academy as assistants and instructors. The Gülhane Hospital, which has always held a high place in the esteem of the Istanbul population, continued to function there until 1939, when it was transferred to Ankara. Several of the clinics of this 500 bed hospital now serve as teaching units of the Ankara University medical school.

On the occasion of the fiftieth anniversary of the hospital a ceremony was held on Dec. 30, 1948. It was attended by Ismet İnönü, President of Turkey; Dr. Kemal Bayazit, the Minister of Health and Social Assistance; the Minister of National Defense and other cabinet members, prominent army and civilian members of the medical profession.

Custom-Free Drugs

The bill introduced by the Ministry of Health and Social Assistance proposing the custom-free importation of vital remedies and chemicals has passed the National Assembly and became law. Streptomycin, insulin and the like, the high price of which (5 to 7 Turkish pounds per gram in the pharmacies) often was prohibitive, will now be available for 2.8 to 3 liras—about \$11—per gram. In many cases of tuberculous meningitis treatment with streptomycin had to be abandoned because parents could not afford to pay the high price and the hospital did not have sufficient funds to provide the drug free. The rising cost of living during and after the war has greatly increased the number of tuberculous patients. This reduction in price will enable government hospitals to provide these

important remedies free of charge for patients unable to pay for them. The new law also provides for custom-free importation and tax exemption for DDT, which has proved effective in malaria control work. Though in 1948 there have been no malaria epidemics, the malaria morbidity rate was greatly reduced in the malaria areas and there have been no deaths there due to malaria. The new law also contains a provision for customs and tax exemption for vitally important remedies that may be discovered in the future.

Death of Prof. Akil Muhtar Özden

Prof. Akil Muhtar Özden, who for thirty-seven years taught at the Istanbul University Medical School, died March 12 after a long illness. Like many medical students and physicians who, under the autocratic rule of Sultan Abdul Hamid II, had to leave the country because of their leanings toward democracy, Akil Muhtar, while still an undergraduate at the military medical school, fled to Switzerland, where he continued his medical studies and was graduated from Geneva University. After the declaration of the constitution in 1908 Dr. Akil Muhtar returned to Istanbul to become professor of hygiene at the Istanbul Civil Medical School; in 1909 he became professor of pharmacodynamics and clinical therapy of the Istanbul University Medical Faculty. He had one hundred and fifty-six publications in the Turkish and one hundred and two in the French language to his credit. He was a member of seven foreign medical societies. Prof. Akil Muhtar for many years served as vice president of the Turkish Red Crescent Society and took part in the international Red Cross Congress. His textbooks on pharmacodynamics and those on treatment have had a great many editions. At his Istanbul consulting rooms he was the most sought after authority on internal diseases; he was also advisory physician to President Ismet İnönü.

ISRAEL

(From Our Regular Correspondent)

JERUSALEM, April 22, 1949.

Medical Faculty of the Hebrew University in Jerusalem

The Medical Faculty of the Hebrew University in Jerusalem will be established soon. It has grown from the Institute of Microbiology, which was provided by the American Jewish Physicians' Committee and which was functioning before the University was opened in 1925. Other departments eventually were created, until there were available all courses necessary for premedical studies.

In 1936 the University and the Hadassah Zionist Organization of America agreed to undertake the establishment of a medical faculty in the Hebrew University. The Hadassah was to provide a modern hospital and facilities for teaching clinical subjects, and the University the preclinical education. The hospital now is known as the Hadassah-Rothschild University Hospital. Senior clinical appointments were to be made after consultation between Hadassah and the university, who were to be advised by a board of American authorities eminent in medical education.

Some of the preclinical departments are in need of expansion, and plans for enlargement were undertaken before the outbreak of recent hostilities. While some building was undertaken during hostilities, the preclinical departments still in need of expansion are bacteriology and hygiene, parasitology, physiology and pathologic chemistry, experimental pathology and cancer research, and radiobiology.

The hospital beds were to be increased from 300 to 500, and a hospital for tuberculosis for teaching was to be erected,

but this building program also was interrupted. Eventually the school will provide a six year course, of which two years will be devoted to premedical subjects. A year of internship will be obligatory. About 50 students will be admitted each year to the school. In time a dental faculty and a college of pharmacy will be added to the school.

Because of the shortage of scientific personnel, the personnel of the medical school will be recruited in part from persons in Israel and abroad and from younger members of the staff who will be sent to the United States for further training. A number of the latter already have been sent to the United States. In spite of the handicaps, the university has had considerable teaching experience. Many of its graduates hold responsible governmental and civilian positions. Furthermore, many have received postgraduate clinical training.

The Jerusalem Society for Internal Medicine

A Society for Internal Medicine was founded in Jerusalem in March 1949. This society was formed as a result of a proposal made at the International Congress for Internal Medicine held in Basel in September 1948. At the Basel meeting it was suggested that an international organization of the societies for internal medicine be formed.

ITALY

(From Our Regular Correspondent)

FLORENCE, April 15, 1949.

Course on International Medical Ethics

The Surgeon General of the Belgian Army, Dr. J. Voncken, Secretary General of the International Committee on Military Medicine and Pharmacy, presented four lectures on international medical ethics at the School of Military Health in Florence. General Voncken discussed military medicine at the national and international levels, the history of the humanitarian movement and the international judicial situation of the physician. The chancellor of the University of Florence has invited General Voncken to hold an analogous course at the University of Florence next fall.

Oto-Neuro-Ophthalmologic Association

This association held its fourth international congress in Bologna. Meningoendocraniosis in ophthalmology was the subject of the first report presented by Professor Rubino of Florence. The speaker gave a brief summary of the general symptoms, such as headache, and endocrinodiencephalic, mental, olfactory and cochleovestibular disturbances. He discussed the various fundamental roentgenologic signs of the cranium and the ocular signs and symptoms which may be encountered in meningoendocraniosis. The lesion of the ocular fundus may involve the optic papilla and the central retinal vessels. There may be such functional symptoms as bitemporal hemianopsia referable to the upper quadrants, also called "chiasmal sign" or "small chiasmal syndrome," which may be of great localizing value in diagnosis.

Professor Bertolotti of Naples discussed the relationship between endocraniosis and deep perisunitis.

Professor Porta of Siena discussed pontocerebellar arachnoiditis and meningoendocraniosis of the temporobasilar region; he stated that when this condition is secondary to chronic inflammatory processes of the mastoid it may induce symptoms which justify a parallelism with the forms described by Lunedei as sequelae of hyperergic chronic inflammatory processes at the base of the cranium, involving also the diencephalon.

The reports were followed by discussion in which many in attendance participated.

BRAZIL

(From Our Regular Correspondent)

RIO DE JANEIRO, April 27, 1949.

Virus of Brazilian Typhus in Milk

Dr. Octavio de Magalhães, of the Oswaldo Cruz Institute, was able to prove, as has been reported in previous letters, that the virus of Brazilian typhus can pass through the placenta of *Macacus rhesus* and infect the fetus, and can go through the apparently normal mucosa of the gastrointestinal tract of dogs causing the disease. Recently, Dr. de Magalhães was also able to demonstrate the presence of the virus in the milk of goats (*Capra hircus*), these animals being, as the same author pointed out in the past after careful experimentation, a very good reservoir of the Brazilian virus, as shown by the presence of the virus in blood and by a positive group Weil-Felix reaction of high titer, although without apparent disease. In many places of the interior of Brazil goats are a substitute for cows as a milk supply for children and adults, and in some districts goat's milk is even considered superior to cow's milk. Now, with the demonstration that the virus of Brazilian typhus may be present in goat's milk, and the proof that the virus is able to pass through the apparently normal digestive tract, it is easy to understand how infants living in strictly domestic environment can contract the disease, as Dr. de Magalhães has shown in several instances, even for very young infants.

Blood Types of Brazilian Indians

Dr. Ernani M. da Silva, of the Oswaldo Cruz Institute, and Drs. F. Ottensooser and R. Pasqualin, of the Laboratório Paulista de Biologia, studied the blood of Caiuá and Bororo Indians of the state of Matto Grosso for the determination of the common blood groups, MN factors and Rh types. The blood of 356 Indians (237 Caiuás and 119 Bororos) revealed the O group in all of them. Among 134 Caiuás 79.9 per cent belonged to type M, 0.7 per cent to N and 19.4 per cent to MN. Among 173 Caiuás and 103 Bororos not even one negative Rh was found. The distribution of the Rh types in 135 Caiuás and 103 Bororos was almost identical: the average values were 22.7 per cent Rh₁, 19.3 per cent Rh₂, and 58.0 per cent Rh₁Rh₂ or Rh₃. American Indians are connected with Mongoloids by some serologic characteristics, such as an appreciable ratio of R₂ and scarcity or lack of the Rh-negative type, but generally they also are distinguished within this ethnical group by high proportions of O, M and Rh₂. In Matto Grosso Indians these percentages are particularly high.

A Focus of Echinococcosis

After Iceland—the place where the incidence of hydatidosis is highest—Australia, Argentina and Uruguay are known as important foci of the disease, which is connected with cattle raising, abundance of dogs and poor habits of personal hygiene. Evidence is accumulating to prove that the state of Rio Grande do Sul, the southernmost of Brazil and adjoining Uruguay, and also devoted to cattle raising, is another focus that must be taken into consideration. Dr. Darcy Xavier, of the Misericórdia Hospital of Pelotas, a city of 80,000 population near the Uruguayan border, studied the records of the hospital, from 1918 to 1947, to find out the number of cases of hydatidosis attended at that institution and gather data about the patients and the disease. During the thirty year period, 196 cases of the disease were treated at the hospital, all the patients being residents of the rural districts around Pelotas, the present aggregate population of which is about 500,000. On the basis of this population at the midpoint of the period, this represents the average annual morbidity rate of 1.53 per hundred thousand. As would be

expected, the incidence varies with the individual districts: Arroio Grande 5.7, Pinheiro Machado 5.3, Piratiny 5.0, Pelotas 2.2, Palmar 2.1, Herval 1.7, Cangussú 1.0 and Jaguarão 0.8. The cases are almost evenly divided between the two sexes: 90 cases in males (45.9 per cent), and 106 in females (54.1 per cent). The age distribution of the patients was as follows: 0 to 9 years, 26 (13.3 per cent); 10 to 19 years, 54 (27.5 per cent); 20 to 29 years, 55 (28.1 per cent); 30 to 39 years, 33 (16.8 per cent); 40 to 49 years, 16 (8.2 per cent); 50 to 59 years, 9 (4.6 per cent); 60 to 69 years, 2 (1.0 per cent), and 70 to 79 years, 1 (0.5 per cent). The localization of the cysts was as follows: liver, 102 (52.0 per cent); lungs, 43 (21.9 per cent); diffuse abdominal form, 16 (8.2 per cent); orbit, 5 (2.5 per cent); muscles, 4 (2.0 per cent); retroperitoneal, kidney, mesentery and epiploon, 3 each (1.5 per cent each); pancreas, mammary gland and bladder, 2 each, ligamentum latum uteri, pleura, ductus choledochus, ovary, spleen, parotid mediastinum and iliac bone, 1 each.

Correspondence

HEALTH TEACHING BY PHYSICIANS

To the Editor:—One of the objectives of the American Medical Association which has been stressed a great deal lately is public health education. What may be a doctor's role in such a program? One of the finest avenues open is health teaching in a college or university. Our belated interest in public relations can receive impetus from this contact with the public, teaching hundreds of impressionable young students in a wholesome atmosphere away from the sickroom and office. Such an experience will be pleasurable and beneficial to all concerned.

There are many fields of health taught in a university in which the knowledge of the physician is invaluable. At the University of Utah last year, three thousand students in a student body of ten thousand took courses in health. Except for a few hundred in the field of school health education, all these students were taught by busy practicing physicians. It is with the idea in mind that a physician has an excellent opportunity to be of service to the public and to his profession that an outline of our major courses at the University of Utah is offered.

For forty years a course in personal hygiene has been required of all men and women at the University. Sections on personal hygiene are taught by physicians who spare the time year after year to come to the campus and teach. Occasionally the time is a costly sacrifice; nevertheless, these men and women have compensations beyond the honorarium offered. They value their university associations; above that, they feel that the contact with young people and the information given are worth while. Obviously, such information does not remain restricted to the student himself but is disseminated in ever widening circles to family, friends and community. At present, four men physicians and one woman physician are teaching about 1,300 men and women personal hygiene.

As a result of the furor raised about the physical defects found in recent selective military training health examinations, there is a strong tendency to require courses in personal hygiene in the higher institutions. This is an opportunity for physicians.

At the University of Utah another health course is unique and has commanded wide attention. It is labeled "Matrology," a word coined from the combination of "mater" and "ology"; i. e., science of motherhood. It was started soon after World War I by a busy practitioner in Salt Lake City who felt that "university women should know more than factory women" about their bodies during oncoming motherhood. He taught

them "what a doctor would like his daughter to know." Enrollment grew with the years and was limited to women until a demand from the men resulted in the establishment of "Patrology" in the spring of 1947.

Matrology and Patrology fill a popular demand and need. They are similar courses in obstetrics and pediatrics which stress the normal. Two thirds of the course is devoted to prenatal care, to human embryology, to common disturbances and complications of pregnancy and to the mechanics of normal labor. The film "Normal Labor" taken by De Lee at Chicago Lying-in Hospital climaxes this part of the course. The latter part is concerned with infant care in the first year. Matrology and Patrology are not required courses. Registration is entirely voluntary; yet 338 women and 815 men were enrolled last year—11½ per cent of the student body in one year.

These courses are taught by physicians, who not infrequently come directly from the delivery room to the lecture room. Their voices carry authority.

Evaluations of Matrology and Patrology are enthusiastic, from the students, parents, physicians and the University administration. Students who later become parents find the subject matter of inestimable value in allaying fears and preparing for parenthood. Boys and men particularly have been slighted in this field. Local physicians have been particularly impressed with the intelligence and cooperation of their women patients who have had Matrology. Comments are being made already on the cooperation and participation of the prospective fathers in conferences with the physician before and after birth of their babies. It is apparent that such courses in a university promote a good rapport between the medical profession and a very fine portion of our population.

Another course of value is entitled "interpretation of medical nomenclature." It is taken by those who plan to be in close association with the medical profession and with hospitals. These include student dietitians, physical therapists and social workers. A closely related course is that on "Medical Information for Social Workers." These subjects are taught by physicians.

Physicians from Salt Lake City have been most generous in devoting their time and knowledge to the academic field at the University. They are guest lecturers in courses in the areas of physical therapy, first aid and safety, school health education, preparation of health teachers, child development, mental hygiene, public health, courtship and marriage. The areas are wide into which physicians may enter.

Heretofore, too much health teaching has been left to poorly trained personnel. Physicians are always welcome in the health education field. More active and aggressive participation is recommended.

ALMA NEMIR, M.D., Salt Lake City.

ROENTGEN IRRADIATION FOR THYROTOXICOSIS

To the Editor:—The article in your April 16 issue by Robert H. Williams on selection of therapy for individual patients with thyrotoxicosis fails to accord roentgen irradiation the place it has established in the treatment of this disease.

The author's point that initial treatment with thiouracil is applicable in many cases is well taken. His frank comments on the complications and bad effects of this drug are to be commended. His impression that irradiation is best given by radioiodine is hardly supported by his statement that "the main drawback of this type of treatment is the difficulty involved in selecting the appropriate dosage, errors in which may either cause myxedema or permit the thyrotoxicity to persist. . . .

Radioiodine is distinctly less available throughout the country than are the other forms of therapy and, in the light of present information, it should remain so. Extensive use of it would pose a number of public health considerations." In view of the frank difficulties of administration and of dosage calculation, it would seem that the simpler and safer method of irradiation by external roentgen rays merited more prominence in the article, effective as it is in over 80 per cent of cases of diffuse toxic goiter. Myxedema is much less common after roentgen irradiation than after radioiodine.

Last, and by no means least, I concur with the author in the merits of thyroidectomy, especially in patients with a large nodular gland and in patients who have failed to respond to thiouracil and irradiation.

Intense attention to certain aspects of any problem commonly results in inattention to others, no matter how well established. The interest in radioactive isotopes in recent years has caused considerable neglect of simpler, safer and more available methods of irradiation.

L. H. GARLAND, M.D., San Francisco.

MEDICAL CARE OF THE INDIANS

To the Editor:—In two recent issues of THE JOURNAL have appeared special articles on the care of Indians in the Upper Midwest area and in the Navajo area. As I am at the present time a doctor in the Indian Service, I read these articles with considerable interest, and as I have worked for the Indian Service in Idaho and consequently know something of conditions in the Upper Midwest area, I am pleased to observe that the group who made that survey did an exceptionally fine piece of work. Both their findings and recommendations show considerable discernment and acumen. I am not familiar with the Navajo area and consequently am in no position to form an opinion of that report. I would be much interested, however, in a report on the area of Washington, Oregon and California, as I do know something of Indian conditions in these states and know that they differ somewhat from those of the Upper Midwest area.

Being a federal employee, I am not at present eligible to belong to a state or county medical society and consequently am not a member of the American Medical Association. Also being on a federal salary I am scarcely able at this time to contribute the entire \$25 toward defeat of the vicious so-called health bill sponsored by Oscar Ewing and others. I am, however, enclosing a check for \$10, which I hope will help a little in defeating this proposed legislation. I know at first hand what federal medicine does to a doctor, and I know what it does to patients.

C. W. DEWEY, M.D., Hoopa, Calif.

FREE ISOTOPES

To the Editor:—Students of the infiltration technic will be pleased at the latest evidence of how even the most erudite will fall for the Grecian gift.

In THE JOURNAL for April 16, page 1084, appears the heading "Expand Free Radioisotope Program." There then follows an explanation that the U. S. Atomic Energy Commission has announced that all isotopes are now free.

However, in the next paragraph it states that to finance the new program for its first year of operation \$450,000 has been allocated. This is just for the first year. Time passes rapidly. Estimates are often inadequate. Is it not unreasonable to envisage that this free program is going to require allocations

of perhaps \$10,000,000 in the next ten years? Since when, then, is it free?!

It is readily granted that this program cannot be conducted or entirely subsidized by private enterprise. The Atomic Energy Commission is doing a good job. However, do not let us deceive ourselves. The radioisotope program is not free; it is expensive; we are all paying for it. May we suggest that you reprint this article and use the heading "Expand Costly Radioisotope Program." "NOTICE: All tax-payers kindly stand ready to pay at least \$500,000 for the first year."

M. A. Sisson, M.D., San Francisco.

AN ALLERGY SURVEY

To the Editor:—The New Jersey Allergy Society has formed a committee on aerobiology to do an air survey of the state of New Jersey for the purpose of finding allergenic factors not presently recognized. The work will be done in the following fields: (1) pollen surveys, (2) bacteria surveys, (3) fungi surveys, (4) chemical contaminants and (5) meteorology.

With funds supplied by Schering Laboratories, six Wells air centrifuges will be set up in widely separated sites in the state. Daily air specimens will be studied. The chairmen for the entire project are Drs. Nathan Schaffer of East Orange, and Edward E. Seidman, of Plainfield. Subchairmen are as follows:

1. Pollen, Dr. L. Byck, Newark.
2. Bacteria, Dr. E. Seidman, Plainfield.
3. Fungi, Dr. N. Schaffer, East Orange.
4. Chemical contaminants, Dr. C. Weston, Glen Ridge.
5. Meteorology, Dr. F. Rosen, Newark.

The subcommittee on mycology, which consists of Drs. Schaffer, Seidman, Byck, Suesserman and Feldman, are attending conferences on mycology four hours a week at Rutgers University in New Brunswick, under the direction of Drs. C. M. Haenseler and B. H. Davis of the department of plant pathology, College of Agriculture. These conferences started with the school term in February, and plans are being made for their indefinite continuance. Drs. Haenseler and Davis will work with this committee in attempting to identify any fungi found in quantity. Extracts of these will be made and sent to all members of the society for clinical testing and evaluation.

Plans are being made to set up similar conferences in bacteriology and pollen identification in the near future.

NATHAN SCHAFER, M.D.,
East Orange, N. J.

IT'S THE F. S. A.

To the Editor:—In regard to a Current Comment, THE JOURNAL, February 19, page 531, in addition to your observation concerning letterheads, you may be interested to know that even lantern slides made and issued by the National Cancer Institute for distribution throughout the United States in the fields of professional and lay education are stamped, at the bottom, so that all can read F. S. A.

In all innocence, during a preview of some of these slides which I saw at the National Cancer Institute, I inquired what F. S. A. meant. I was told it meant "Federal Security Agency," and then I asked why it wasn't N. C. I., National Cancer Institute. The answer was simply "Orders."

JAY McLEAN, M.D., Arlington, Va.

Medical Examinations and Licensure

COMING EXAMINATIONS AND MEETINGS

NATIONAL BOARD OF MEDICAL EXAMINERS

NATIONAL BOARD OF MEDICAL EXAMINERS: *Parts I and II.* Various Centers. June 20-22, Sept. 12-14. *Part III.* June, various centers. Exec. Sec., Mr. E. S. Elwood, 225 S. 15th St., Philadelphia 2.

EXAMINING BOARDS IN SPECIALTIES

AMERICAN BOARD OF ANESTHESIOLOGY, INC. *Written.* Various Centers. July 15. *Oral.* Oct. 16-20. Sec., Dr. Curtiss B. Hickcox, 745 Fifth Ave., New York 27.

AMERICAN BOARD OF INTERNAL MEDICINE: *Written.* Oct. 17. Asst. Sec.-Treas. Dr. W. A. Werrell, 1 Main St., Madison 3, Wis.

AMERICAN BOARD OF NEUROLOGICAL SURGERY: *Oral.* Chicago, June 1949. Sec., Dr. W. J. German, 310 Cedar Street, New Haven, Conn.

AMERICAN BOARD OF OPHTHALMOLOGY: *Oral.* New York, June 11-15; St. Louis, Oct. 15-19; Boston, December. Sec., Dr. S. J. Beach, 56 Ivie Rd., Cape Cottage, Maine.

AMERICAN BOARD OF ORTHOPAEDIC SURGERY. *Part II.* New York City, Jan. 1950.: Final date for filing application for Part II is Aug. 15. Address: Sec.-Treas., Dr. Harold A. Sofeld, Room 1856, 122 S. Michigan Ave., Chicago.

AMERICAN BOARD OF OTOLARYNGOLOGY: Chicago, Oct. 4-7. Sec., Dr. D. M. Lierle, University Hospital, Iowa City.

AMERICAN BOARD OF PEDIATRICS: *Written.* Under local monitors, June 24. *Oral.* Cleveland, Sept. 16-18; New York City, Oct. 21-23; Chicago, Dec. 9-11. Sec., Dr. John McK. Mitchell, 6 Cushman Road, Rosemont, Pa.

AMERICAN BOARD OF PLASTIC SURGERY: Examinations are given in June and November of each year in the home town of applicants. Sec., Treas., Dr. Louis T. Byars, 400 Metropolitan Bldg., St. Louis, Mo.

AMERICAN BOARD OF PSYCHIATRY AND NEUROLOGY, INC. *Special Examination.* October. Place to be announced. Final date for filing application is July 15. December, New York City. Sec. Dr. F. J. Braceland, 102-110 Second Ave., S.W., Rochester, Minn.

AMERICAN BOARD OF SURGERY: *Written.* Various Centers, October 26. Final date for filing application is July 1. Sec., Dr. J. Stewart Rodman, 225 S. 15th St., Philadelphia.

AMERICAN BOARD OF UROLOGY: *Written.* December. *Oral and Clinical.* Chicago, Feb. 11-15. Final date for receipt of case histories is Sept. 1, 1949. Sec., Dr. Harry Culver, 7935 Sunnyside Road, Minneapolis 18, Minn.

BOARDS OF MEDICAL EXAMINERS

ALABAMA: *Examination.* Montgomery, June 28-30. Sec., Dr. D. G. Gill, 519 Dexter Ave., Montgomery.

ARKANSAS: * Little Rock, June 9-10. Sec., Dr. L. J. Kosminsky, Texarkana. *Eclectic.* Little Rock, June 9-10. Sec., Dr. C. H. Young, 1415 Main St., Little Rock.

CALIFORNIA: *Examination.* San Francisco, June 21-23. Sec., Dr. Frederick N. Scatena, 1020 N St., Sacramento.

COLORADO: * *Examination.* Denver, June 20-22. Sec., Dr. W. W. King, 831 Republic Bldg., Denver.

CONNECTICUT: * *Examination.* Hartford, July 1. Secretary to the Board, Dr. Creighton Barker, 258 Church Street, New Haven.

DELAWARE: Dover, July 12-14. Sec., Dr. J. S. McDaniel, 229 South State St., Dover.

FLORIDA: * *Examination.* Jacksonville, June 26-28. Sec., Dr. Frank D. Gray, 12 N. Rosalind Ave., Orlando.

GEORGIA: *Examination.* June 8-9, Atlanta and Augusta. *Reciprocity.* Atlanta, June. Sec., Mr. R. C. Coleman, 111 State Capitol, Atlanta.

GUAM: *Endorsement.* Agana, Last Friday of each month. Sec., Capt. C. K. Youngkin, Dept. of Public Health, Guam. % F.P.O., San Francisco, Calif.

HAWAII: * *Examination.* Honolulu, July 11-14. Sec., Dr. S. E. Doolittle, 881 S. Hotel St., Honolulu.

IDAHO: Boise, July 11-13. Sec., Miss Estella S. Mulliner, Bureau of Occupational Licenses, 355 State House, Boise.

ILLINOIS: Chicago, June 28-30. Superintendent of Registration, Mr. Fred W. Ruegg, Capitol Building, Springfield.

INDIANA: *Examination.* Indianapolis, June 21-23. Sec. Board of Medical Registration and Examination, Dr. Paul R. Tindall, 416 K. of P. Bldg., Indianapolis.

IOWA: * *Examination.* Iowa City, June 13-15. Sec., Dr. M. A. Royal, 506 Fleming Bldg., Des Moines.

KENTUCKY: *Examination.* Louisville, June 15-17. Sec., Dr. Bruce Underwood, 620 S. 3rd St., Louisville 2.

LOUISIANA: New Orleans, June 6-8. Sec., Dr. Roy B. Harrison, 1507 Hibernia Bank Bldg., New Orleans.

MAINE: Augusta, July 5-6. Sec., Dr. Adam P. Leighton, 192 State St., Portland.

MARYLAND: *Examination.* Baltimore, June 21-24. Sec., Dr. Lewis P. Gundry, 1215 Cathedral St., Baltimore. *Homoeopathic.* Baltimore, June 14-15. Sec., Dr. John A. Evans, 612 West 40th St., Baltimore.

MASSACHUSETTS: *Written.* Boston, July 12-15. Sec., Dr. George L. Schadt, 413 E. State House, Boston.

MICHIGAN: * *Written.* Detroit and Ann Arbor, June 13-15. Sec., Dr. J. Earl McIntyre, 203 Hollister Bldg., Lansing.

MINNESOTA: * Minneapolis, June 21-23. Sec., Dr. Julian F. DuBois, 230 Lowry Medical Arts Bldg., St. Paul 2.

MISSISSIPPI: Jackson, June 21-22. Asst. Sec., Dr. R. N. Whitfield, State Board of Health, Jackson.

MISSOURI: *Examination.* St. Louis, June 8-10. Exec. Sec., Mr. John A. Hailey, Box 4, Jefferson City.

MONTANA: Helena, Oct. 3-5. Sec., Dr. Otto G. Klein, First National Bank Bldg., Helena.

NEBRASKA: * *Examination.* Omaha, June 6-8. Dir., Bureau of Examining Boards, Mr. Oscar F. Humble, 1009 State Capitol Building, Lincoln 9.

NEW HAMPSHIRE: Concord, Sept. 8-9. Sec., Dr. J. S. Wheeler, 107 State House, Concord.

NEW JERSEY: *Examination.* Trenton, June 21-24. Sec., Dr. E. H. Hallinger, 28 West State Street, Trenton 8.

NEW YORK: Albany, Buffalo, New York and Syracuse, June 28-July 1. Sec., Dr. Jacob L. Lochner, 23 South Pearl St., Albany.

NORTH CAROLINA: *Examination.* Raleigh, June 23-25. Sec., Dr. Ivan Proctor, 226 Hillsboro St., Raleigh.

NORTH DAKOTA: * *Written.* Grand Forks, July 5-7. *Reciprocity.* Grand Forks, July 8. Sec., Dr. C. J. Gaspel, Grafton.

OHIO: *Examination.* Columbus, June 15-18. *Endorsement.* Columbus, July 5. Sec., Dr. H. M. Platter, 21 W. Broad St., Columbus.

OKLAHOMA: * Oklahoma City, June 8-9. Sec., Dr. Clinton Gallaher, 813 Braniff Bldg., Oklahoma City.

OREGON: * *Examination.* Portland, July 7-9. *Reciprocity.* Portland, July 22. Exec. Sec., Mr. Howard I. Bobbitt, 609 Failing Building, Portland.

PENNSYLVANIA: *Examination.* Philadelphia and Pittsburgh, July. Acting Sec., Mrs. B. G. Steiner, 351 Education Bldg., Harrisburg.

PUERTO RICO: San Juan, Sept. 6-10. Sec., Dr. Luis Cueto Coll, Box 3717, Santurce.

RHODE ISLAND: * *Examination.* Providence, July 7-8. Chief, Mr. Thomas B. Casey, 366 State Office Bldg., Providence.

SOUTH CAROLINA: *Examination.* Columbia, June 27-29. *Endorsement.* Columbia, June 27-28, Aug. 1, Sept. 5 and Oct. 3. Sec., Dr. N. B. Heyward, 1329 Blanding St., Columbia.

SOUTH DAKOTA: * *Examination.* Pierre, July 19. Sec., Dr. G. J. Van Heuvelen, Capitol Bldg., Pierre.

TEXAS: *Examination.* Austin, June 16-18. Sec., Dr. M. H. Crabb, 209 Medical Arts Bldg., Fort Worth 2.

UTAH: *Examination.* Salt Lake City, July 13-15. Sec., Dept. of Registration, Miss Rena B. Loomis, 324 State Capitol Bldg., Salt Lake City.

VERMONT: Burlington, June 21-23. Sec., Dr. F. J. Lawliss, Richford.

VIRGINIA: *Examination.* Richmond, June 17-18. *Reciprocity.* Richmond, June 16. Dr. K. D. Graves, 631 First St., S.W., Roanoke.

WASHINGTON: * Seattle, July. Sec., Mr. Edward C. Dobm, Department of Licenses, Olympia.

WISCONSIN: * *Examination.* Milwaukee, June 28-30. Sec., Dr. C. A. Dawson, Tremont Bldg., River Falls.

WYOMING: Cheyenne, June 20. Sec., Dr. Franklin D. Yoder, Capitol Bldg., Cheyenne.

* Basic Science Certificate required.

BOARDS OF EXAMINERS IN THE BASIC SCIENCES

ALASKA: Feb. 1950. Sec., Dr. C. Earl Albrecht, Box 1931, Juneau.

ARIZONA: Tucson, June 21. Sec., Mr. Francis A. Roy, Science Hall, University of Arizona, Tucson.

COLORADO: *Examination.* Denver, June 1-2. Sec., Dr. Esther B. Starks, 1459 Ogden St., Denver.

CONNECTICUT: New Haven, June 11. Exec. Asst., State Board of Healing Arts, Miss Mary G. Reynolds, 110 Whitney Ave., New Haven 10.

FLORIDA: *Examination.* Gainesville, June 11. Sec., Mr. M. W. Emmel, University of Florida, Gainesville.

MICHIGAN: *Examination.* Detroit and Ann Arbor, Oct. 14-15. Sec., Miss Eloise LeBeau, 101 N. Walnut St., Lansing 15.

MINNESOTA: Minneapolis, June 7-8. Sec., Dr. Raymond N. Bieter, 105 Millard Hall, University of Minnesota, Minneapolis.

OREGON: Portland, June 18, Sept. 3 and Dec. 3. Sec., Mr. Charles D. Byrne, State Board of Higher Education, Eugene.

TENNESSEE: Memphis, July 8-9. Sec., Dr. O. W. Hyman, 874 Union Ave., Memphis 3.

WISCONSIN: Milwaukee, Sept. 24 and Dec. 3. Sec., Prof. W. H. Barber, Ripon College, Ripon.

Bureau of Legal Medicine and Legislation

MEDICOLEGAL ABSTRACTS

Workmen's Compensation Acts: Patient not Personally Liable for Medical Fees.—In two recent cases the Supreme Court of North Carolina had occasion to consider the right of a physician to recover a fee directly from his patient when the patient is injured during the course of his regular employment.

In the case of *Worley v. Pipes* the plaintiff filed suit to recover a sum alleged to be due him from the defendant for medical services rendered following an accidental injury. From a judgment in favor of the plaintiff physician, the defendant appealed to the Supreme Court of North Carolina.

The defendant was injured by an accident arising out of his employment with a motor transport company, which company was subject to the provisions of the state workmen's compensation law. He accordingly went to his family physician, the plaintiff, for medical care and the plaintiff undertook to treat, and did successfully treat, the defendant for his injuries. At the time the medical services were rendered, neither the plaintiff nor the defendant knew that the case was compensable under the workmen's compensation law. The reasonable value of the services rendered by the plaintiff was \$44, and the defendant made a token payment of \$5 and impliedly agreed to pay the balance. Subsequently, the defendant, at his employer's suggestion, filed a claim under the workmen's compensation law and the Industrial Commission awarded him compensation, including the sum of \$13.50 for medical services. When the defendant refused to pay the balance of \$25.50, the present suit was filed.

The workmen's compensation law (General Statutes, section 97-90) provides:

(a) Fees for attorneys and physicians and charges of hospitals for services under this article shall be subject to the approval of the Commission;

(b) Any person (1) who receives any fee, other consideration, or any gratuity on account of services so rendered, unless such consideration gratuity is approved by the Commission or such court, . . . shall be guilty of a misdemeanor, and upon conviction thereof, for each offense, be punished by a fine of not more than \$500.00 or by imprisonment not to exceed one year, or by both such fine and imprisonment.

The defendant therefore contended that he did not owe anything personally because the foregoing section prohibited the payment of any fee not approved by the Industrial Commission. The plaintiff contended that if such is the effect of the foregoing provision then it is unconstitutional as being arbitrary, unreasonable and class legislation.

In addition to payment of compensation for an accidental injury arising out of and in the course of the employment, the workmen's compensation act provides that "medical, surgical, hospital and other treatment . . . shall be provided by the employer." The employer's liability for such medical, surgical, hospital service or other treatment required, when ordered by the Commission, shall, according to the act, be limited to such charges as prevail in the community for similar treatment of injured persons of a like standard of living when such treatment is paid for by the injured person. The act also provides that if the employer and injured employee failed to reach an agreement in regard to compensation, either party may make application to the Industrial Commission for a hearing in regard to the matters at issue and for a ruling therein, upon receipt of which application the Commission shall set a date for, and give notice of hearing. The Commission or any of its members shall then hear the matters at issue, determine the dispute, and make an award. There may be a review of the award by the full Commission, the superior court and the Supreme Court. Thus it is seen, said the Supreme Court, that the General Assembly has prescribed an adequate remedy by which any matter in dispute may be determined and settled.

The plaintiff makes it appear by his pleadings that the parties were subject to the workmen's compensation act and that he

submitted his bill to the Industrial Commission and received approval for less than the full amount. It does not appear, however, that he asked for any hearings before the Commission or that he appealed the Commission's ruling. Under such circumstances, said the Supreme Court, the plaintiff is bound by the provisions of the act. Since the act provides that fees for physicians shall be subject to the approval of the Commission, and makes it a misdemeanor for anyone to receive any fee for services so rendered unless it be approved by the Commission, any promise made by the defendant-employee, to pay plaintiff the balance due on his account, is unenforceable and void. Consequently the trial court erred in finding for the plaintiff and the judgment in his favor was accordingly reversed.

In the case of *Matros v. Owen*, the plaintiff filed suit to recover a sum alleged to be due him from the defendant for medical services rendered following an accidental injury. From a judgment in favor of the plaintiff-physician, the defendant appealed to the Supreme Court of North Carolina.

The defendant was injured by an accident arising out of his employment as a mechanic for a company which was subject to the workmen's compensation law. The employer, thinking the injury was compensable under such law, directed the defendant to go to the plaintiff-physician for medical services. The reasonable value of the services rendered by the plaintiff was \$25 and a bill in this amount was filed with the employer. Subsequently the employer and his insurance carrier denied liability, so the physician filed suit against the patient to recover the fee from him.

In addition to raising the same defense as was raised in *Worley v. Pipes*, the defendant contended that notwithstanding the fact that the employer denied liability and refused to pay for medical treatment required by the defendant he, the defendant, who was not liable for such charges because the statute requires the employer to furnish medical attention even though the defendant was not entitled to compensation for the injury.

It does not appear, said the Supreme Court, that either party applied to the North Carolina Industrial Commission for a hearing in regard to the matter at issue and for a ruling thereon, as provided for in the workmen's compensation act, even though the plaintiff alleged and the court found that the parties were subject to, and had accepted the provisions of, such law. The remedy open to the defendant and to the plaintiff in respect to his bill for services rendered, said the Supreme Court, was to make application to the Industrial Commission and have it consider for approval the plaintiff's bill in the light of the provisions in the act. If the applicant be dissatisfied with the ruling of the Industrial Commission an appeal may be taken pursuant to the provisions therein stated. Under the facts alleged, the defendant is not indebted to the plaintiff for the services rendered, concluded the Supreme Court, and the judgment of the trial court in favor of the plaintiff was therefore reversed. *Worley v. Pipes*, 50 S. E. (2d) 504 (North Carolina, 1948), *Matros v. Owen*, 50 S. E. (2d) 509 (North Carolina, 1948).

Medical Motion Pictures

REVISED EDITION OF MOTION PICTURE REVIEWS NOW AVAILABLE

The Committee on Medical Motion Pictures has completed the first revised edition of the booklet entitled "Reviews of Medical Motion Pictures." It now contains all the film reviews published in *THE JOURNAL*, to Jan. 1, 1949. It also includes a classified table of contents as well as a list of motion pictures available through the Motion Picture Library, American Medical Association.

The purpose of the reviews is to provide a brief description and evaluation of motion pictures which are available to the medical profession. Each film is reviewed by competent authorities.

One copy has been mailed to the secretary of each county and state medical society. Additional copies are available on request from: Committee on Medical Motion Pictures, American Medical Association, 535 North Dearborn Street, Chicago 10.

Current Medical Literature

AMERICAN

The Association library lends periodicals to members of the Association and to individual subscribers in continental United States and Canada for a period of three days. Three journals may be borrowed at a time. Periodicals are available from 1938 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 18 cents if three periodicals are requested). Periodicals published by the American Medical Association are not available for lending but can be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

Alabama State Medical Assn. Journal, Montgomery 18:177-208 (Jan.) 1949

Program for Prevention of Deafness: First Year's Results at the Medical College of Alabama. G. E. Fisher and F. S. Moody.—p. 177.
Human Anaphylaxis: Report of Case Due to Sulfathiazole Sensitivity. C. R. Simmons.—p. 183.

Annals of Surgery, Philadelphia 129:1-160 (Jan.) 1949

Response to Parenteral Glucose of Normal Kidneys and of Kidneys of Postoperative Patients. D. R. Cooper, Vivian Job and F. A. Collier.—p. 1.
*Appraisal of Oral Streptomycin as Intestinal Antiseptic, with Observations on Rapid Development of Resistance of *E. Coli* to Streptomycin. J. S. Lockwood, A. D. Young, McL. Bouchelle and others.—p. 14.
*Importance of Level of Lesion in Prognosis and Treatment of Carcinoma of Rectum and Low Sigmoid Colon. J. M. Waugh and J. W. Kirklin.—p. 22.
Malignant Tumors of Colon and Rectum. R. W. Postlethwait.—p. 34.
Management of Massive Gastroduodenal Hemorrhage. F. H. Amendola.—p. 47.
Experimental Study of Antiperistaltic Jejunal Loops. H. E. Pearse, M. Radakovich and C. L. Cogbill.—p. 57.
Sympathectomy in Peripheral Arteriosclerosis. E. E. Jemerin.—p. 65.
Tissue Reaction to Plastic Used in Surgery with Special Reference to Teflon. H. H. LeVeen and J. R. Barberio.—p. 74.
Experimental Pulmonary Collapse. J. L. Southworth.—p. 85.
Streptomycin in Surgical Infections. VII. Nonpulmonary Tuberculosis (Lymph Nodes, Urinary Tract, Bone, and Peritoneum). E. J. Pulaski, J. F. Connell Jr., A. Kowalczyk and S. F. Seeley.—p. 90.
Surgical Repair of Lacerations and Fistulas of Parotid Duct. H. A. Bailey and V. Skaff.—p. 103.
Acute Diverticulitis of Cecum: Report of 3 Cases Diagnosed Preoperatively as Acute Appendicitis. F. C. Henry.—p. 109.
Use of Full Thickness Skin Grafts in Repair of Large Herniae. R. J. Chodoff.—p. 119.
Primary Splenic Neutropenia: Specific Indication for Splenectomy: Report of Case. L. T. Palumbo.—p. 131.
Unusual Metastatic Manifestations of Breast Carcinoma: III. Metastatic Involvement of Precaricular Lymph Nodes and Parotid Gland. Report of 5 Cases. J. B. Herrmann and F. E. Adair.—p. 137.
Bridging of Esophageal Defect by Pedicled Flap of Lung Tissue. R. Nissen.—p. 142.
Rupture of Subphrenic Abscess into Pericardium. N. C. Meyer.—p. 148.
Intraparotid Sebaceous Glands. C. M. Lee Jr.—p. 152.
Certain Anatomic Factors Related to Pathogenesis of Hemorrhoids: The Author's "Obliterative Suture" in Treatment of Small and Middle-Sized Internal Hemorrhoids. H. J. Fournier.—p. 156.

Oral Streptomycin as Intestinal Antiseptic.—Lockwood and his associates discuss the conflicting nature of reports on the oral administration of streptomycin in preparation for surgical treatment. They report 24 patients so treated and describe the methods used to obtain serial colony counts on the three groups of organisms studied, the coliform group, the streptococcus and the clostridia. Results obtained were inconsistent. Approximately half of the patients treated showed no response in the coliform group to orally administered streptomycin. About seven eighths of the patients showed no significant reduction in the number of streptococci present in the stool, and nearly two fifths of the cases showed no significant reduction in the number of clostridia present in the stool. Sensitivity titrations on the *Escherichia coli* group showed rapid development of resistance to streptomycin and brought out the fact that many strains of *E. coli* become able to proliferate in the concentrations of streptomycin which exist in feces. In a series of 9 cases in which treatment was with combined streptomycin and phthalylsulfathiazole results were also inconsistent. The authors conclude that the effect of orally administered streptomycin is unpredictable and unreliable, and its use in the preoperative preparation of surgical cases is not to be recommended.

Prognostic Location of Carcinoma of Rectum.—According to Waugh and Kirklin, the determination of truly comparable survival rates in patients undergoing combined abdominoperineal resection, and in those undergoing the other procedures which have arisen to challenge it, is not simple. The histologic grade of the lesion and its extent are factors which must be studied, but the location of the lesion, with respect to its distance from the anal margin, may also be important. The authors studied the effect of the level of the lesion on the prognosis in carcinoma of the rectum and the lower part of the sigmoid colon on 388 cases from the Mayo Clinic. It appeared that those patients whose lesions lie within approximately 5 cm. of the anal margin have a poorer prognosis than those whose lesions lie above this level. In order to obtain a more homogeneous group for analysis, the 248 cases in which the lesions showed grade 2 (Broders) malignancy were analyzed. These data show the same general trend as those of the entire group, but the differences are more clearcut. Patients whose lesions were within 5 cm. of the anal margin had a poorer prognosis than those with lesions lying higher up, and those with lesions lying 6 to 10 cm. removed from the anal margin had a poorer prognosis than those with lesions 11 cm. or more removed from this point. Considering only lesions with nodal involvement, a location 11 cm. or more removed from the anal margin allowed a much more favorable prognosis than did a lower location. The authors consider it unlikely that there is any inherent variation in the malignancy of adenocarcinomas at varying levels of the bowel and suggest that lateral spread beyond the line of resection carried out by the combined abdominoperineal operation is the probable explanation for the inferior prognosis in patients with lesions lying within 6 cm. of the anal margin.

Bulletin New York Academy of Medicine, New York 25:1-62 (Jan.) 1949

Use of Antiepileptic Drugs. H. H. Merritt.—p. 5.
Present Status of Liver Function Tests Including Observations on Newer Flocculation Procedures. M. Bruger and E. Oppenheim.—p. 16.
Review of Studies on Blood Sugar. E. T. Waters.—p. 32.

Endocrinology, Springfield 44:1-108 (Jan.) 1949

Effect of Androgen and Estrogen on Succinic Dehydrogenase and Cytochrome Oxidase of Rat Prostate and Seminal Vesicle. J. S. Davis, R. K. Meyer and W. H. McShan.—p. 1.
*Observations on Effects of Prepartal and Postpartal Estrogen and Progesterone Treatment on Lactation in Rat. S. M. Walker and J. I. Matthews.—p. 8.
Cholinergic and Adrenergic Components in Neurohumoral Control of Release of LH in Rabbit. C. H. Sawyer, J. E. Markee and B. F. Townsend.—p. 18.
Effects of Testosterone Propionate upon Sexual Libido and Production of Semen and Sperm in Rabbit. P. Cheng and L. E. Casida.—p. 38.
Response of Thyroid Gland in Normal Human Subjects to Administration of Thyrotropin, as Shown by Studies with I^{131} . M. M. Stanley and E. B. Astwood.—p. 49.
Transport of Progesterone in Blood. C. W. Hooker and T. R. Forbes.—p. 61.
Effect of Growth Hormone on Inorganic Phosphorus Levels in Plasma. Choh Hao Li, I. Geschwind and H. M. Evans.—p. 67.

Effect of Estrogen and Progesterone on Lactation.—Walker and Matthews made observations on the effects of antepartum and postpartum administration of estrogens, of progesterone and of combinations of estrone and progesterone on lactation in intact and in ovariectomized rats, using the growth rate of nursing young to indicate the rate of milk secretion. Daily (200 micrograms) treatment with estrone or diethylstilbestrol dipropionate begun on the second day of lactation does not inhibit milk secretion in ovariectomized rats, while moderate daily (5 micrograms and 10 micrograms) injection of estrone inhibits lactation in intact rats, the inhibition appearing ten to twelve days after the beginning of treatment. The inhibition of lactation induced by treatment with still larger dosage (1 mg.) of diethylstilbestrol dipropionate both in intact and in ovariectomized rats was accompanied by loss of weight of the mother and is interpreted as a toxic effect. Antepartum injection of estrone does not prevent the initiation of lactation either in ovariectomized (25 micrograms) or in intact (25 micrograms and 100 micrograms) rats but does produce a delayed depression in intact animals. Daily treatment with progesterone begun

before (2.5 mg.) or after (5 mg.) parturition neither prevents nor inhibits lactation. Simultaneous injection of estrone and progesterone begun before or after parturition does not prevent lactation but does inhibit established lactation after ten to twelve days of treatment. The proliferation of the mammary glands showing inhibition of lactation suggests that stimulation of mammary growth by combined action of estrone and progesterone plays a role in the inhibition of milk secretion in the rat.

Journal of Thoracic Surgery, St. Louis

17:723-866 (Dec.) 1948

- *Decortication of Nonexpandable Postpneumothorax Tuberculous Lung. D. A. Mulvihill and R. Klopstock.—p. 723.
- Vagus Nerve Section in Treatment of Peptic Ulcer: Abdominal Versus Thoracic Approach. J. A. Weinberg, G. W. Campbell and R. B. Voelker.—p. 743.
- Exploratory Thoracotomy in Management of Pleural Empyema. P. W. Sanger.—p. 756.
- *Strangulation of Stomach and Traumatic Diaphragmatic Hernia. D. J. Dugan and P. C. Samson.—p. 771.
- Traumatic Chylothorax: Review of Literature and Report of Case Treated by Mediastinal Ligation of Thoracic Duct. R. S. Lampson.—p. 778.
- Combined Nitrous Oxide, Pentothal Sodium Anesthesia in Thoracic Surgery. W. A. Hudson and W. G. Mackersie.—p. 792.
- Angiographic Study of Form and Function of Remaining Lung After Pneumectomy. H. Neuhof and R. A. Nabatoff.—p. 799.
- Gastric Cyst of Mediastinum. A. A. Ehler and Susanna Atwell.—p. 809.
- Solitary Xanthoma of Lung. H. W. Scott, Jr., A. G. Morrow and T. P. B. Payne.—p. 821.
- Report of Case of Localized Bronchopulmonary Moniliae Successfully Treated by Surgery. A. Hurwitz and R. Yesner.—p. 826.
- Constrictive Pericarditis with Obstruction of Pulmonary Veins. W. Lawrence Jr., W. E. Adams and D. E. Cassels.—p. 832.
- Primary Lymphosarcoma of Lung. H. C. Maier.—p. 841.
- Complete Disruption of Esophagus: Report of Case. J. F. Higginson and O. T. Clagett.—p. 846.

Decortication of Nonexpandable Tuberculous Lung.—Mulvihill and Klopstock reasoned that pulmonary decortication used in the treatment of fibrosing traumatic hemothorax during the war might be applicable to some of the problems of pulmonary tuberculosis. They present the case material on the early results of an attempt to apply the basic principles of pulmonary decortication to postpneumothorax nonexpandable tuberculous lung. The indication for decortication in the first case was obliteration of the pleural dead space resulting from a postpneumothorax nonexpandable lung and its accompanying recurrent effusions. It was hoped that this would avoid a multiple stage deforming thoracoplasty. The result to date has been most satisfactory. In the second patient the object of decortication and reexpansion was to achieve sufficient increase in functional capacity to permit a permanent collapsing operation urgently indicated for cavity closure on the contralateral side. The procedure was successful. In the third patient obliteration of the right pleural space after artificial pneumothorax of fourteen years was achieved. The patient was relieved completely of symptoms of tension and dyspnea and stated that breathing was easier. He was relieved of the necessity of periodic refills and thoracenteses for recurrent fluid. He has been able to work at his profession as a commercial artist. The fourth patient presented a classical indication for decortication of a nonexpandable lung. The tuberculous process seemed to have been arrested for over seven years. The cause of the nonexpandability seemed to be chiefly the constricting fibrous coating of the pleura due to the chronic pneumothorax. The successful surgical reexpansion spared the patient an extensive thoracoplasty. The fifth case in this series represents a failure which was probably due to severe parenchymal fibrosis of the collapsed lung. So far there has been no clinical or roentgen evidence of reopening of cavities or reactivation of tuberculosis in the reexpanded lungs. Pulmonary decortication appears to be a useful procedure for dealing with the postpneumothorax nonexpandable lung.

Strangulation of Stomach and Diaphragmatic Hernia.—Dugan and Samson report 2 cases of traumatic diaphragmatic hernia with acute strangulation of the stomach. In both instances the diagnosis was made preoperatively, surgical treatment was performed transthoracically, the stomach was the only abdominal viscus involved and successful repair was obtained. Both cases occurred in young men in the military service, and occurred after dietary indiscretion. In neither patient had the diagnosis of hernia been made prior to the acute illness. A

review of the literature revealed 4 similar cases with a mortality of 75 per cent. The authors conclude that all traumatic diaphragmatic hernias should be repaired as soon as the diagnosis is made and certainly before signs of obstruction occur. The transthoracic approach is the method of choice in the repair of hernias of this type.

Maine Medical Association Journal, Portland

39:339-384 (Dec.) 1948

- *Boric Acid—Poison. A. W. Fellows, J. S. Campbell and R. C. Wadsworth.—p. 339.
- Pathology and Therapy of Frost-Bite. R. C. Wadsworth and B. V. Whitney.—p. 345.
- Electroshock Therapy: Survey of 171 Cases Treated in Private Practice. A. P. Stebbins.—p. 351.
- Unusual Case of Foreign Body. J. E. Whitworth.—p. 356.
- *Ephedrine and Nocturia. M. A. Vickers.—p. 358.
- Less Sodium and More Water. W. B. Manter.—p. 359.
- Carcinoma of Prostate Today. J. Memmelar.—p. 361.
- Treatment of Postoperative Pulmonary Atelectasis. C. S. Dwyer and H. J. Crocker.—p. 362.

Boric Acid, a Poison.—Fellows and his associates say that in the past two years at the Eastern Maine General Hospital 3 deaths have occurred in which boric acid poisoning had been suspected. In the first case chemical analyses of the tissues obtained at autopsy failed to reveal the presence of boric acid or other compound of boron. In the second case small amounts of boric acid were recovered from the brain and liver. In the third case large amounts of boric acid were recovered from both the brain and liver. Boric acid is ineffective as a bacteriostatic and bacteriocidal agent. The manifestations of boric acid poisoning are erythema of the skin followed by exfoliative dermatitis, exfoliative ileitis, hemorrhagic papillary edema of the bladder mucosa and degenerative changes in the central nervous system. Large doses of boric acid produce a severe state of shock. The authors are of the opinion that boric acid should be recognized as a dangerous poison and eliminated from the Pharmacopoeia.

Ephedrine and Nocturia.—Vickers stresses that in male patients with nocturia caution is necessary in the use of ephedrine. These patients should be forewarned that they should stop this medicine in the event of an increase in nocturia. The author cites several cases to illustrate this; when the ephedrine was withdrawn from these patients their nocturia returned to its previous status.

New England Journal of Medicine, Boston

239:1021-1060 (Dec. 30) 1948

- Early Neurosyphilis. I. Kopp.—p. 1021.
- Hospital and Health-Center Facilities in Massachusetts. The Massachusetts State Plan for Administration of Public Law 725 (Hospital Survey and Construction Act). V. A. Getting, A. D. Rubenstein and Claire F. Ryder.—p. 1028.
- *Pneumococcal Pneumonia Treated with Aqueous Penicillin at Twelve-Hour Intervals. P. A. Tumulty and G. Zubrod.—p. 1033.
- *Use of Testosterone in Treatment of Depressions. M. D. Altschule and K. J. Tillotson.—p. 1036.
- Pollen Sensitivity in 100 Asthmatic Children. L. W. Hill.—p. 1039.
- BAL (Concluded). R. V. Randall and A. O. Seeler.—p. 1040.
- Chronic Rheumatoid Arthritis, Amyloidosis of Liver, Spleen, Kidneys and Adrenal Glands. Pericarditis, Acute Fibrinous, Probably Uremic.—p. 1047.
- Coronary Thrombosis with Myocardial Infarction. Multiple, Massive Pulmonary Infarcts.—p. 1051.

Aqueous Penicillin at Twelve Hour Intervals in Pneumonia.—Tumulty and Zubrod report observations on patients with pneumococcal lobar pneumonia. Among these were 79 who were treated with aqueous penicillin G solution given intramuscularly every twelve hours, 69 received aqueous solution of penicillin intramuscularly every three hours and 58 were given penicillin in oil and beeswax. The patients who were treated with aqueous penicillin G solution, 300,000 units intramuscularly every twelve hours, fared as well as those on the usual schedules of administration. The authors regard the intramuscular administration of 300,000 units of aqueous penicillin G solution every twelve hours as the treatment of choice for pneumococcal lobar pneumonia.

Testosterone in Treatment of Depressions.—Altschule and Tillotson say that the injection of testosterone has been known to cause remission in male patients with depressions. The rationale for this treatment in the past has been that of

a replacement therapy in men past middle life. The fact that small doses are ineffective should have suggested the inadequacy of this concept. Some of the effects of the injection of steroid hormones resemble those caused by electroconvulsive therapy; these include fall in the plasma protein level, decrease in lymphocytes, reduction in eosinophil count, increased diuretic response to water and evidence of extracellular retention of water and sodium. The administration of desoxycorticosterone and of progesterone having failed to cause remission of mental symptoms, it was decided to use testosterone; all three of the hormones mentioned have the effect of causing salt and water retention, but only the last has an additional marked anabolic action. Thirty-one patients with the depressed phase of the manic-depressive psychosis, with involutional psychoses with depression, with reactive depressions and, in 1 case, schizophrenia with a strong depressive component were given testosterone intramuscularly in doses of 50 mg. daily for two or three weeks. The administration of testosterone in large doses was followed by remission of mental symptoms in all types of depression. The hormone acts apparently not as a specific sex hormone but as a substance with strong anabolic effects. In some patients the effects of electroshock and of testosterone are interchangeable, a phenomenon that suggests that the favorable effects of electroshock therapy are reparative and not destructive.

New York State Journal of Medicine, New York

49:1-112 (Jan. 1) 1949

- *Bacterial Filtrates and Autogenous Vaccines in Treatment of Chronic Sinus Disease and Other Chronic Respiratory Affections: Preliminary Report. H. M. Kinghorn, G. E. Wilson and M. Dworski.—p. 41.
- Blood Pressure Reaction of Patients Undergoing Eye Operations Under Local Anesthesia. W. G. Frey.—p. 46.
- Reconstruction of Thumb. W. C. Graham and D. Riordan.—p. 49.
- The Physician and Detection of Presymptomatic Cancer. S. W. Westing.—p. 51.
- *Relief of Peripheral Vascular Pain and Angiospasm by Interlaminar Rhizotomy. J. H. Siris and J. W. Kahn.—p. 55.
- New Ways of Influencing Intraocular Pressure. F. W. Stocker.—p. 58.
- Physical and Roentgenologic Findings in Early Diagnosis of Nonopaque Foreign Bodies of Bronchial Tract. A. Q. Penta.—p. 64.
- Present Status of Fenestration Operation. J. M. Smith.—p. 69.
- Tuberculous Fistula. L. S. Knapp.—p. 73.

Treatment of Respiratory Diseases.—Kinghorn and his co-workers administered autogenous bacterial filtrates and vaccines to 47 patients with various chronic respiratory conditions. Twenty-three of these patients had lung disease and 24 had chronic nasal and accessory sinus troubles. Of the 23 patients with lung disease, 1 had bronchiectasis, 2 had chronic allergic bronchitis and 20 had far-advanced pulmonary tuberculosis. The patients were given the vaccines and bacterial filtrates intracutaneously into the forearm, vaccine into one arm and bacterial filtrate into the other, and with each successive dose alternating from one to the other arm. The injections should begin with small doses, 0.05 cc. of both bacterial filtrate and vaccine, and each week the doses can be increased by 0.05 cc. until 1 cc. of each preparation is reached. The first dose of 0.05 cc. vaccine should contain approximately 200,000,000 organisms. Injections should be given once a week, and treatment continued from four to six months. To the patients with chronic sinus diseases the bacterial filtrate solutions were also put directly into the sinuses when necessary and were always applied directly on swabs into the middle nares. The patient with bronchiectasis did not improve. The 2 patients with chronic allergic bronchitis improved, and 6 of the 20 patients with far-advanced pulmonary tuberculosis improved. Of the 16 patients with sinus disease, 6 were cured, 13 were improved or cured and 3 were failures. All the 8 patients with chronic nasal catarrh were improved and 3 of them were cured. *Staphylococcus aureus* was present in all 24 patients with sinus diseases and chronic nasal catarrh. Follow-up for one to thirteen years of the 20 patients with pulmonary tuberculosis revealed that of the 6 who improved 4 are living and well. One other patient is dead. One other has improved but is still under treatment. Of the 14 patients who did not improve with this treatment, 6 are living and 8 are dead.

Relief of Peripheral Vascular Pain.—Siris and Kahn treated 2 men aged 60 and 46, with intractable peripheral vascular pain, by interlaminar rhizotomy. A spinal anesthesia vasomotor test performed on the first patient three months

before the rhizotomy showed definite evidence of organic vascular occlusive disease involving both lower extremities, more pronounced on the right side. A right lumbar sympathectomy with excision of the second and third lumbar ganglions relieved the radiating pain in the limb, but severe pain still persisted in the right first toe about the site of a gangrenous process in the ungual region. Because of the persistence of pain a posterior rhizotomy of the right fourth and fifth lumbar roots was carried out. Following intervention the pain was appreciably less. Two months after the operation healing of the great toe was noted. Apart from a slight weakness of dorsiflexion of the right foot no demonstrable limitation of motor power was observed. The second patient presented decided edema of the right foot, ankle and lower leg. A dry gangrenous plaque was present on the plantar surface of the first right toe and an infected gangrenous fissure at the base of the right fifth toe. Paravertebral sympathetic block at the first to fourth lumbar vertebrae was carried out on three occasions with immediate but only temporary relief. To effect permanent relief of the patient's pain the posterior roots of the fifth lumbar and the first sacral nerves on the right side were sectioned under spinal anesthesia. This resulted in considerable relief of the pain in the patient's toes, associated with hypesthesia corresponding to the dermatomes of the sectioned roots. There was no evidence of foot drop or other motor weakness. Three months after the operation the patient was able to resume his work as a car washer in a garage without pain or discomfort in the foot. It was felt that the procedure possibly spared each of these patients an amputation. It appears that relief of angiospasm in these cases, apart from the associated relief of pain, is attributable to abolition of the vasospastic reflex evoked by the pain factor.

Public Health Reports, Washington, D. C.

64:1-40 (Jan. 7) 1949

- *Tuberculosis Control Program of Nine California Mental Institutions: Results of Initial Chest X-Ray Survey. W. R. Oechsli.—p. 4.
- *Tuberculin, Coccidioidin, and Histoplasmin Sensitivity in Relation to Pulmonary Calcifications: Survey Among 6,000 Students at University of Chicago. W. G. Beadenkopf, C. G. Loosli, H. Lack and others.—p. 17.

Tuberculosis in Mental Institutions.—According to Oechsli, roentgen survey of general hospital patients is recognized as a productive field for tuberculosis case finding; mental institutions provide an even more productive field of investigation. A tuberculosis death rate of over 600 per 100,000 resident population in seven California hospitals for the mentally ill, and a death rate of nearly 400 per 100,000 resident population in two institutions for the mentally defective indicated the same need in California as in other states for an effective program of case finding and tuberculosis control. A prevalence of 8.25 per cent of previously unsuspected reinfection type pulmonary tuberculosis was discovered among 25,914 patients in seven mental hospitals. Prevalence of tuberculosis was higher among patients with dementia precox than among those with other mental conditions. This is probably because patients with dementia precox stay in the hospital longer and therefore have greater opportunity for exposure. A program of segregation was put into effect. All patients with active pulmonary disease were segregated; also, some of the patients with questionably active or potentially communicable disease. Patients with inactive disease were left on nontuberculous wards but checked periodically by roentgen ray. Among employees of mental hospitals there was a prevalence of 2.7 per cent pulmonary tuberculosis. The prevalence of reinfection type pulmonary tuberculosis in two institutions for the mentally defective was 1.2 per cent, much lower than among mentally ill patients. This difference is attributed to the younger age at which the mentally defective are admitted. Among employees in institutions for mentally defective persons the prevalence was 1.4 per cent.

Tuberculin, Coccidioidin and Histoplasmin Sensitivity in Relation to Pulmonary Calcifications.—Beadenkopf and his associates say that in view of the evidence that histoplasmosis and coccidioidomycosis may be etiologically associated with pulmonary calcification these antigens were included among the skin tests given as part of the tuberculosis control program

at the University of Chicago. Only 30 per cent of the students enrolled come from Chicago and vicinity; the greater number are drawn from practically all parts of the United States, and several hundred are from foreign countries. The present report is based on the study of 6,000 students registered at the University from January 1 to October 1947. This study on a population of diverse origin confirms the results of other recent surveys. It was found that (1) the prevalence of tuberculin sensitivity progressively increased from 10 per cent among the youngest age group to 57 per cent among those 50 years of age; (2) the rate of histoplasmin sensitivity began at 10 per cent among the youngest group and reached 38 per cent in the oldest group; (3) pulmonary calcifications were associated with histoplasmin sensitivity twice as frequently as they were with tuberculin sensitivity, and (4) the prevalence of both histoplasmin sensitivity and pulmonary calcifications was highest in the Lower Mississippi Basin of the United States.

Quarterly J. of Studies on Alcohol, New Haven, Conn.

9:329-514 (Dec.) 1948

- Alcohol Tolerance in Individuals with Chronic Producer-Gas Intoxication.* K. Björver and L. Goldberg.—p. 329.
 **Motivational Pattern of Drinking: Based on Verbal Responses of Cross-Section Sample of Users of Alcoholic Beverages.* J. W. Riley Jr., C. F. Marden and Marcia Lifshitz.—p. 353.
Importance of Cooperation of Physicians in Attack on Alcoholism. J. A. Höjer.—p. 363.
Proposal of Swedish Government Committee for Reform of Care of Inebriates. D. Wiklund.—p. 372.
Ancient Experience with Intoxicating Drinks: Non-Classical Peoples. A. P. McKinlay.—p. 388.

Motivational Pattern of Drinking.—Riley and his associates say that as a result of a nationwide survey of public attitudes concerning the drinking of alcoholic beverages data were acquired which support three hypotheses related to motivation for drinking. In the first place, they suggest the feasibility of applying standard analytic procedures to this aspect of the problem of consumption of alcoholic beverages. Secondly, the data lend powerful support to the hypothesis that drinking is as directly motivated by the influence of social pressures as it is by acquired inner drives. Thirdly, the relative weight of external social pressures versus inner acquired drives varies widely between different classes of drinkers. Direct social pressure is much more influential in motivating the drinking of women compared with men; the young compared with the old, and the occasional or infrequent compared with regular drinkers. On the other hand, regular drinkers tend to state that their reasons for drinking lie more within themselves than in the pressures from the group. Discussing the question of prevention, the authors cite among others an admonition emphasized by the National Committee for Education on Alcoholism; "Never insist on any one taking a drink." The effect of instituting such a small change in fashion, for example, as the serving of both alcoholic and nonalcoholic beverages at gatherings, and in such a manner that either choice seems appropriate might be far reaching. Certainly for the alcoholic addict who has regained his sobriety it would have significance, for he knows that he must not take one drink. In addition, there are those adults who do not like to drink, or have been ordered not to drink, but "choke it down just to be sociable." Finally, and probably of greatest significance, are the younger persons who have not yet accepted the view that drinking always goes with sociability.

Southern Surgeon, Atlanta, Ga.

14:801-862 (Dec.) 1948

- Experiences with Total Gastrectomy.* H. K. Ransom.—p. 801.
 **Primary Carcinoma of Gallbladder.* L. J. Garipey and L. W. Gardner.—p. 820.
Conservative and Surgical Management of Esophageal Obstruction. G. E. Fisher and J. J. Hicks.—p. 829.
Placenta Previa with Report of 2 Cases. R. Mandt.—p. 841.
Inguinal Hernioplasty: Anatomic Evaluation of Current Methods. W. G. Whitaker Jr.—p. 847.

Primary Carcinoma of the Gallbladder.—The 19 cases of carcinoma of the gallbladder reported by Garipey and Gardner were observed at a Detroit hospital in eight years, when a total of 1,777 operations were done. Thus the surgical inci-

dence of carcinoma of the gallbladder was slightly over 1 per cent. In the gastrointestinal tract only the stomach, colon, rectum and esophagus are more often the site of cancer than is the gallbladder. The etiology of carcinoma of the gallbladder is not clear, but the authors feel that the relationship of cholelithiasis to carcinoma deserves special attention. Sixteen of their 19 patients had calculi in the gallbladder. In other reports the incidence of the concurrence of cancer and stones of the gallbladder varies between 36 and 100 per cent. Cholecystitis is invariably present. Eleven of the 19 patients were in the sixth decade of life, when this type of carcinoma is regarded as most frequent. Fourteen of the patients were women, and other literature reports likewise stress the much higher incidence in women than in men. The correct diagnosis was not made preoperatively in any of the 19 cases. Icterus was present in 13 of the 19 cases. Loss of weight is a significant factor. A primary tumor of the head of the pancreas had been suspected in some of the cases; however, in the majority of instances, a diagnosis of chronic cholecystitis and cholelithiasis was given. The authors treated 13 of their 19 patients by cholecystectomy with or without the removal of the adjacent hepatic beds; 5 were treated by cholecystostomy for drainage, and one advanced neoplastic process was treated by a gastroenterostomy. Five of the 16 patients that could be traced were living from eighteen months to seven years after the operation; 1 patient died three years after the operation, and the remaining ones all died within fifteen months. The 5 in whom hepatic metastases were observed at the time of operation all died in less than eight months. In view of the frequent concurrence of cancer with cholelithiasis, the authors regard prophylactic removal of gallbladders harboring stones as imperative.

Yale Journal of Biology and Medicine, New Haven

21:113-180 (Dec.) 1948

- Electrophysiologic Methodology for Studies in Neuropharmacology.* A. Mauro, A. P. Truant and E. L. McCawley.—p. 113.
Sensitivity of Streptococci to Penicillin G After Exposure to Antibiotic in Vivo. E. Grunberg, C. Unger and D. Eldridge.—p. 121.
 **Some Observations on Liver Function Tests.* G. Klatskin.—p. 127.
Relationship Between pH Tolerance, Virulence, and Proteolytic Enzymes in Bacteria. I. Bacillus Anthracis, J. M. Leise.—p. 145.
Macrocytic Anemia of Pregnancy: Review of Literature and Report of Case Treated with Folic Acid. S. E. Eisenberg.—p. 161.

Hepatic Function Tests.—Klatskin shows that few of the tests employed actually measure normal physiologic functions of the liver. Thus, while changes in the level of serum albumin and bilirubin or in the excretion of galactose may indicate disturbances in normal functions, the excretion of a foreign dye, such as sulfobromophthalein sodium, cannot be regarded as a measure of any of the normal functions of the liver, even though it may reflect abnormalities in them indirectly. Some of the tests measure changes which, while they may disclose the presence of pathologic processes in the liver, do not necessarily imply any abnormality in its functions. Features of the liver which make it peculiarly difficult to study include the multiplicity of its functions, not all of which are equally or simultaneously affected in disease; its tremendous reserve and regenerative power, which permit extensive damage or removal of tissue before any of its functions are disturbed, and the intimate anatomic relationships of its glandular, excretory and vascular components, which make for complex functional disturbances, even when the initial injury is confined to one component. It is not difficult to understand why early attempts to find a single comprehensive test of hepatic function were bound to fail. The recent trend has been toward the use of a battery of tests. Unfortunately, as the number and sensitivity of the tests increase, they become increasingly difficult to interpret. The author discusses the tests that have been in use at Yale University School of Medicine. He reaches the conclusion that hepatic function tests have their greatest value in the diagnosis of subclinical disease of the liver and in following the course of overt disease of the liver. They are of far less value than are the history, physical examination and other clinical data in the differential diagnosis of outspoken disease and are, at best, confirmatory.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

1:1-42 (Jan. 1) 1949

- Clinical and Social Problems of Epilepsy. F. J. Nattrass.—p. 1.
*Antihistamine Drug Treatment of Acute Nephritis. J. Craig, N. S. Clark and J. D. Chalmers.—p. 6.
Cerebral Embolism Following Contusion of Heart. G. Parsons-Smith and D. Williams.—p. 10.
Antihistamine Drugs in Treatment of Nausea and Vomiting Due to Streptomycin. J. R. Bignall and J. Crofton.—p. 13.
Tetany Following Removal of Parathyroid Adenoma with Bone Disease: Finally Alleviated with Calciferol. Nancy S. Conway.—p. 14.
Agglutinin Anti-P in Pregnancy: Report on 2 Cases. I. Dunsford.—p. 15.
Human Louse in Transmission of T. Duttoni in Nature. R. B. Heisch.—p. 17.
Meningococcal Conjunctivitis. J. D. A. Gray and R. A. Lambert.—p. 17.

Antihistamine Drug in Acute Nephritis.—Craig and his co-workers point out that the tendency for acute nephritis to occur at an interval of a week or two after an acute bacterial infection suggests that nephritis may be in the nature of an allergic response to bacterial toxins. The relationship which seems to exist between acute nephritis and some cases of anaphylactoid purpura lends further support to this theory. The authors tested the effect of antihistamine drugs in patients with acute nephritis. They give an account of 8 cases in which they used the antihistamine drug pyranisamine maleate (anthisan,[®] neoantergan maleate[®]). They compare the course of these cases with that of 9 consecutive cases of acute nephritis treated in the same hospital during the period immediately preceding the institution of this treatment. The duration of activity of the disease, as assessed by abnormal findings in the urine, is notably shorter in the cases in which treatment is with pyranisamine maleate than in those of the control group. The antihistamine drug was given in doses of 0.1 Gm. three times a day. The authors have formed no definite opinions on optimum dosage or duration of treatment. In some cases the administration of the drug was stopped when all abnormal signs disappeared; in others it was continued for a further week or two. They feel that since acute nephritis is a disease which may run a variable course, no final evaluation of the described treatment is possible on the basis of the small number of cases.

Guy's Hospital Reports, London

97:1-131 (Nos. 1 and 2) 1948. Partial Index

- *Blalock-Taussig Operation for Morbus Caeruleus. M. Campbell.—p. 1.
Anesthesia for Operations for Relief of Congenital Pulmonary Stenosis. E. H. Rink, P. J. Helliwell and A. M. Hutton.—p. 48.
Four Cases of Polypoid Tumor ("Myxoma") Within Left Auricle of Heart. T. B. Brewin.—p. 64.
Studies in Lung Abscess. R. C. Brock.—p. 75.

Blalock-Taussig Operation for Morbus Caeruleus.—Campbell describes the steps that led to the development of the Blalock-Taussig operation for cyanotic congenital heart disease and says that the fundamental requisite for success is that the cyanosis and disability should be mainly due to an inadequate blood flow to the lungs. The first 18 patients chosen at Guy's Hospital and operated on by Blalock or by Brock are described. The main features on which these patients were selected were persistent cyanosis from infancy with polycythemia and clubbing of the fingers and severe disability on walking. On radioscopy the heart showed little or no general enlargement, though most patients had some enlargement of the right ventricle. Most of them had a systolic murmur in the pulmonary area, often with a slight thrill. All were of normal mental development, but most were under weight. Squatting was noted in four fifths and panting after exertion was nearly as characteristic. The operation was usually an end to side subclavian-pulmonary anastomosis on the side opposite to the aortic arch: this was right-sided in one quarter. The immediate upset caused by the operation is less than might be expected. Three of the 18 died; 1 could not have an anastomosis done, and 1 did not benefit much. The remaining 13 were enormously improved almost at once, and the improvement has been maintained or increased for the three to six months that have elapsed since the operation. The polycythemia disappeared quickly and the

clubbing of the fingers more slowly. Fallot's tetralogy seems the probable diagnosis in about three quarters of the cases of congenital heart disease in which cyanosis dates from birth or early in life. The high mortality without operation justifies the risk involved in the Blalock-Taussig operation. Auricular septal defect (combined with some other defect causing cyanosis from birth or soon after) seems to be the commonest abnormality contraindicating operation. The condition of the pulmonary arterial branches in radioscopy is the most essential part of the examination. In a doubtful case cardiac catheterization and angiocardiology should be decisive.

Journal of Tropical Medicine and Hygiene, London

51:243-262 (Dec.) 1948

- Remarks on Common Ulcers of Leg in Tropics and Subtropics with Description of Tropicaloid Ulcer (Mycetoid Desert Sore). A. Castellani.—p. 245.
Normal Hematological Standards for Nairobi, Kenya. J. I. Roberts.—p. 254.
*Experiments on Standardization and Keeping Properties of Tetanus Antitoxin in the Tropics. R. K. Goyal.—p. 259.

Standardization and Keeping Properties of Tetanus Antitoxin.—Goyal presents studies which indicate that it is

not possible for a drug control laboratory to determine the exact unitage of any sample of tetanus antitoxin, unless a standard toxin or a standard strain of the *Clostridium tetani* is used. It might not be convenient to compel all laboratories and manufacturing concerns throughout the world to use a particular toxigenic strain of *Cl. tetani* for production of toxin; it should, however, be possible to lay down the use of a selected strain by all the manufacturers in India to enable the standardization laboratories to arrive at a reliable and satisfactory figure with regard to the unitage of tetanus antitoxins. The possibility of variation due to the use of a heterologous test toxin for titrating imported tetanus antitoxin cannot be ruled out in the absence of a concerted international agreement about the universal employment of a standard strain for toxin manufacture. Discussing the keeping properties of tetanus antitoxin serums, the author says that manufacturers add an extra unitage at the time of issue of antitoxins to allow for deterioration during storage. It appears that the extra unitage allowed for is not calculated on any scientific basis. The author titrated a number of samples of tetanus antitoxic serums with the same toxin at various intervals. He found that the rate of deterioration is apparently affected by the physical properties of the serum, which are dependent to some extent on the method of concentration. The rate of deterioration of the serum in the case of the enzyme-disaggregated product (RD-244-D) was much less than in serums concentrated by ammonium sulfate. In temperate countries, extra unitage is allowed on the basis of 10 per cent per year deterioration of the serum. On titration of eight samples of antitoxic serums obtained from England and Australia, an extra unitage of 25 per cent to 80 per cent was found. Since in India antitoxin has been noted to deteriorate at the rate of 24 per cent per year, the author believes that Indian manufacturers should add at least 30 per cent extra unitage for each year of storage.

Lancet, London

1:1-46 (Jan. 1) 1949

- Consciousness and Its Disturbances Considered from Neurologic Aspect. J. P. Martin.—p. 1.
Hirschsprung's Disease and Idiopathic Megacolon. M. Bodian, F. D. Stephens and B. C. H. Ward.—p. 6.
*Intravenous Treatment of Anemia with Iron-Sucrose Preparation. H. G. B. Slack and J. G. Wilkinson.—p. 11.
Intravenous Iron in Treatment of Anemia of Pregnancy. A. D. T. Govan and Jean M. Scott.—p. 14.
Response of Infants to Diphtheria Immunization. B. Vahlquist.—p. 16.
Gastric Biopsy: Report on 55 Biopsies Using New Flexible Gastric Biopsy Tube. I. J. Wood, R. K. Doig, R. Motteram and A. Hughes.—p. 18.
Preliminary Trials of Bistrimethylammonium Decane and Pentane Diodide (C10 and C5) in Man. G. Organ, W. D. M. Paton and E. J. Zaimis.—p. 21.

Iron-Sucrose Preparation for Intravenous Use.—Slack and Wilkinson describe a method of preparing an iron-sucrose preparation which contains 2 per cent of elemental iron and which they have given intravenously in repeated doses to over

120 persons. They report on the hematologic responses of the first 60 patients with iron deficiency anemia. About a third of these have been treated with the aforementioned preparation, and the remainder have had another form of iron-sucrose preparation. There has been no detectable difference in tolerance or response in many batches of either of these two preparations. The authors gained the impression that these iron-sucrose preparations are relatively safe and effective vehicles for giving iron parenterally. Reactions, if any, were mild, and only four small local venous thromboses have occurred in over eight hundred injections. The authors conclude that these preparations will be valuable in the treatment of iron deficiency anemia that has proved refractory to iron given by mouth, or of patients who do not tolerate iron by mouth in adequate doses.

Medical Journal of Australia, Sydney

2:733-760 (Dec. 25) 1948. Partial Index

Transuterine Injection of Lipiodol in Treatment of Sterility. R. F. Matters.—p. 740.

Addison's Disease: Report of a Case with Unusual Features and Review of Thirty Cases. A. J. Barnett.—p. 742.

Values for Mineral Content of Serum of Australian Adults. Beryl Splatt.—p. 744.

Hemophilus Influenzae Meningitis in 40 Infants Treated with Sulfonamides, Type-Specific Antiserum and Penicillin at Children's Hospital, Melbourne. Elizabeth K. Turner.—p. 745.

Paris Médical

2:529-540 (Dec. 18) 1948

Gynecology in 1948; Annual Review. R. Palmer.—p. 529.

Clinical Diagnosis of Hormonal Condition of Ovaries. P. Mocquot.—p. 532.

*Metastasis of Cancer of Breast to Ovary. A. Ameline and Y. Chatain.—p. 536.

Ovarian Metastasis.—Ameline and Chatain report 1 case of bilateral ovarian metastasis of cancer of the breast in a woman aged 58. Radical amputation of the breast including dissection of the axilla was performed in March 1945. The patient was followed up to May 1948, when she complained of hypogastric heaviness. In the pelvis two hard, mobile masses were observed on palpation. Laparotomy revealed two enormous ovarian tumors and infiltration of the utero-ovarian pedicles. Low subtotal hysterectomy was performed. Microscopic examination of the specimen revealed ovarian tumors of polymorphous, extremely atypical malignant type with spread of the neoplasm to the uterus associated with uterine endometriosis. In August 1948 the patient's condition was still satisfactory but prognosis highly unfavorable. Total hysterectomy with removal of the adnexa rather than subtotal hysterectomy is the treatment of choice for ovarian metastasis spreading to the uterus. Castration should be performed in all cases of inoperable cancer of the breast, and surgical intervention is to be preferred to radiotherapy. In young women with regular menstruation and operable neoplasm of the breast, oophorectomy should be performed provided that the clinical aspect is suggestive of considerable malignancy. Supportive "hormone" treatment is to be considered as still in the experimental stage.

Prensa Médica Argentina, Buenos Aires

35:2313-2340 (Dec. 3) 1948. Partial Index

*Juxtacardiac Ulcer and Ulcer of Upper Third of Stomach: Surgical Treatment by Kelling-Madlener's Operation. A. Reccius.—p. 2313.

*Clinical Aspects of Cardiovascular Brucellosis. I. Maldonado-Allende.—p. 2323.

Juxtacardiac Ulcer.—Reccius shares Kelling's opinion that a successful surgical treatment of juxtacardiac ulcer, after failure of medical treatment, does not necessarily consist of the removal of the ulcer but of creating favorable local conditions for the healing of the ulcer. The operation which possesses the necessary requirements is the so-called palliative resection of the antropylopic region of the stomach. The author resorted to antropylorectomy by Kelling-Madlener's technic in 24 patients. The operation was performed without touching or cauterizing the ulcer. There were neither postoperative complications nor death. The gastric disorders disappeared rapidly and perma-

nently. Fourteen of the patients were followed up for three to fourteen years. Ten had had the operation in the last two years. The clinical symptoms disappeared in all patients. Repeated roentgen examinations showed disappearance of the niche. The author concludes that palliative resection by Kelling-Madlener's technic is indicated in juxtacardiac ulcer, in ulcer of the upper third of the lesser curvature and in ulcer of the cardiac portion of the stomach. The results of the operation, both immediate and permanent, in all the patients observed by the author were excellent. This operation is to be preferred to a gastroenterostomy.

Clinical Aspects of Cardiovascular Brucellosis.—Maldonado-Allende observed 428 cases of brucellosis in the course of the last five years in patients cared for at the Hospital Argentino de Clínicas and in the Centro Cardiológico Nacional. Brucella lesions of the cardiovascular system were encountered in 55 cases in the group. The cardiovascular disorders were predominantly brucellar in 47 cases. There was chronic brucellosis in 36 cases, acute brucellosis in 6 cases and subacute brucellosis in 6 cases. The following cardiovascular disorders were encountered: branch block in 6 cases, arborization block in 1, auriculoventricular block in 1, subacute coronary insufficiency in 3 and myocardial infarction in 2. Extrasystolic arrhythmia was frequent, being the predominant complaint of 4 patients. There was fibrillation in 2 cases. Aortitis was present in 2. Among the group of patients under 40 years of age arterial hypotension was encountered in 12 and hypertension in 22. Tachycardia was present in all cases of brucellosis, acute or subacute. In chronic forms of the disease with cardiovascular complication tachycardia was so constantly encountered as to be considered of diagnostic value. Auricular paroxysmal tachycardia was present in 1 case. There was constant and pronounced neurocirculatory asthenia in 4 cases. Endocarditis was not present in any case. The author emphasizes the need of directing attention to the brucellar causation of pericarditis in cases of the disease of obscure origin. The pericardium may be involved in a similar manner as the pleural serosa. The involvement of the myocardium, rather than of the endocardium, is the most frequent cardiovascular complication of chronic and acute brucellosis. Reversibility of the cardiovascular symptoms was rare and only temporary. Cardiovascular complications of brucellosis constitute a clinical cardiac form of brucellosis, which calls for diagnosis in cases of cardiovascular disease of unknown etiology.

Presse Médicale, Paris

56:897-908 (Dec. 25) 1948. Partial Index

Value of Respiratory Type as a Secondary Sexual Character in Adults. E. May.—p. 897.

*Place to be Given to Adrenalectomy in Treatment of Arteritis. L. Leger, A. Mathivat and S. Tchekoff.—p. 898.

Volatile Antibiotics; Beta-Antibiotics. W. N. Markoff.—p. 901.

Adrenalectomy for Arteritis.—Leger and his co-workers performed adrenalectomy on 25 patients between the ages of 31 and 64 with arteritis. There was no operative death. No signs of cortical insufficiency were observed in the patients operated on. On the contrary, functional improvement was superior to that obtained by drugs or other surgical interventions. Three-fourth of the 25 patients were followed up for two years. Good results were obtained in 8 patients, medium results in 2 and 3 were failures. Not one of the 13 patients had to undergo post-operative amputation, and even in those with medium results and in the failures there was no progression of the pathologic process and the lesions were stabilized. Although adrenalectomy may not be the method of choice in all cases of arteritis, the results obtained with this method in young and middle-aged patients warrant its employment, particularly in those in whom the gangrenous lesions are little advanced and the arterial involvement still shows a tendency to spasms. Adrenalectomy should not be practiced in cases in which the spasmodic element has given place to organized thrombosis. In patients of advanced aged intervention on the sympathetic nerve should be done first, but in case of failure adrenalectomy may be justified, as in 2 of the author's patients aged 60 and 64 respectively.

Book Notices

A Course in Practical Therapeutics. By Martin Emil Rehfuss, M.D., F.A.C.P., Professor of Clinical Medicine and Sutherland M. Prevost, Lecturer in Therapeutics, The Jefferson Medical College of Philadelphia; F. Kenneth Albrecht, M.D., and Allison Howe Price, A.B., M.D., Asst. Professor of Medicine, The Jefferson Medical College of Philadelphia. Cloth. Price, \$15. Pp. 824, with 70 plates. Williams & Wilkins Co., Mount Royal and Guilford Aves., Baltimore 2, 1948.

This book is an attempt to collate the essential information that has been gathered over a considerable period in teaching departments at the Jefferson Medical College of Philadelphia. It is intended, as the title suggests, to offer discussions on "the entire field of therapeutics in one volume." The contents include chapters on general therapeutic principles, symptomatic therapy, treatment of specific disorders and special treatment. The editors frankly admit "there is undoubtedly much to criticize," but probably the average person who turns to this book will overlook some of the causes for criticism because of some excellent features, such as the inclusion of plates that permit visual understanding of a variety of perplexing problems, such as headache, chronic nephritis, contact dermatitis, acute pancreatitis and brucellosis. The book could be criticized on the grounds that it is not sufficiently critical of some of the measures that are used—for example, vitamin E—but, on the other hand, it does provide details of technics, such as the administration of heparin, which offer useful information often unobtainable in reference books. If this book goes into a second edition it is likely that some of the causes for criticism will be removed, but even in its present form it undoubtedly will be well received by many who like their information presented in succinct and orderly fashion.

A Textbook of Histology. By Alexander A. Maximow and William Bloom, Professor of Anatomy, University of Chicago. Fifth edition. Cloth. Price, \$8.50. Pp. 700, with 562 illustrations. W. B. Saunders Company, 218 W. Washington Sq., Philadelphia 5; 7 Grape St., Shaftesbury Ave., London W.C. 2, 1948.

Previous editions of this textbook of histology have been reviewed in *THE JOURNAL*, and all reviews have been commendatory. The present edition is likewise excellent. The author seems to differ from some other investigators in certain interpretations of histologic and pathologic observations; however, he gives also the point of view of those with whom he may differ. For example, he believes that "the macrophage system" is a more appropriate term than the "reticuloendothelial system," apparently because Metchnikoff was the first to recognize this system of cells, which he called macrophages, as belonging to a single physiologic system and to see clearly the function of these cells in inflammation and immunity. Generally, however, the term reticuloendothelial system as defined by Aschoff has come into more widespread use. The numerous illustrations in this book are outstandingly clear, well selected and informative.

One of the most notable changes in this edition is in the makeup of the book whereby the width of the line of type is only half the width of the lines in the previous edition; that is, each page has two columns instead of being solid as before, and this adds to the ease and speed of reading. A minor oversight in the makeup is the beginning of a paragraph in the last line on the page, which is done in numerous places; for example, pages 87, 111 and 627. This minor point, it seems, could have been readily corrected by a little more supervision of the inters. Another minor oversight appears on page 47, where it is stated that a certain discussion will be found on "page 000." There is no such page in the book.

Study on Vitamin 'P.' Part I: Capillary Permeability and Fragility. Boris Th. Sokoloff, M.D., Ph.D., Associate Director of Research, and James B. Redd, Ph.D., Director, Citrus School, Florida Southern College, Lakeland, Florida. Florida Southern College, Monograph 1. Paper. .39, with 3 illustrations. Florida Southern College, Lakeland, Florida, 19.

This pamphlet presents a discussion of capillary permeability and fragility, and presumably is intended to advance arguments concerning the relation of the so-called vitamin "P" to permeability and fragility of the capillaries.

Education Through Physical Activities: Physical Education and Recreation for Elementary Grades. By Patricia Ruth O'Keefe, Ph.D., Director of Health and Physical Education, and Helen Fahey, A.M., Supervisor of Health and Physical Education, Kansas City, Missouri, Public Schools. Cloth. Price, \$4. Pp. 309, with illustrations. C. V. Mosby Company, 3207 Washington Blvd., St. Louis 3, 1949.

This book presents a program of physical recreation activities which can be included in elementary school physical education. Purposes of a good program, it is pointed out, must extend beyond exercise to include opportunities for social and recreational learnings as well as for improved mental and emotional health. The authors have attempted to show how the program can be developed on a worth while basis in the many varying situations found in American elementary schools. Attention has been given to the fact that available facilities and space will make a difference in the kind of program that can be conducted.

The material is divided into four sections. The first section is devoted to principles of child growth and development as they apply to physical education and the factors involved in selection of activities and program planning and evaluation. The second part details suggested activities for the outdoor program, including methods of organizing and planning informal play periods and classwork in physical education. Section three is devoted to indoor activities, with emphasis on adapting materials of instruction to the existing situation. Suggestions are outlined for using the classrooms, halls and other available spaces for physical education as a temporary expedient when no gymnasium is available. Both indoor and outdoor activities are grouped in two categories on a grade level basis; namely, those for primary children in grades 1, 2 and 3 and those for intermediate children in grades 4, 5 and 6.

It is hoped that the publication of another guide of this kind will be a stimulus to the development of more effective physical education at the elementary school level. Despite the recognition of both the medical and educational professions that the elementary schools offer the most fertile field for developmental activities, the best programs and best prepared teachers are generally found in the secondary schools.

The book is noteworthy in that an effort has been made to present the materials in a way that will be intelligible to the classroom teacher and lay leader of youth groups, as well as the professionally trained physical educator. While the volume will prove of greatest value as a textbook in teacher education and a guide for teachers and school administrators in service, it will also be of interest to school medical advisers and physicians serving on boards of education or on school health committees.

An Introduction to Dermatology. Formerly by Norman Walker, M.D., LL.D., and G. H. Percival, M.D., Ph.D., F.R.C.P.E. Eleventh edition by G. H. Percival, Grant Professor of Dermatology, the University of Edinburgh, Edinburgh. Cloth. Price, \$9. Pp. 349, with 233 illustrations. Williams & Wilkins Co., Mount Royal and Guilford Aves., Baltimore 2, 1947.

This book offers much more than one could expect from the title. Only the author's clear and concise style has made possible the inclusion of such voluminous material, rarely found in books of this size. The anatomic, biologic, embryologic, physiologic, allergic, bacteriologic, pathologic and endocrinologic basis of the various cutaneous manifestations are dextrously woven into a harmonious clinical pattern easy to comprehend. The common dermatoses are fully described; the rarer ones less completely. The illustrations, many of which are colored, are excellent. The book contains a wealth of practical information as to diagnosis and therapy, seldom encountered in one large dermatologic book. The external treatment of cutaneous disorders is thoroughly discussed and illustrated. Emphasis is also placed on the internal treatment of various dermatoses. Especially stimulating and elucidative is the author's classification and delineation of the complex disease eczema, according to the nature of the precipitating factors, into six types, and the subdivision again of one of the groups, infective eczema, into four main types. The book was written primarily for students and beginners in dermatology. General practitioners will find it a most welcome addition to their libraries.

120 persons. They report on the hematologic responses of the first 60 patients with iron deficiency anemia. About a third of these have been treated with the aforementioned preparation, and the remainder have had another form of iron-sucrose preparation. There has been no detectable difference in tolerance or response in many batches of either of these two preparations. The authors gained the impression that these iron-sucrose preparations are relatively safe and effective vehicles for giving iron parenterally. Reactions, if any, were mild, and only four small local venous thromboses have occurred in over eight hundred injections. The authors conclude that these preparations will be valuable in the treatment of iron deficiency anemia that has proved refractory to iron given by mouth, or of patients who do not tolerate iron by mouth in adequate doses.

Medical Journal of Australia, Sydney

2:733-760 (Dec. 25) 1948. Partial Index

Transuterine Injection of Lipiodol in Treatment of Sterility. R. F. Matters.—p. 740.

Addison's Disease: Report of a Case with Unusual Features and Review of Thirty Cases. A. J. Barnett.—p. 742.

Values for Mineral Content of Serum of Australian Adults. Beryl Splatt.—p. 744.

Hemophilus Influenzae Meningitis in 40 Infants Treated with Sulfonamides, Type-Specific Antiserum and Penicillin at Children's Hospital, Melbourne. Elizabeth K. Turner.—p. 745.

Paris Medical

2:529-540 (Dec. 18) 1948

Gynecology in 1948; Annual Review. R. Palmer.—p. 529.

Clinical Diagnosis of Hormonal Condition of Ovaries. P. Mocquot.—p. 532.

*Metastasis of Cancer of Breast to Ovary. A. Ameline and Y. Chatain.—p. 536.

Ovarian Metastasis.—Ameline and Chatain report 1 case of bilateral ovarian metastasis of cancer of the breast in a woman aged 58. Radical amputation of the breast including dissection of the axilla was performed in March 1945. The patient was followed up to May 1948, when she complained of hypogastric heaviness. In the pelvis two hard, mobile masses were observed on palpation. Laparotomy revealed two enormous ovarian tumors and infiltration of the utero-ovarian pedicles. Low subtotal hysterectomy was performed. Microscopic examination of the specimen revealed ovarian tumors of polymorphous, extremely atypical malignant type with spread of the neoplasm to the uterus associated with uterine endometriosis. In August 1948 the patient's condition was still satisfactory but prognosis highly unfavorable. Total hysterectomy with removal of the adnexa rather than subtotal hysterectomy is the treatment of choice for ovarian metastasis spreading to the uterus. Castration should be performed in all cases of inoperable cancer of the breast, and surgical intervention is to be preferred to radiotherapy. In young women with regular menstruation and operable neoplasm of the breast, oophorectomy should be performed provided that the clinical aspect is suggestive of considerable malignancy. Supportive "hormone" treatment is to be considered as still in the experimental stage.

Prensa Médica Argentina, Buenos Aires

35:2313-2340 (Dec. 3) 1948. Partial Index

*Juxtacardiac Ulcer and Ulcer of Upper Third of Stomach: Surgical Treatment by Kelling-Madlener's Operation. A. Reccius.—p. 2313.

*Clinical Aspects of Cardiovascular Brucellosis. I. Maldonado-Allende.—p. 2323.

Juxtacardiac Ulcer.—Reccius shares Kelling's opinion that a successful surgical treatment of juxtacardiac ulcer, after failure of medical treatment, does not necessarily consist of removal of the ulcer but of creating favorable conditions for the healing of the ulcer. The necessary requirements is the presence of the antropylopic region of the stomach to antropylorectomy by Kelling-Madlener's operation was performed with the ulcer. There was a favorable post-operative result. The gastric dis-

section was performed. Fourteen of the patients were followed up for three to fourteen years. Ten had had the operation in the last two years. The clinical symptoms disappeared in all patients. Repeated roentgen examinations showed disappearance of the niche. The author concludes that palliative resection by Kelling-Madlener's technic is indicated in juxtacardiac ulcer, in ulcer of the upper third of the lesser curvature and in ulcer of the cardiac portion of the stomach. The results of the operation, both immediate and permanent, in all the patients observed by the author were excellent. This operation is to be preferred to a gastro-enterostomy.

Clinical Aspects of Cardiovascular Brucellosis.—Maldonado-Allende observed 428 cases of brucellosis in the course of the last five years in patients cared for at the Hospital Argentino de Clínicas and in the Centro Cardiológico Nacional. Brucella lesions of the cardiovascular system were encountered in 55 cases in the group. The cardiovascular disorders were predominantly brucellar in 47 cases. There was chronic brucellosis in 36 cases, acute brucellosis in 6 cases and subacute brucellosis in 6 cases. The following cardiovascular disorders were encountered: branch block in 6 cases, arborization block in 1, auriculoventricular block in 1, subacute coronary insufficiency in 3 and myocardial infarction in 2. Extrasystolic arrhythmia was frequent, being the predominant complaint of 4 patients. There was fibrillation in 2 cases. Aortitis was present in 2. Among the group of patients under 40 years of age arterial hypotension was encountered in 12 and hypertension in 22. Tachycardia was present in all cases of brucellosis, acute or subacute. In chronic forms of the disease with cardiovascular complication tachycardia was so constantly encountered as to be considered of diagnostic value. Auricular paroxysmal tachycardia was present in 1 case. There was constant and pronounced neurocirculatory asthenia in 4 cases. Endocarditis was not present in any case. The author emphasizes the need of directing attention to the brucellar causation of pericarditis in cases of the disease of obscure origin. The pericardium may be involved in a similar manner as the pleural serosa. The involvement of the myocardium, rather than of the endocardium, is the most frequent cardiovascular complication of chronic and acute brucellosis. Reversibility of the cardiovascular symptoms was rare and only temporary. Cardiovascular complications of brucellosis constitute a clinical cardiac form of brucellosis, which calls for diagnosis in cases of cardiovascular disease of unknown etiology.

Presse Médicale, Paris

56:897-908 (Dec. 25) 1948. Partial Index

Value of Respiratory Type as a Secondary Sexual Character in Adults. E. May.—p. 897.

*Place to be Given to Adrenalectomy in Treatment of Arteritis. L. Leger, A. Mathivat and S. Tchekoff.—p. 898.

Volatile Antibiotics; Beta-Antibiotics. W. N. Markoff.—p. 901.

Adrenalectomy for Arteritis.—Leger and his co-workers performed adrenalectomy on 25 patients between the ages of 31 and 64 with arteritis. There was no operative death. No signs of cortical insufficiency were observed in the patients operated on. On the contrary, functional improvement was superior to that obtained by drugs or other surgical interventions. Thirteen of the 25 patients were followed up for two years. Good results were obtained in 8 patients, medium results in 2 and 3 were failures. Not one of the 13 patients had to undergo post-operative amputation, and even in those with medium results and in the failures there was no progression of the pathologic process and the lesions were stabilized. Although adrenalectomy may not be the method of choice in all cases of arteritis, the results obtained with this method in young and middle-aged patients warrant its employment, particularly in those in whom the gangrenous lesions are little advanced and the arterial involvement still shows a tendency to spasms. Adrenalectomy should not be practiced in cases in which the spasmodic element has given place to organized thrombosis. In patients of advanced arteritis, intervention on the sympathetic nerve should be done first, and in case of failure adrenalectomy may be justified, as in 2 of the author's patients aged 60 and 64 respectively.

Book Notices

A Course in Practical Therapeutics. By Martin Emil Rehfuss, M.D., F.A.C.P., Professor of Clinical Medicine and Sutherland M. Prevost Lecturer in Therapeutics, The Jefferson Medical College of Philadelphia; F. Kenneth Albrecht, M.D., and Allison Howe Price, A.B., M.D., Asst. Professor of Medicine, The Jefferson Medical College of Philadelphia. Cloth. Price, \$15. Pp. 824, with 70 plates. Williams & Wilkins Co., Mount Royal and Guilford Aves., Baltimore 2, 1948.

This book is an attempt to collate the essential information that has been gathered over a considerable period in teaching departments at the Jefferson Medical College of Philadelphia. It is intended, as the title suggests, to offer discussions on "the entire field of therapeutics in one volume." The contents include chapters on general therapeutic principles, symptomatic therapy, treatment of specific disorders and special treatment. The editors frankly admit "there is undoubtedly much to criticize," but probably the average person who turns to this book will overlook some of the causes for criticism because of some excellent features, such as the inclusion of plates that permit visual understanding of a variety of perplexing problems, such as headache, chronic nephritis, contact dermatitis, acute pancreatitis and brucellosis. The book could be criticized on the grounds that it is not sufficiently critical of some of the measures that are used—for example, vitamin E—but, on the other hand, it does provide details of technics, such as the administration of heparin, which offer useful information often unobtainable in reference books. If this book goes into a second edition it is likely that some of the causes for criticism will be removed, but even in its present form it undoubtedly will be well received by many who like their information presented in succinct and orderly fashion.

A Textbook of Histology. By Alexander A. Maximow and William Bloom, Professor of Anatomy, University of Chicago. Fifth edition. Cloth. Price, \$8.50. Pp. 700, with 562 illustrations. W. B. Saunders Company, 218 W. Washington Sq., Philadelphia 5; 7 Grape St., Shaftesbury Ave., London W.C. 2, 1948.

Previous editions of this textbook of histology have been reviewed in *THE JOURNAL*, and all reviews have been commendatory. The present edition is likewise excellent. The author seems to differ from some other investigators in certain interpretations of histologic and pathologic observations; however, he gives also the point of view of those with whom he may differ. For example, he believes that "the macrophage system" is a more appropriate term than the "reticuloendothelial system," apparently because Metchnikoff was the first to recognize this system of cells, which he called macrophages, as belonging to a single physiologic system and to see clearly the function of these cells in inflammation and immunity. Generally, however, the term reticuloendothelial system as defined by Aschoff has come into more widespread use. The numerous illustrations in this book are outstandingly clear, well selected and informative.

One of the most notable changes in this edition is in the makeup of the book whereby the width of the line of type is only half the width of the lines in the previous edition; that is, each page has two columns instead of being solid as before, and this adds to the ease and speed of reading. A minor oversight in the makeup is the beginning of a paragraph in the last line on the page, which is done in numerous places; for example, pages 87, 111 and 627. This minor point, it seems, could have been readily corrected by a little more supervision of the printers. Another minor oversight appears on page 47, where it is stated that a certain discussion will be found on "page 000." There is no such page in the book.

Study on Vitamin 'P.' Part I: Capillary Permeability and Fragility. By Boris Th. Sokoloff, M.D., Ph.D., Associate Director of Research, and James B. Redd, Ph.D., Director, Citrus School, Florida Southern College, Lakeland, Florida. Florida Southern College, Monograph 1. Paper. Pp. 39, with 3 illustrations. Florida Southern College, Lakeland, Florida, 1949.

This pamphlet presents a discussion of capillary permeability and fragility, and presumably is intended to advance arguments concerning the relation of the so-called vitamin "P" to permeability and fragility of the capillaries.

Education Through Physical Activities: Physical Education and Recreation for Elementary Grades. By Patricia Ruth O'Keefe, Ph.D., Director of Health and Physical Education, and Helen Fahey, A.M., Supervisor of Health and Physical Education, Kansas City, Missouri, Public Schools. Cloth. Price, \$4. Pp. 309, with illustrations. C. V. Mosby Company, 3207 Washington Blvd., St. Louis 3, 1949.

This book presents a program of physical recreation activities which can be included in elementary school physical education. Purposes of a good program, it is pointed out, must extend beyond exercise to include opportunities for social and recreational learnings as well as for improved mental and emotional health. The authors have attempted to show how the program can be developed on a worth while basis in the many varying situations found in American elementary schools. Attention has been given to the fact that available facilities and space will make a difference in the kind of program that can be conducted.

The material is divided into four sections. The first section is devoted to principles of child growth and development as they apply to physical education and the factors involved in selection of activities and program planning and evaluation. The second part details suggested activities for the outdoor program, including methods of organizing and planning informal play periods and classwork in physical education. Section three is devoted to indoor activities, with emphasis on adapting materials of instruction to the existing situation. Suggestions are outlined for using the classrooms, halls and other available spaces for physical education as a temporary expedient when no gymnasium is available. Both indoor and outdoor activities are grouped in two categories on a grade level basis; namely, those for primary children in grades 1, 2 and 3 and those for intermediate children in grades 4, 5 and 6.

It is hoped that the publication of another guide of this kind will be a stimulus to the development of more effective physical education at the elementary school level. Despite the recognition of both the medical and educational professions that the elementary schools offer the most fertile field for developmental activities, the best programs and best prepared teachers are generally found in the secondary schools.

The book is noteworthy in that an effort has been made to present the materials in a way that will be intelligible to the classroom teacher and lay leader of youth groups, as well as the professionally trained physical educator. While the volume will prove of greatest value as a textbook in teacher education and a guide for teachers and school administrators in service, it will also be of interest to school medical advisers and physicians serving on boards of education or on school health committees.

An Introduction to Dermatology. Formerly by Norman Walker, Kt., M.D., LL.D., and G. H. Percival, M.D., Ph.D., F.R.C.P.E. Eleventh edition by G. H. Percival, Grant Professor of Dermatology, the University of Edinburgh, Edinburgh. Cloth. Price, \$9. Pp. 349, with 233 illustrations. Williams & Wilkins Co., Mount Royal and Guilford Aves., Baltimore 2, 1947.

This book offers much more than one could expect from the title. Only the author's clear and concise style has made possible the inclusion of such voluminous material, rarely found in books of this size. The anatomic, biologic, embryologic, physiologic, allergic, bacteriologic, pathologic and endocrinologic basis of the various cutaneous manifestations are dextrously woven into a harmonious clinical pattern easy to comprehend. The common dermatoses are fully described; the rarer ones less completely. The illustrations, many of which are colored, are excellent. The book contains a wealth of practical information as to diagnosis and therapy, seldom encountered in one large dermatologic book. The external treatment of cutaneous disorders is thoroughly discussed and illustrated. Emphasis is also placed on the internal treatment of various dermatoses. Especially stimulating and elucidative is the author's classification and delineation of the complex disease eczema, according to the nature of the precipitating factors, into six types, and the subdivision again of one of the groups, infective eczema, into four main types. The book was written primarily for students and beginners in dermatology. General practitioners will find it a most welcome addition to their libraries.

Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. THEY DO NOT, HOWEVER, REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS, BUT THESE WILL BE OMITTED ON REQUEST.

DAMAGE TO FETUS BY VIRUS INFECTION OF MOTHER

To the Editor:—A healthy young woman, in her third month of a pregnancy, gives a history of having suffered an attack of varicella in the first month of pregnancy. 1. What is the possibility of damage to the fetus by this virus infection? 2. Should termination of pregnancy be considered? 3. Has work been done on the relation between maternal virus infections during pregnancy and congenital defects of the newborn, comparable to the studies which have been performed in rubella? M.D., Puerto Rico.

ANSWER:—A fetus may be damaged by varicella but this is much less likely than is the case with rubella. J. J. Prendergast (*Arch. Ophthalmol.* 35:39-41 [Jan.] 1946) cited a case of microphthalmus in a fetus following chickenpox in early pregnancy. C. Wesselhoef (*New England J. Med.* 236:978-988, 1947) expressed the belief that other diseases than rubella, such as measles, mumps, chickenpox, herpes zoster and influenza, may cause defects similar to rubella in the fetus although less often. 2. In view of the infrequency of fetal anomalies in cases of varicella, an abortion should not be performed. 3. The number of cases of fetal abnormalities associated with varicella is small and no special study has been made. An interesting editorial appears in *THE JOURNAL* (138:653-654 [Oct. 30] 1948) on "Congenital Defects" in which the subject of fetal monstrosities due to the passage of viruses through the placental barrier is discussed.

CARPOPEDEAL SPASM

To the Editor:—Recently I was called in to see a 63 year old white Italian man with known hypertension of years' duration. He had suffered some sort of attack while at work associated with fainting which had been diagnosed as a "stroke." When I saw him four hours after this episode he was semicomatose, exhibited Cheyne-Stokes respiration and had a bounding, regular pulse associated with a blood pressure of 230 systolic and 130 diastolic. He also exhibited convulsions, during the cyanotic, apneic phase of his respiratory distress, starting as a lateral deviation of his eyes to the right, deviation of the head to the right, carpopedal spasm on the right and then on the left followed by generalized clonic convulsions. The episode lasted approximately three minutes, ceased, and his color returned to normal. The cycle was repeated numerous times until he died four hours later. It is my impression that this patient suffered a massive intracranial hemorrhage. I can find reference to everything in this picture except the carpopedal spasm in standard neurologic texts. What other mechanism can be postulated to explain them? How common are they in adults? Do they occur in any other conditions except tetany? M.D., Pennsylvania.

ANSWER:—Carpopedal spasm is not a common occurrence in generalized clonic convulsions from cerebral hemorrhage. The most likely explanation is that this man was over-ventilating and had a prolonged overventilation at the peak of Cheyne-Stokes respiration. By this overventilation he produced temporary alkalosis in his blood with the appearance of temporary tetany. During apnea he recovered sufficiently from this alkalosis to stop having tetany. This seems like a possible explanation of this unusual manifestation.

The other possibility is that this was simply extensor rigidity at the beginning of the convulsion, and this would not be so unusual.

TREATMENT OF PIGMENTED MOLE

To the Editor:—Please outline the management of a pigmented mole in a 1 year old child. This mole or nevus is located in the back of the neck and is 1.5 cm. by 1.25 cm. It is colored black and has a small central area which is much darker than the periphery. The central area is the size of a small pea. None of it is elevated or hairy. Is solid carbon dioxide contraindicated? Might such treatment produce malignant reaction? Is excision feasible? Might surgical removal cause a malignant reaction subsequently? Herbert Kornblitt, M.D., Belmont, Mass.

ANSWER:—The general opinion of dermatologists and oncologists is that black moles should be removed, particularly if they are growing, changing color, if they become inflamed or, as in this case, if they are located on an area that is likely to be irritated repeatedly. There is reason to believe that it is best to remove such moles before the onset of puberty, although the evidence for this view is not conclusive. Surgical excision is preferred rather than removal by solid carbon dioxide. Authorities do not believe that surgical removal will cause the development of cancer later.

SALIVATION IN PARKINSONISM

To the Editor:—I am suffering with postencephalitic parkinsonism and am plagued with excess salivation and inability to swallow. The saliva pours out of my mouth as if from a faucet, making it impossible for me to keep up a conversation. These symptoms exaggerate my tremor. Please suggest treatment. M.D., Florida.

ANSWER:—The excessive salivation, which is typical of the postencephalitic form of parkinsonism, is usually readily controlled with one of the belladonna-like drugs which are commonly used in the treatment of this disorder. Atropine is often used for this purpose. The dosage has to be adjusted for each case and should be less than that which will produce the toxic or undesirable effects typical of this drug. Many have found vinobel® particularly efficacious in the treatment of this form of parkinsonism. This is an extract of belladonna in tablet form. Small doses, such as 0.4 mg. once a day, should be used at first and then gradually increased until the maximum desirable relief is obtained. It is the usual practice to increase the dose until mild toxic symptoms are produced and then to reduce the dose slightly. Some patients are able to tolerate as much as 0.8 mg. three or four times a day. With the improvement in salivation and in the control of muscular functions which this drug should produce, it is likely that the patient will also have considerable improvement in his ability to swallow.

FISSURED FINGERTIPS

To the Editor:—A female patient, aged 46, suffers mildly from menopausal symptoms. Her chief complaint is development of fissures over the terminal phalanges during the winter months. Some transverse splitting of the nails also occurs. Neurologic or circulatory disturbances are absent, and results of a complete physical examination and laboratory study are within normal limits. Is this condition considered an entity? What treatment has been found effective? John J. Clancy, M.D., Hartford, Conn.

ANSWER:—The condition of cracked fingertips per se does not constitute a dermatologic entity. Fissures on the fingertips occur not infrequently in association with inflammatory diseases, such as psoriasis, eczema-dermatitis or hyperkeratotic tinea; in association with dry skin due sometimes to hypothyroidism, and, more often, as a result of a combination of factors consisting of trauma, strong soaps and washing powders, particularly in cold weather. Hyperkeratotic plaques, which may become fissured, are occasionally observed on the palms or finger tips of women with keratoderma climactericum, the nosologic position of which has not yet been determined. Some dermatologists consider it a variation of psoriasis or neurodermatitis. Relief usually can be obtained by frequent application of a lubricant containing 5 per cent compound Benzoin tincture in cold cream, an oily base or a water-soluble base. In addition, the woman should use only soft water, a soap substitute and protective gloves in her work.

NUCLEUS PULPOSUS

To the Editor:—1. What are the most common causes of ruptured nucleus pulposus? 2. Has bowling ever been known to be the cause of a ruptured disk? Moody Walker, M.D., Huntsville, Ala.

ANSWER:—The most common cause of ruptured nucleus pulposus is trauma, particularly that which accompanies flexion or torsion of the trunk while lifting heavy weights or pulling against unyielding objects. The onset has often been associated with a patient's falling backward, swinging at an object in an athletic event or stooping to pick an object from the floor. Poor posture and weak paravertebral musculature are believed to be inciting causes.

While specific instances do not come to mind, bowling could cause a herniated nucleus pulposus because of the flexion and torsion of the trunk that it requires. It should not, however, be condemned as an exercise, because it also aids in strengthening the muscles of the back.

PAPILLOMA OF VOCAL CORDS

To the Editor:—A patient (35 years old) has papilloma of the vocal cords. He has been operated on several times without complete success. Is the hormonal treatment of value in males? M.D., Baltimore.

ANSWER:—Hormonal treatment for papilloma of the vocal cords is of dubious value. As employed by Broyles (*South. M. J.* 34:239, 1941) in the treatment of laryngeal papilloma in children, therapy consists in the local application of estrogens (1,000 international units) 0.1 cc. to the laryngeal mucosa once each week for approximately six months.

The Journal of the American Medical Association

Published Under the Auspices of the Board of Trustees

VOL. 140, No. 6

CHICAGO, ILLINOIS
COPYRIGHT, 1949, BY AMERICAN MEDICAL ASSOCIATION

JUNE 11, 1949

THE TIME OF DECISION

President's Address

ERNEST E. IRONS, M.D.
Chicago

American medicine under free practice and without compulsion has accomplished results for which it need never apologize. These achievements are indissolubly related to a successful process of education and evolution in a democracy. The continuation of this process must not be halted by a revolutionary change promoted on the basis of such false premises and misstatements as appear in Senate bill 1679, the newest proposal of the present administration. On the basic principle of freedom for American medicine and freedom for America we cannot compromise. Our thirty years' war in behalf of this freedom for American medicine has reached the time of decision.

Our own country has thus far best withstood the strains of total war and the shocks of experiments in planned economy. We have been able to mitigate the sufferings of other nations and to assist them in their attempts to stabilize their governments. True, we have social problems and financial difficulties which need adjustment; they result from changes attendant on our economic evolution, and are in process of cure by this same evolution. As yet we are not insolvent; we have a right to resent the imposition on a virile nation of technics devised for those that are decadent.

As a remedy for deficiencies, shall we stifle the initiative and sense of personal responsibility of our citizens by the importation of a socialism that has failed in Europe? Politically controlled medical care supported by a compulsory tax is an early but essential part of the development of a socialized nation, the forerunner of various forms of collectivism. This fight is not that of medicine alone; it is the fight of all America.

ACHIEVEMENTS OF AMERICAN MEDICINE

Discovery, invention and research have made possible the prevention and cure of disease to an extent previously never imagined. One by one diseases such as pneumonia, meningitis, tuberculosis, venereal diseases, diabetes, diphtheria and pernicious anemia, which formerly were responsible for hundreds of thousands of deaths and incalculable days of illness, are being controlled by new remedies or prevented by appropriate medical and sanitary measures. Extension of local and county health units is proceeding under the stimulation and supervision of state and local medical societies, the United States Public Health Service and the American Public Health Association. All these measures are

based on the store of medical and scientific knowledge built up, bit by bit, by medical research. Deaths from lobar pneumonia in metropolitan hospitals, formerly 20 to 45 for every 100 persons who were infected, have been reduced to 7 or less. Last year forty cities in the United States did not have a single death from diphtheria. The expectation of duration of life at birth in 1900 was 49 years; in 1949 it is 68 years. One thousand babies born in 1950 are destined to live a total of 69,000 years; had they been born in 1900 they would have had an expectancy of only 49,000 years; what will these 20,000 extra years be worth to them? Now it is announced for the first time that white women in the United States have at birth a life expectancy of 70.5 years. Medicine has decreased the fear of death, especially for the young; it has not and cannot produce immortality; it can only prolong the period of life. This prolongation of life is producing an aging population with new problems in the care of infirmities and in the further postponement of death from degenerative diseases. The final goal is not treatment but prevention, so that ultimately the costs of illness must decrease. Fundamental is health education so that informed people will avail themselves of what public health and medicine have to offer.

The American Medical Association is an organization of physicians whose chief concern is the care of the sick. Our progress depends on medical research and on the maintenance of a high quality of medical education. These objectives are emphasized in the charter and in the constitution of the Association. If anyone thinks that the medical profession is more concerned at this time with problems of social reorganization and problems of legislation than with problems of medical science, let him realize that these activities are necessary for improving and extending medical care and for preserving the characteristics that have made American medicine supreme in the world. "When the tumult and the shouting dies," our medical profession, relieved of this political burden, which is foreign to the purposes of medicine, will continue steadily to progress and go forward to new heights in the study and control of disease and in the advancement of public health.

MEDICAL INADEQUACIES

Among the expensive items in the costs of medical care, the chief concern is the hospital. More and more persons go to hospitals when ill, often because they have neither housing nor help which permit them to be sick at home. Moreover, many of the life-saving procedures developed by scientific medicine are immediately accessible only in hospitals. Years ago the patient with pneumonia was cared for at home, and, in the absence of modern effective remedies, too frequently he died. Now in the hospital he receives life-saving oxygen, antibiotics and transfusions and roentgenologic

President's address before the Ninety-Eighth Session of the American Medical Association, Atlantic City, N. J., June 7, 1949.

examination to determine the causes of sudden changes in his condition. And he lives instead of dying! These sometimes expensive procedures save lives but add to the cost of hospital care, although the total hospital days in any single illness are now usually less.

The ordinary expenditures of the hospital for labor, food and materials have grown large and constitute the chief hospital costs. In 1900 there were less than a thousand hospitals with approved standards; now there are over 6,000 registered hospitals with almost 1,500,000 beds, which in 1948 admitted close to 16,500,000 patients. But even this great increase in civilian hospital beds has not kept pace with the demand brought about by advancing methods of cure of disease, and by the rapid growth of voluntary hospital and medical care insurance. Hospital as well as housing construction was largely suspended during the war; since the termination of hostilities, costs of construction have risen precipitously, and funds previously considered adequate will build only a fraction of needed facilities. Extension of medical services is thus delayed by economic inflation.

Hospital boards are plagued by increased expenditures for necessary expansion, by decreased income from endowments and by decrease in new contributions, the former sources of which have been exhausted by taxation. Some hospitals are now prevented from utilizing their full quota of beds by limitation in nursing and service personnel. The demand for hospital beds can be relieved to some extent by provision in insurance policies for diagnostic procedures, such as roentgenologic examinations, without requiring hospitalization. Admittedly this presents difficulties in administration, but hospital costs can be lessened, and beds now occupied for diagnostic study made available for the more acutely sick.

Even for the patient at home, costs for nursing and medicines and necessary additional service accumulate a serious financial burden. Recent statistics indicate that costs for professional attention are relatively lower than other costs. These costs, which include increased wages to labor and increased prices of materials and food, are related to general inflation. They could be reduced in the present economic situation by reducing both the quality and quantity of hospital medical care, but this would not meet the needs or desires of the people. No doubt some saving could be accomplished, for both medicine and government, by continuous investigation as to possible economies and increased efficiency.

Some sparsely settled districts in the United States do not have medical care comparable to that available for most of the nation. Sociologic investigation is needed to determine the various cures for the deficiencies in such areas. Usually the area is economically poor, and could not support even modestly a qualified medical service. In few of these areas are there medical facilities such as laboratory and x-ray equipment necessary for an adequate service. The Hill-Burton bill, which was earnestly supported by the American Medical Association, is designed to supply diagnostic institutes, health centers and small hospitals, grouped geographically around larger hospital centers. Federal aid in the construction of these facilities is provided to the states where need is shown. Thus far governmental progress on this desirable project has been painfully slow. Establishment of these facilities will accelerate the redistribution of physicians to these areas. While this need is evident in many localities, its extent

should not be determined by a count of towns or counties without a physician. Recent studies of purchasing habits of people in this country by the Bureau of Medical Economic Research of the American Medical Association show that neither political boundaries nor geography determine the districts in which people purchase the necessities of life or the physicians whom they consult or even the hospitals to which they go.

The lack of physicians in certain regions may be corrected by a variety of procedures, determined by local conditions. Better distribution should follow the establishment of local diagnostic facilities such as are being developed under the Hill-Burton bill. Many communities by their own initiative have provided better medical facilities, and thus have secured better medical service. The use of subsidy and the development of group practice need further trial. In sparsely supplied communities, technics for transport of patients to medical centers are an immediate requirement.

VOLUNTARY HOSPITAL AND MEDICAL INSURANCE

Ordinary illnesses may dent but do not destroy the family budget; nevertheless, voluntary health protection should be placed in reach of all workers—and this is the goal of American medicine. Occasionally serious or catastrophic illness burdens the man of limited means with a sum that he is unable easily to meet. He must have protection, and this can best be furnished by the rapidly growing voluntary insurance system.

The voluntary hospital and medical insurance plans that have been developed grew slowly at first; a number of early plans failed because they were not based on reliable actuarial experience. With sound actuarial experience acquired during the experimental years, these plans have grown until now over 55,000,000 persons are covered by hospital insurance either by Blue Cross or private companies, and the numbers insured are increasing rapidly.

Besides the formal voluntary plans, data concerning which are readily available for summary, a vast amount of voluntary aid is given by local unofficial agencies of all kinds, including religious, fraternal and local projects, which number at least 25,000. Studies of this large source of assistance are now in progress. Certainly these agencies represent values which must not be destroyed.

Under the proposal for compulsory sickness insurance, the people of the United States are asked to discard a form of medical practice which, in spite of its recognized imperfections, has given them the best quality of medical care of any country, and to accept a scheme of governmentally regimented medicine which has resulted in deterioration of medical care wherever it has been established.

MEDICAL EDUCATION

Fundamental to every aspect of medical progress is the quality of medical education. In the last forty years, medical education in the United States has attained a high standard and has embodied in its advance the rapid increase in scientific knowledge. By persistent effort weaker medical schools have been strengthened, until we now have seventy-one acceptable four year schools and five more in process of organization. In addition, seven other schools offer the first two years of the medical course. Close cooperation with hospitals has been established to the great advantage of patients, students and the hospitals themselves.

Worldwide increase in medical knowledge has correspondingly increased educational requirements of the

medical student. The cost of medical education has been so multiplied that student fees meet but a small portion of the cost. Medical schools have suffered from lack of support due to oppressive taxation which syphons away private funds formerly available. Obviously medical schools must be aided financially either by private funds or government subsidy if they are to continue to supply enough physicians educated under a high standard to meet the needs of the nation. Regardless of the source of such aid the schools must be unhampered by political interference.

Recognizing that the time has now come to take stock again of medical education, and especially to inquire as to the source of the inordinately increased costs to universities of medical education, the Board of Trustees of the American Medical Association has authorized and supported a new survey to be made jointly by the Council on Medical Education and Hospitals and the Association of American Medical Colleges with the collaboration of the United States Public Health Service. In striving for ideals of which we approve, have we been wasteful of our resources? What has been the effect of federal grants for research on the universities and schools themselves? What will be the effects of such subsidies on national thinking? What will be required to increase the supply of physicians and at the same time maintain previous standards? If federal funds are used, what safeguards against political domination can be set up? The joint survey of medical education now under way should provide the answers to these questions and thus indicate the path for progress in the years to come.

ASSEMBLY LINES IN MEDICAL RESEARCH AND SERVICE

In every national plan in which government takes over the practice of medicine, uniformity interferes with personal incentive and initiative and diminishes the effectiveness of medical service. It substitutes a poor average for outstanding performance and limits progress. Uniformity, whether it concerns the administration of full medical care or of full employment, invokes the sovereign power of the state. Invoking these powers of government leads only to the destruction of personal liberty, the formation of blocs and the establishment of dictatorship. Proponents of government-controlled medicine disclaim any sweeping attack on democracy, but do admit that an extensive system of bureaucratic control will be necessary to make it work.

In many fields of community and national life uniformity of action may be economically necessary to make possible the utilization of science and discovery in raising standards of living. Mass production and the division of labor with the aid of machinery have enhanced the comforts of life and shortened the hours of labor. Assembly lines are at their best in dealing with inanimate objects; they fail miserably in dealing with sick human beings. They are excellent labor-saving devices profitably used to translate ideas which originated in laboratory research into finished products. Minor improvements are constantly being made in industrial assembly lines, but fundamental discovery has never come from this source alone.

Many fields of preventive medicine profit by the application of mass methods such as sanitation of water and food supplies, isolation and quarantine, mass immunization against contagious disease. These are procedures which the individual citizen does not perform for himself. The mass treatment of venereal disease

protects the community by supplying care to patients with what were formerly called social diseases. This care they cannot or will not apply for themselves.

But often the assembly line works danger to scientific research. Important fields of scientific research may require the joint efforts of many men. Such properly organized projects yield results of highest importance, but in our admiration for the scientific achievement we are prone to attribute chief praise to organization and to forget the original idea on which the project was founded. The assembly line is just as dangerous to research as it is to the sick patient.

SPECIALIZATION

The evolution of medicine, largely dependent on invention and discovery in other sciences, has been the basis for the continuing development of new medical specialties. Specialism was discussed early in meetings of this association; resolutions concerning specialists were introduced in 1854, and in 1866 specialism was the subject of the presidential address.

Certain physicians favored by opportunity or education or from personal preference became more expert in some departments of medicine, and their special abilities were recognized by their colleagues. Such men were regarded as specialists. To this increasing group of specialists other less well qualified men attached themselves; the protection of the public and of scientific medicine from poorly qualified men was one of the chief reasons for the establishment of the specialty boards. Another and more constructive reason was the encouragement of younger men better to qualify themselves for some division of medical practice, while still retaining general medical responsibility for their patients. The five or more years of additional study have added immeasurably to the quality of service which these men are able to supply to the sick. Today 5,000 to 7,000 younger physicians are studying advanced medical subjects in preparation for certification in internal medicine alone, while continuing their professional care of patients. The standards of medical practice all over this country are thus being raised, and the public receives medical care from better prepared physicians. To destroy this incentive to better quality of service to the public by nationalized medicine would be disastrous to both physicians and their patients.

The specialty boards themselves can increase their contribution to medical standards and service by a continuing reevaluation of their requirements in preparation for certification to meet community needs.

Some unforeseen difficulties have arisen. Hospitals desiring to establish an improved status have insisted on board certification as prerequisite to staff appointment. This may result on occasion in the exclusion of well qualified men. In choosing appointees for civil and military positions, officials in charge have taken the easy way of using the specialty board yardstick as the sole measure instead of considering the individual qualifications of candidates.

In some instances specialists themselves have selfishly contributed to the limitation of staff appointments. The general practitioner must be admitted to participation in the work of the hospital if the hospital is to render its full service to the community and the public. Indeed, general practice must be fully integrated into our system of medical service.

The correction of this difficulty where it exists can be accomplished easily by reverting to methods used

by governing boards of hospitals before specialty certification developed. The simple standard of ability, quality of performance and necessary service to the community, taking into consideration all available information, should govern staff appointments.

THE FAMILY DOCTOR

The "passing of the family doctor" is a phrase so often repeated that people have come to believe it. He has not "passed." There are more well trained, honest and understanding physicians devoted to the interests of their patients now than ever before. Most internists are "family doctors." If you inquire of many of the older "specialists," you will find that, while their expert ability is available and used by their colleagues and the public, their real interest and the larger part of their time is spent in helping and advising their own patients and families. They are the trusted advisors and receive the confidences of successive generations of their patients. One of the tragedies of nationalized medicine is the inevitable interference with this patient-physician relationship, by the interposition of governmental clerks and officials.

Unfortunately some of the younger physicians recently certified by specialty boards have assumed that, by establishing their technical qualifications, they have become disqualified, or have relieved themselves of responsibility, for the family practice of medicine. In this self estimate, some few of them may be right, but the majority will come to appreciate that the ideal practice of medicine includes not alone first class technical training and expertness with hands, eyes and ears, but in addition a sympathetic and spiritual urge for service to their fellow men. Here they will find one of the great enduring and compensating satisfactions in the practice of medicine.

SOCIALIZED MEDICINE MEANS SOCIALIZED AMERICA

Compulsory sickness insurance is socialized medicine notwithstanding the disclaimers of its advocates. A frank admission of this truth undoubtedly would raise questions embarrassing to those who advocate the plan; with tongue in cheek they camouflage socialism by using technics commonly employed by propagandists with revolutionary political programs. The proposed plan for governmental medicine, they say, will not change anything except the method of payment for services. Why then should it require 163 pages, as in the proposed law, and a confused organization of hundreds of councils, boards, committees and similar agencies just to collect and distribute money?

Illustrative of the perverse thinking of this group of advisors is the remark of one who in criticism of the Brookings Report said, "What you should rather do is to decide what you want to prove and then get the evidence to support it."

Is it possible that the heads of our government realize the serious position they have been led to assume? Are they aware that the advice which they have followed came from those who for years have been craftily planning a radical change in our democracy? Mr. Justice Brandeis warned: "The greatest dangers to liberty lurk in insidious encroachment by men of zeal, well meaning but without understanding." And Samuel Gompers as president of the American Federation of Labor said in 1916, "Look over all the world where you will and see those governments where the features of compulsory benevolence have been established, and you will find the initiative taken from the hearts of the people."

The great attainments of American medicine must not blind us to the necessity of correcting established faults in medical care. We must, however, adopt remedies, whether social or economic, which will lead toward cure and not toward chaos, toward increased progress and not toward destruction of values already attained.

Socialism asserts that constant emphasis on the "increasing misery of the masses" must be maintained so that the sense of unhappiness and desire for change may be perpetuated. It matters not that the standard of living has been progressively rising and that all have more comforts and better medical care than did our forefathers. People must be persuaded that they are worse off than they are; then they will revolt even against that which is good.

Statesmen, industrialists, labor, agriculture and the medical professions are all concerned in the provision of good medical care for the American people, but only if individual freedom and initiative can be guaranteed. Nationalized medicine will be followed by nationalized industry. Industrialists see the threat to free enterprise and progress. Labor leaders are beginning to realize that "free medical care" is not what they thought it was and that with socialization of medicine comes later socialization of industry and ultimately government ownership of business and facilities, with loss by labor of the gains of one hundred years. The farmer, always an independent thinker, dislikes being told what and how much he can raise, and how much he will receive for it. None of these groups would now vote for a managed economy or a collectivist state, and yet this is the real objective of those who are urging nationalized medicine on our governmental representatives.

Medicine and economics are intimately connected. Poor living conditions and poor food contribute not only to social unrest but also to poor health. The whole economy of the nation is dependent on the health of its people. In choosing a method of medical care which will accomplish our objective, we must have in mind the effect of the system of medical economy on the quality of medical service. Nor can we ignore the cost of any new system. The catastrophic effects of illness cannot be avoided by creating catastrophic bankruptcy.

Characteristic of America is individual initiative which has made America great. Always some forget that the individual in a democracy has a responsibility to the state; they assert that the state should care for all. Frequently they forget that they themselves furnish the funds that support the state. The government is the people and government funds are derived from the people by taxation, regardless of any pseudonym applied to the technic of collection.

The American people are urged to accept a federal monopoly of welfare. Citizens will lose individual initiative and responsibility characteristic of a democracy providing assurance of freedom, and they will become involuntary medical wards of the state.

Thus far standards of living and freedom in America are not approached by any other country. Let us oppose any efforts to substitute for this freedom a dubious socialistic program such as that now advocated by the proponents of nationalized medicine. We must be constantly mindful, with David Hume, that liberty of any kind is seldom lost all at once.

MYOCARDIAL INSUFFICIENCY

Mechanisms and Management with Data on a New and
Safer Mercurial DiureticGEORGE R. HERRMANN, M.D.
Galveston, Texas

The modern physician hopes to prevent the development of the symptoms and signs of myocardial insufficiency. The clinical evidences of potential or latent asymptomatic heart disease are certain reliable criteria.¹ The potentialities of the diagnosis should be recognized and a program for the postponement of heart failure inaugurated. It is desirable that one have a clear understanding and prompt interpretation of the derangements of the function which may insidiously put in an appearance in patients who had old healed heart lesions. Some knowledge of the mass of new human cardiologic data is indispensable. Many facts have been revealed in recent years by venous catheterization of the right atrium, ventricle and pulmonary artery, as devised by Forssmann.²

Critical consideration of the newer concepts is not only desirable but actually necessary for the scientific handling of patients. Some iconoclasts have taken the extreme view that congestive heart disease and circulatory failure result primarily from renal changes and disorders of salt and water metabolism. It must be admitted that edema, a most important manifestation of myocardial failure, is a product of deranged sodium excretion. The dissipation of edema, the objective of much of the treatment that is instituted in heart disease, is accomplished by increasing the output of sodium in the urine.

The fact remains that myocardial insufficiency begins in the heart muscle. The new data must be carefully appraised with this fact kept clearly in mind. The generally accepted conceptions of the functional origin of the symptoms and signs that accompany a weakening of the heart muscle support mainly the theory of back pressure failure. The evidence for a forward failure in some conditions is definite. The blood flow through the renal glomeruli as in other tissues is inadequate in either type and sodium is retained. The older ideas must be reviewed and reevaluated. Some revision is necessary as a result of recent discoveries. A broader and more comprehensive concept of the genesis of symptoms and signs of myocardial insufficiency has evolved.

CONCEPTS BASED ON INTERPRETATION OF VENOUS
CATHETERIZATION DATA

The recent great advance in the study of the circulation has been the result of the further development of the technic of venous catheterization of the right atrium, right ventricle and pulmonary artery. Cournand and his associates,³ Stead and Warren,⁴ McMichael and

Sharpey-Schafer,⁵ Merrill,⁶ Dexter and his co-workers⁷ and others have used the new methods in extensive studies of the circulation in human subjects. The method made possible the more accurate determination of cardiac output under varying conditions by the direct application of the Fick principle: Cardiac output equals the total oxygen consumption per minute divided by auricular-ventricular oxygen difference times 100. Stead and Warren⁴ found that the factors influencing cardiac output in heart disease are: (1) atrial pressure, (2) ventricular activity as controlled by the reflexes through the vagus, (3) peripheral resistance, (4) tissue requirements in the consummate vascular bed and (5) a factor of nervous imbalance brought about by sympathetic stimulation, by emotional stresses, or epinephrine or by autonomic suppression with atropine.

There has been reconfirmation of Starling's Law.⁸ The heart's diastolic volume is determined by the filling rate and pressure. The work of the heart equals the product of the stroke output and the mean pressure. The mechanical work accomplished by the ventricle is correlated with diastolic fiber length. As Starling and Visscher⁹ pointed out, the oxygen consumption increases with the length of fiber. As long as the oxygen supply keeps pace, the strength of the ventricular contraction and cardiac output will respond to increasing dilatation. Circulatory equilibrium is maintained, up to the critical diastolic volume and muscle stretch beyond which oxygenation lags and the ventricles fail to empty themselves. In myocardial dyskinesia basal relations of the cardiac output to the diastolic volume fail. The ability of the heart to do its job depends on the load of work it has to carry and the adequacy of the supply of oxygen and nutriment.

Inadequacy of the oxygen supply to the myocardium, especially the amount and availability of extra oxygen necessary for the accomplishment of added mechanical work, will cause myocardial efficiency to drop off, and a relative insufficiency in cardiac output develops. The ventricular cavities later dilate with an absolute decrease in cardiac output. Complex and partially effective compensatory mechanisms are called into play. McMichael and Sharpey-Schafer⁵ found evidence of an active venoconstriction to account for some of the increase or rise in venous pressure. The classic picture of congestive or backward heart failure, according to Harrison¹⁰ and Heyer with Harrison,¹¹ develops as the gradient of blood flow between the pulmonary and aortic systems drops off and as increased blood mass accumulates in the venous channels back of the heart. This backward or congestive failure often appears early in rheumatic carditis or coronary insufficiency, while there is still considerable myocardial reserve.

Circulatory or forward failure may develop in several conditions in which the arterial bed is widely dilated,

Read at the Interim Session of the American Medical Association, St. Louis, Dec. 2, 1948.
From the Cardiovascular Service, University of Texas, Medical Branch, Galveston, Texas.

1. Herrmann, G. R.: Diseases of the Heart and Arteries, ed. 3, St. Louis, C. V. Mosby Company, 1946, chap. 30, p. 466.
2. Forssmann, W.: Die Katheterisierung des rechten Herzens und der Lungenarterie, Klin. Wchnschr. 8: 2085, 1929; Ueber die Katheterisierung des lebenden rechten Herzens und der Lungenarterie, med. Wchnschr. 78: 489, 1931.

3. Cournand, A.; Riley, R. L.; Breed, E. S.; Baldwin, E., and Richards, D. W., Jr.: Measurement of Cardiac Output in Man Using Technique of Catheterization of Right Auricle or Ventricle, J. Clin. Investigation 24: 106, 1945.

4. Stead, E. A., and Warren, J. V.: Cardiac Output in Man: Analysis of Mechanisms Varying Cardiac Output Based on Recent Clinical Studies, Arch. Int. Med. 80: 237 (Aug.) 1947; Relation of Cardiac Output to Symptoms and Signs of Congestive Heart Failure, Mod. Con. Cardiovasc. Dis., December 1947, vol. 16.

5. (a) McMichael, J., and Sharpey-Schafer, E. P.: Cardiac Output in Man by Direct Fick Method: Effects of Posture, Venous Pressure Change, Atropine, and Adrenaline, Brit. Heart J. 6: 33, 1944. (b) McMichael, J., cited by Merrill.⁶

6. Merrill, A. J.: Edema and Decreased Renal Flow in Patients with Chronic Congestive Heart Failure: Evidence of Forward Failure, J. Clin. Investigation 25: 389, 1946.

7. Dexter, L. Haynes, F. W.; Burwell, C. S.; Eppinger, E. C.; Seibel, R. E., and Evans, J. M.: Studies of Congenital Heart Disease, J. Clin. Investigation 29: 780, 1948.

8. Starling, E. H.: The Linnæus Lecture on the Law of the Heart, London, Longmans and Green, 1918.

9. Starling, E. H., and Visscher, M. D.: The Regulation of the Energy Output of the Heart, J. Physiol. 62: 243, 1922.

10. Harrison, T. R.: Failure of the Circulation, Baltimore, Williams & Wilkins Company, 1939.

11. Heyer, H. E., and Harrison, T. R.: Backward Failure Theory of Congestive Heart Disease, Mod. Concepts Cardiovas. Dis. 16: [n.p.] (Nov.) 1947.

as in aortic regurgitation, severe anemia, hyperthyroidism and beriberi. In these conditions, the cardiac output in failure has been shown to be normal or actually increased, but still inadequate. The minute volume circulation is not greatly decreased; yet the blood flow actually provided to the tissues in the widely dilated bed may still be below the critical minimum required for the body as a whole. Sitting or standing decreases the cardiac output, while recumbency increases it.¹²

Clinical manifestations which are considered evidence of myocardial insufficiency have their origin in the failure of heart muscle in ventricular contraction adequately to supply the tissues with blood. There is thus a gradual or sudden dropping off of the ability of the heart to continue to increase, absolutely or relatively, the ventricular output in response to the demands. Merrill⁶ pointed out that at a certain critical level of cardiac output the blood flow falls below that necessary for the normal renal function of sodium excretion and for the adequate supply of enough oxygen to the tissues. There result sodium and water retention in the extracellular compartment, increased blood volume, venous congestion and reflex vasoconstriction. This is the picture of heart failure whether the inadequate renal blood flow is due to absolute or relatively inadequate cardiac output.

CONGESTIVE BACKWARD PRESSURE AND CIRCULATORY FORWARD PROPULSION FAILURE

The theory of backward pressure congestive failure is easily visualized.¹⁰ The rate of development determines the extent and character of the clinical symptoms and signs. In the very suddenly developing acute insufficiency or left ventricular failure, extreme dyspnea and orthopnea develops and acute pulmonary edema promptly appears in the lungs. In the chronic insidious type, besides the lung congestion, the right ventricle also fails, with engorgement of the liver and ascites accumulating very late and producing dropsy in the dependent parts. Chronic backward failure, the traditional congestive failure, with low cardiac output and low pulse pressure, is found in myocarditis of coronary atherosclerotic origin, myocardial infarction, rheumatic myocarditis, diastolic hypertension, hypothyroidism, heart tamponade and pericardial constriction.

Forward, or circulatory, failure with normal or supernormal yet inadequate performance of the left ventricle has been demonstrated. Acute forward circulatory failure occurs in cardiac standstill, extreme bradycardia or tachycardia, shock and hemorrhage. Chronic circulatory forward failure of the type with high systolic cardiac output and high pulse pressure, yet insufficient minute volume of blood flow, occurs in rheumatic or syphilitic aortic regurgitations, systolic hypertension, hyperthyroidism, arteriovenous shunt, congenital lesions, anemia and beriberi.

DISORDERS OF SALT AND WATER METABOLISM

Many of the symptoms associated with heart failure have been shown in recent years to be more closely associated with disturbances of salt and water metabolism. Apparently the circulation in the kidney is most sensitive to changes in the general circulation, and renal blood flow is the first to be affected by relative

or absolute decrease in cardiac output.⁶ The kidneys promptly effect a shift in blood volume flow and secondarily in salt and water metabolism. The urinary output may be reduced to a fifth of normal, and yet there is specifically only sodium retention.

The secondary constriction of the efferent arteries may insure a normal glomerular filtration of sodium but not of sodium excretion, since tubular reabsorption of sodium has become supernormal. The kidneys and tissues seem to hold tenaciously to sodium in patients with congestive failure.

The reabsorption of sodium in the renal tubules may be greatly enhanced, incident to an excess of anti-diuretic hormone, which the slow circulation in the pituitary may have called forth. The retention of the sodium has been held responsible for the increased blood volume and the venous pressure rise.

Warren and Stead,¹³ in 1944, reestablished circulatory equilibrium by treatment of dehydrated patients in congestive failure with mercurial diuretics, and thus these patients, on the verge of heart failure (untreated), showed increase in body weight preceding the rise in the venous pressure. Warren and Stead¹³ concluded that the edema developed because the kidneys did not excrete salt and water in the normal manner and that blood volume increase was the cause for venous pressure rise. Grant and Reischman,¹⁴ in 1946, and Heyer and Harrison¹⁵ had patients with chronic atrial fibrillation under perfect control with digitalis. They found that on withdrawal of the digitalis from these patients there followed promptly a rise in the venous pressure preceding any increase in weight, and they concluded that venous pressure rise preceded edema. Myocardial weakness may well create these disturbances in function.

The study of salt and water metabolism by Burch and Reaser,¹⁵ using the isotope sodium 22, revealed a sharp ninetyfold retention of Na²² in cases of heart failure. They found that in a cardiac patient 50 per cent of Na²² was eliminated in about twelve weeks, while in the normal controls the same amount was eliminated in twelve days. They demonstrated that mercurial diuretics increased the Na²² output twenty-four fold and the chloride output concomitantly followed. The sodium and the water in the extracellular compartment and plasma definitely showed a concordant rise and fall. It had been reported by Calvin¹⁶ that the plasma protein content of the blood mass actually increased in hemodilution and that blood serum proteins and albumin were added from the tissues in hydremia. Among patients with congestive heart failure and edema were found some in whom oligoalbuminemia was absolute as well as relative, probably as a result of hepatic damage, and in these the low albumin level of the serum contributed to the edema.¹⁷

13. Warren, J. V., and Stead, E. R., Jr.: *Fluid Dynamics in Chronic Congestive Heart Failure: Interpretation of Mechanisms Producing Edema, Increased Plasma Volume and Elevated Venous Pressure in Certain Patients with Prolonged Congestive Failure*, Arch. Int. Med. 73: 138 (Feb.) 1944.

14. Grant, H., and Reischman, F.: *Some Observations on Pathogenesis of Edema in Cardiac Failure*, Am. Heart J. 32: 704, 1946.

15. Burch, G. E., and Reaser, P.: *Water and Sodium Balance in Congestive Heart Failure*, New Orleans M. & S. J. 99: 124, 1946.

16. Calvin, D. B.: *Plasma Volume and Plasma Protein Concentration After Severe Hemorrhage*, J. Lab. & Clin. Med. 26: 1144, 1941.

17. (a) Herrmann, G. R.: *Blood Plasma Proteins in Edema*, Ann. Int. Med. 24: 893, 1946; (b) Diuresis, J. Lab. & Clin. Med. 26: 211, 1940.

12. Lyons, R. H., and Burwell, C. S.: *Induced Changes in Circulation in Constrictive Pericarditis*, Brit. Heart J. 8: 33, 1946.

PHARMACODYNAMICS OF CARDIAC GLYCOSIDES IN
CONGESTIVE HEART FAILURE

Digitalis shortens the cardiac systole and lengthens diastole within four hours after administration by mouth. There is thus produced increased myocardial efficiency and increased cardiac output, especially with slowing of the ventricular rate in atrial fibrillation. McMichael and Sharpey-Shafer^{5a} suggested that venoconstriction be released by digitalis. Venous return and arterial pressure may be decreased in heart failure and subsequent venodilatation enhances the return flow. McMichael^{5b} maintained that if the heart is being filled at pressure above the optimal, digitalis may further increase rather than diminish the cardiac output.

In patients with circulatory failure and increased output due to hyperthyroidism, aortic syphilis with free aortic regurgitation, arteriovenous fistula, anemia or beriberi, symptoms are usually not conspicuous until the conditions are far advanced. When decompensation does develop it persists even after the myocardial insufficiency is rigorously treated, as the cause cannot often be removed. In such cases, the need for minute volume flow, for the whole body or a large area, produces a reduction in venous filling which cannot be compensated for. A shock state may possibly develop, and the brain and the heart may be irrevocably damaged as a result of the demand and diversion of blood flow to other tissues.

In patients with congestive heart failure and decreased cardiac output as a result of myocarditis from acute rheumatic fever, coronary artery or hypertensive heart disease with tachycardia and disorders of mechanisms, the symptoms are promptly relieved by digitalization. In acute myocardial infarction, mitral stenosis and tachycardia, and especially in atrial fibrillation, congestive failure is usually precipitated early while apparently the myocardium has considerable reserve. The response to digitalis is usually prompt and the cardiac output rises to the point where the circulatory equilibrium is reestablished.

EMERGENCY AND CARDIAC THERAPY

In acute left ventricular failure and pulmonary edema, there is need for emergency treatment. Death may occur from anoxia, as in drowning. Oxygen under 4 to 6 cm. of water pressure should be administered until the cyanosis clears. Trapping venous blood in all four extremities with tourniquets or actual phlebotomy may halt the paroxysm. Morphine, sulfate, 11 mg. ($\frac{1}{6}$ grain), and atrophine, 1 mg. ($\frac{1}{65}$ grain) usually allay anxiety, relax spasm and suppress excessive secretion of mucus. Meperidine hydrochloride, 100 mg., is considered safer by some observers. It is to be remembered that narcotics and barbiturates have some antidiuretic action.

Cardiac tonics intravenously, as ouabain (0.25 mg.), digitoxin (1 mg.) or lanatosid C (0.8 mg.), may be given intravenously if one can be certain that the patient has had no digitalis within two weeks. In persisting pulmonary edema one may give a hypertonic infusion of 50 cc. of 50 per cent dextrose to which has been added 0.5 Gm. of aminophylline and 0.5 Gm. of ascorbic acid after giving a mercurial diuretic, as 40 mg. of thimerin® (the disodium salt of N [gamma-carboxymethyl-mercaptomercuri-beta-methoxy] propyl camphoramic acid) subcutaneously.

Normal Sinoatrial Cardiac Mechanism.—Normal sinoatrial cardiac mechanism is most conservative. It is desirable to maintain or reestablish sinoatrial rhythm if disorders of the cardiac mechanism persist. In the cases of atrial fibrillation and failure, adequate digitalization is in order. If, after digitalization, the failure persists, one is justified in undertaking to restore the normal mechanism with quinidine sulfate.

Rest.—Morphine judiciously used is a great boon to all patients with heart failure, as it reduces the exhausting respiratory effort of dyspnea decubitus. Addiction, however, is easily induced, and it must be guarded against. Adequate rest is necessary to improve the myocardial efficiency and the relief of pulmonary congestion. One should decrease all physical strain, by making the patient as comfortable as possible, which contributes definitely to the reestablishment of circulatory equilibrium.

The more refractory cases of congestive heart failure may not be relieved satisfactorily and edema may persist, in spite of rest, diet and digitalization, and sinoatrial rhythm. The physician may resort to the use of coronary vasodilators to improve myocardial function and diuretics to remove edema and improve circulatory efficiency. The myocardial function may not be improved adequately by the vasodilating effects of nicotinic acid and papaverine and the older favorites, orally administered xanthine diuretics, as theobromin®, theophylline and aminophylline. The potent mercurial diuretics, especially those combined with the theophyllines, must usually be used. The newer one, containing the sulfhydryl radical, may be the one of choice as it is less toxic.

A NEW LESS TOXIC, MERCURIAL DIURETIC

Burch and Reaser¹⁵ demonstrated that sodium output in the urine was increased seventy-five fold as a result of mercurial xanthine diuretics. These drugs are generally accepted as the first rank preparations for the mobilization of sodium and the drugs of choice for the patient with intractable edema. Novasurol® (merbaphen) was soon found to be too toxic. Salyrgan® (mersalyl) was then produced and found to be less toxic. It had to be given intravenously and was irritating and potentially toxic. It occasionally produced necrosis of the renal tubular epithelium. The Hungarians^{17b} added acid theophylline to neutralize the excessive alkalinity of the mersalyl and found that potency was enhanced.

My co-workers and I^{17a} had found that mersalyl produced diuresis by decreased tubular reabsorption, while aminophylline increased glomerular filtration and neutralized excessive alkalinity. We therefore combined the two and observed augmented diuresis and no more instances of destruction of the epithelium or renal tubules. Mersalyl and theophylline (salyrgan® with theophylline) or mercurophylline (mercuzanthin®) have been widely used with occasionally evidence of toxicity. Other less toxic combinations of mercurials were sought. At least two instances of fatal ventricular fibrillation were electrocardiographically recorded during and following the intravenous injection of another mercurial diuretic. Mersalyl with theophylline and mercurophylline were too irritating to be injected in any way except deep in the muscle with local anesthesia or intravenously. Meralluride sodium (mercuhydrin®

sodium), a urea succinyl mercurial-theophylline combination, was demonstrated to be a potent diuretic and less toxic by Chapman and Shaffer. It was found to be well tolerated, causing little, if any, pain when injected intramuscularly.

The emphasis, however, has now been shifted from potency to the toxicity factors in mercurial diuretics. Lehman¹⁸ combined MT 6, chemically similar to mercurophylline except that the sulphydryl replaces theophylline, with sodium thioglycollate and found that the sulfur had profoundly decreased the toxicity and irritating effects of the mercurial. He noted a tremendous increase in tolerance of the new MT 6, mercaptomercurial, when it was compared with the older diuretics. This combination is theoretically an ideal and safe mercurial diuretic. Lehman¹⁸ found that thiomerein[®] was 160 times less toxic than meralluride sodium. It could be injected subcutaneously without producing any significant pain or irritation. This marks a definite forward step in the development of organic mercurial diuretics. It might be well for one to test every patient for hypersensitivity to mercury by injecting subcu-

pitating factors, alleviation of the perpetuating factors and alteration of the predisposing factors in so far as is possible. Recumbency allows blood and edema fluid to flow into the chest and waterlog the lungs; therefore, the sitting upright posture is preferable.

Rest in the position most comfortable to the patient removes some of the demands on the circulation. The physical strain of severe dyspnea may be relieved by oxygen (mask or tent) and responds to the hypodermic injection of morphine sulfate (11 to 16 mg.). In cardiac asthma of acute left ventricular failure meperidine hydrochloride, 50 to 100 mg., given intravenously may be safer than morphine.

Diets low in sodium and with acid ash, as Karrell's daily ration of 4 glasses of milk with 8 slices of dry, salt-free, toasted bread, often helps to start diuresis. Newburgh,¹⁹ Schroeder,²⁰ Schemm²¹ and Wheeler, Bridges and White²² have worked out more elaborate low sodium, neutral or acid ash regimens, with free fluid intake. Water, dilute hydrochloric acid, or acid salts as ammonium chloride are often helpful in promoting diuresis. Barbiturates and narcotics have some antidiuretic effect.

The sodium storage may be reduced by sharp curtailment of intake. A sodium-free diet is difficult to prepare and even a low salt diet with salt substitutes is not easily maintained. It is often most practical to insist on only moderate restrictions and the judicious use of the mercurial diuretics rather than enforce an inadequate diet. One may reduce the sodium chloride content of the patient at regular intervals with mercurial diuretics.

Water Intake.—Schemm²¹ advocated forced fluids by mouth and 5 per cent dextrose solution slowly given by vein in amounts up to 4 liters a day. I have not had much success with this regimen; yet Schemm emphasized the importance of and need for adequate fluid intake. One should administer distilled water in quantity to satisfy normal needs, namely, 2,500 to 3,500 cc. The amounts must be increased in cases of fever or in the patient with low concentrating ability of the kidney. It is admitted that cellular dehydration may be present in the brine in cardiac edema. However, forcing fluids by giving intravenously 5 per cent dextrose in a patient with congestive heart failure is not without danger. It may be accomplished with great care by a very slow drip method. I have seen several instances of acute left ventricular heart failure following intravenous injection of 5 per cent dextrose solution in 2 to 4 liter amounts. The retained sodium determines the volume of the fluid retained in the body.

Diuretics.—Diuretics, notably the organic mercurials combined with xanthines, and now with sulphydryl, have been shown to increase tremendously the urinary flow and sodium output. Pulmonary as well as subcutaneous edema is promptly dissipated, and as a result the patient feels much better, his breathing becomes

Summary of Clinical Diuretic Results

Drug	No. of Cases	Total Urine Cc. First Day	Average Increase in Output of Urine, Percentage			
			First Day	Second Day	Third Day	Total
Mercurophylline *	611	2,502	476	151.6	79	707.4
Mersalyl and theophylline *	125	2,507	341	120	62	523
Meralluride sodium (intravenously)	46	1,836	264	132	105	501
"Thiomerein" with ammonium chloride (intravenously).....	14	4,475	...	...	...	...
"Thiomerein" without ammonium chloride (intravenously).....	20	2,507	305	132	97	536
"Thiomerein" with ammonium chloride (subcutaneously).....	38	3,483	...	...	...	...
"Thiomerein" without ammonium chloride (subcutaneously).....	97	2,011	261	108	106	475

* Data from previous studies of diuresis (Herrmann^{1,15}).

taneously 0.25 cc. to 0.5 cc. of thiomerein[®] before giving the 2 cc. dose that contains 78 mg. of mercury.

Thiomerein[®] was submitted to me with a grant for further experimental study and extensive clinical trial. The New York University group in Bellevue Hospital had obtained very encouraging results, as my co-workers and I have, but it will take extensive studies before the ultimate evaluation is made. I have observed few and minimal reactions from thiomerein[®] even when given intravenously, in 20 cardiac patients, and adequate diuresis was produced with the new drug given subcutaneously to 135 patients. The results shown in the table were obtained with this preparation, given under my supervision, by Dr. John W. Chriss, Dr. Milton R. Hejtmancik and Dr. Paul M. Sims. The potency and low toxicity warrant continued extensive use of the thiomerein[®] to establish its ultimate safety factors, especially in the rare patients whose heart muscle is hypersensitive to mercury.

SUMMARY AND ADDITIONAL MATERIAL ON THERAPEUTIC PROCEDURES IN MYOCARDIAL INSUFFICIENCY

The modern treatment of a patient with heart disease calls for the prevention of potential failure and prompt relief of the first disturbing or ominous symptoms. Steps are taken to guard against and remove the pre-

18. Lehman, R. A.: Further Studies on Acute Toxicity of Mercurial Diuretics, *Proc. Soc. Exper. Biol. & Med.* **64**: 428, 1947.

19. Newburgh, L. H., and McKinnon, F.: *The Practice of Dietetics*, New York, The Macmillan Company, 1934.

20. Schroeder, H. A.: The Importance of the Restriction of Salt as Compared to Water, *Am. Heart J.* **22**: 141, 1941.

21. Schemm, F. R.: A High Fluid Intake in Management of Edema, *Ann. Int. Med.* **17**: 952, 1942; High Fluid Intake in Management of Edema, Especially Cardiac Edema: Clinical Observations and Data, *ibid.* **21**: 937, 1944; High Fluid Intake in Management of Edema: Review with Some Comments After Four Years, *Journal-Lancet* **66**: 50, 1946.

22. Wheeler, E. O.; Bridges, W. C., and White, P. D.: Diet Low in Salt (Sodium) in Congestive Heart Failure, *J. A. M. A.* **133**: 16 (Jan. 4, 1947).

easier and he feels stronger. It must not be forgotten that potent mercurial diuretics may produce confusing symptoms of primary salt depletion, especially in patients on low sodium diets.

Small doses of a mercurial diuretic will often interrupt a chain of nightly paroxysms of dyspnea. I am not yet ready to advocate repeated full doses given intravenously or intramuscularly (usually 2 cc., 78 mg.) of mercurial diuretics twice daily until the ideal weight is reached. I fear that the mercury may be accumulated and be toxic to the heart and kidneys. I have seen anuria produced by physicians who had neglected to examine the urine before injection of the mercurial. The new mercurial sulfydryl thiomerein® is well tolerated subcutaneously, is least toxic and therefore safer and adequately effective.

Digitalis.—Digitalis therapy improves the myocardial tone and increases cardiac output and therefore warrants consideration. In acute left ventricular failure, ouabain (strophanthin) 0.25 mg. given intramuscularly is probably safer than any digitalis preparation, even digitoxin, in a dose of 1 mg. Digitalis is most useful in the control of mechanism disorders like atrial fibrillation. Digitalization will usually relieve exertional and decubital dyspnea.

Some modern experimentalists have concluded that the use of digitalis is obsolete and that digitalization may aggravate the situation if the cardiac output is normal and in full response to the diastolic stretch. When this relationship fails, the effect of digitalis is limited at best, as the cause persists. Some feel that digitalis maintains cardiac tone and delays dilatation and hypertrophy and should be started as soon as a diagnosis of "heart disease" is established. Proofs of these contentions have not yet been established.

CONCLUSIONS

I cannot agree with those who argue against the need for digitalization when the rhythm is regular. Others feel that strict adherence to a low sodium regimen is all that is necessary to prevent edema formation.²² A very low sodium diet is most unpalatable and difficult for many patients to maintain.

Since the edema can be cleared by mercurial diuretics which may be repeated at intervals, it would seem practical to use this means of getting rid of accumulated sodium. Thiomerein®, given subcutaneously, is a practical and safe diuretic for this purpose.

I believe that each of these methods has a place in the therapy of myocardial insufficiency, as has been discussed in detail in the previous paragraphs. Sometimes one method may be employed first, sometimes another, and again any combination may be instituted at the same time. In urgent situations all methods are applied as soon as possible, and generally the judicious use of the combined methods brings about most satisfactory results.

Radioactive Digitalis.—Instead of irradiating digitalis, we are now getting it in a radioactive form. In airtight glass jars, foxglove is being grown in an atmosphere of radioactive carbon dioxide. While only small quantities of this radioactive digitalis obtained in this fashion have yet been produced, it is now being studied in animals in Atomic Energy Commission laboratories, and we hope will bring further understanding of the manner in which the heart operates.—From an address by David E. Lilienthal, Chairman, Atomic Energy Commission, before the American College of Physicians, New York, March 31, 1949.

SOME FACTORS INFLUENCING RESPONSE OF CANCER TO RADIATION

CONSTANCE A. P. WOOD, M.R.C.S.(Eng.)
London, England

During the past two decades great advances have been made in the treatment of cancer by radiation. These advances are largely the result of physical researches.

In Great Britain, the greatest importance has been attached to the close collaboration of radiotherapist and physicist. In all radiotherapy centers this partnership has for many years been regarded as essential to the efficient carrying out of the patient's treatment. Much time has been devoted to the establishment of methods of accurate dosage measurement for all types of radiation therapy, whether it be external irradiation from a roentgen or radium beam or local irradiation by radium needling or applicators. Whichever of these types of treatment is used, the dose delivered to the tumor is recorded in roentgens in the tissues at the site of the disease. These methods of accurate dosage measurement have done much toward placing the radiation treatment of cancer on a scientific basis; they enable an accurate comparison to be made of the techniques used and the results obtained in different centers throughout the world. A description of these technical methods is not within the scope of this paper. Other speakers have dealt with the measurement of tumor dose in interstitial radiation, and I have described elsewhere methods devised for the measurement of tumor dose in external radiation by a roentgen or radium beam. It is sufficient here to say that methods have been devised for accurately directing the beam of radiation and for estimating the dosage delivered to the tumor. Not only can one estimate the dosage at selected points in the tumor, glands and skin by instruments such as Green's measuring caliper, but, with a new instrument, the dose contour finder designed by Flanders, one can obtain a three dimensional picture of the dosage distribution throughout the whole of the cancer-bearing area. Such methods are of the greatest assistance in the attempt to deliver an equalized dose throughout the whole volume of tissue treated and are of inestimable value in guiding the radiotherapist in his prescription of treatment. The dosage necessary to destroy a growth is not far removed from that which will produce radionecrosis. Without careful planning of the treatment, outlying fringes may easily receive too little radiation, while regions in the center or at the junctions of the fields of radiation are liable to suffer from overdosage. We are all only too familiar with the unhappy sequelae of overdosage in the form of bone and cartilage necrosis. These methods of accurate dosage measurement and control have greatly reduced the number of such cases of radiation necrosis.

Methods have also been devised for estimation of the dose delivered to parts of the body other than the tumor—the so-called integral dose—and by this means severe constitutional reactions can be avoided.

With these improved methods of dosage estimation and control, the part played by radiotherapy in the treatment of malignant disease is considerable. Elsewhere I have spoken of the value of palliative treatment in cases in which the disease is too advanced to justify any expectation of a permanent cure.

²²Read before the Section on Radiology at the Ninety-Seventh Annual Session of the American Medical Association, Chicago, June 24, 1948.

In addition to their assistance in carrying out the patient's treatment, these technical methods have helped in many ways. There are three separate instances of this in my own work which I should like to mention. Firstly, in routine radiotherapy departments the radiation most commonly used is that derived from a 200 kilovolt roentgen ray set; this gives a much longer

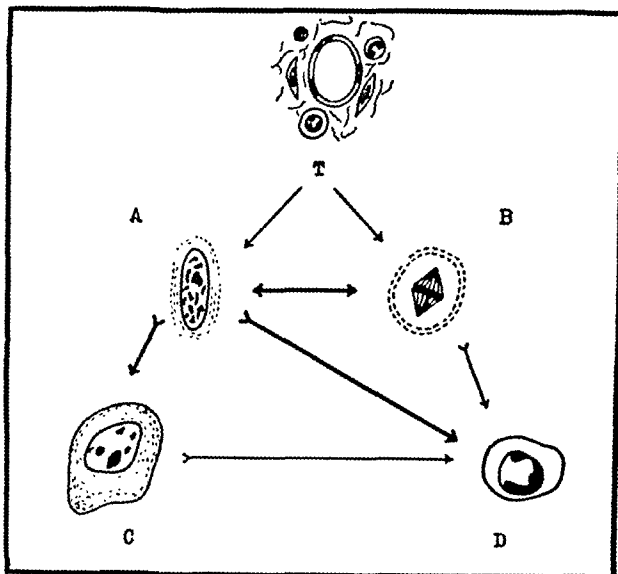


Fig. 2.—Graph of cell counts in a tumor showing a favorable response to radiation. The horizontal row of figures at the bottom represents time in days. The vertical column of figures at the left shows cell counts per hundred cubic centimeters.

wavelength than that derived from radium gamma rays which are equivalent to 1,700,000 volt roentgen rays. It was thought possible that the shorter wavelength radiation from radium might have a different biologic effect from that of 200 kilovolt roentgen rays. In order to determine, therefore, whether there was any difference in the response of tumors to the two kinds of wavelength, an experimental comparison between a radium beam and a 200 kilovolt roentgen ray beam in the treatment of cancer of the mouth and throat has been carried out at the Medical Research Council's Radiotherapeutic Research Unit, London.¹ The experiment was very time consuming. The results have been assessed by a

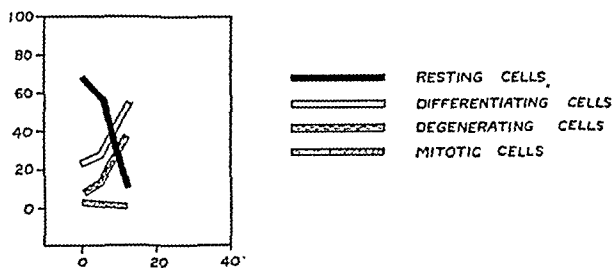


Fig. 2.—Graph of cell counts in a tumor showing a favorable response to radiation. The horizontal row of figures at the bottom represents time in days. The vertical column of figures at the left shows cell counts per hundred cubic centimeters.

new statistical method developed by Boag for estimating from interim clinical results the proportion of patients cured. The results do not indicate that the wavelength of radiation per se has any significant effect on clinical results. With still higher voltage roentgen rays one

cannot therefore confidently expect any improvement in clinical results due solely to the shorter wavelength of the radiation. The great advantage that can be expected from the higher voltages is not a different biologic effect but a greatly improved dosage distribution within the patient, which is possible with higher voltage roentgen rays. It will be appreciated that without the assistance of accurate dosage measurements, it would not have been possible to carry out this experiment with an accuracy sufficient to enable any confidence to be placed in the results obtained.

Secondly, my colleagues and I were able with the help of these technical methods to insure that in the treatment in a series of cases of mouth cancer, a comparable dose of radiation was delivered to both primary tumor and glands. It was thus possible to compare their relative radiosensitivity. Contrary to the opinion generally held, we found that when treated with comparable dosage the glands offer no greater resistance to radiation than does the primary tumor.¹ It would appear, therefore, that one must search for some other explanation to account for the higher mortality rate universally found in patients with lymph node involvement.

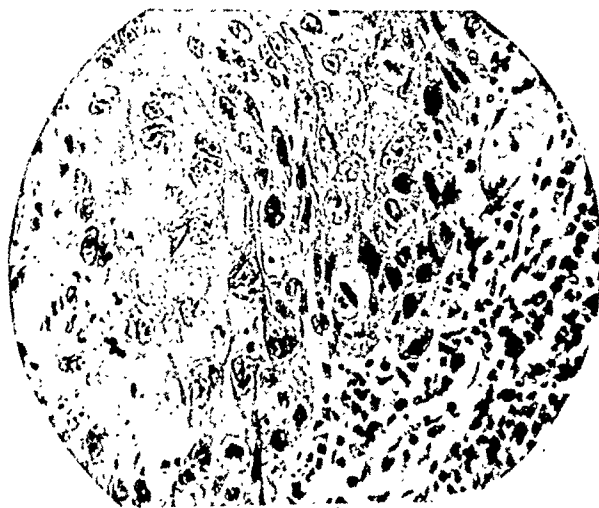


Fig. 3.—Photomicrograph before treatment of a tumor which showed a favorable response to radiation.

Thirdly, these technical methods have made it possible for a particular technic of treatment to be accurately repeated; they have enabled us to be certain that precisely the same dosage is being delivered to patients having similar lesions. By this means, we have found that epitheliomas in the mouth similar in clinical and microscopic appearance, when treated by precisely the same technic, do not necessarily give the same response to radiation.

There is not time to enlarge on the significance of these conclusions here. To one, at least, I wish to refer again later in this paper. The point I wish to stress now is that it would not have been possible to arrive at such conclusions without the assistance of methods of accurate dosage measurement.

In any future work with supervoltage roentgen rays or neutrons the physical control of dosage becomes increasingly important, and it is therefore essential that these technical methods continue to be developed. From a comparison of the clinical results of radiation treatment in recent years with those obtained some years ago, it has become clear, however, that the great advances which have been made in the technic of treatment have not resulted in a correspondingly large

1. Wood, C. A. P., and Boag, J. W.: Researches in the Radiotherapy of Oral Cancer, Medical Research Council, Special Report Series, London, His Majesty's Stationery Office, to be published.

increase in the proportion of patients cured. These improvements in technic were an essential preliminary step, and I have attempted to show the importance of the role they have played. I would emphasize, however, that it is in general no longer possible to ascribe failures in radiotherapy to an inability to deliver the predetermined dose of radiation to the tumor. It would appear that there are other factors than physical dosage which have a fundamental effect on the response of tumors to radiation.

A new method of approach is indicated, and the problem has become one of radiobiology. In an attempt to discover what biologic factors determine a satisfactory response to radiation an investigation has been carried out in the Medical Research Council's Radiotherapeutic Research Unit, London, in collaboration with Spear and Glucksmann of the Strangeways Laboratory, Cambridge.¹ This work deals with only one aspect of the whole problem, but it is, I think, of sufficient interest to warrant my giving the main outline of the work and the conclusions to be drawn from it.

In a series of patients treated by radiation for epitheliomas of the oral cavity a preradiation biopsy specimen

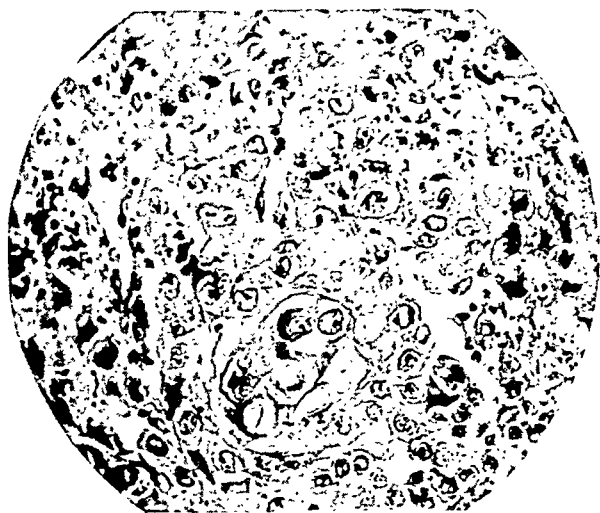


Fig. 4.—Photomicrograph on the fifth day of treatment, after 1,000 r to a tumor which showed a favorable response to radiation.

was taken in each case from the growing edge of the tumor, and then serial biopsies were made throughout the course of treatment. Cell counts were then made by Spear and Glucksmann in comparable areas of these biopsies.

The diagram (fig. 1) from the Strangeways Laboratory depicts the two types of cells in epithelial growths. The viable cells are the resting and mitotic cells—the nonviable are the differentiating and degenerating cells. The object of radiation is to convert viable into nonviable cells. This is done, firstly, by making the resting cells incapable of further cell division either by causing them to differentiate and so become sterile or by causing their immediate breakdown into degenerate cells and, secondly, by causing the breakdown of mitotic cells into degenerate cells, so preventing further cell division. These changes developing in individual tumors as a result of radiation may be followed by cell counts in serial biopsies and expressed in the form of graphs.

Figure 2 shows the response of a tumor in which radiation promoted progressive increase of differentiation and final disappearance of all the resting and mitotic cells, that is, of all viable cells so indicating the

destruction of the tumor tissue and final disappearance of growth. This type of graph is typical of a favorable response to treatment.

Figures 3, 4 and 5 are photomicrographs of the tumor depicted graphically in figure 2. The first biopsy specimen (fig. 3), taken before treatment, shows resting cells and mitotic cells.

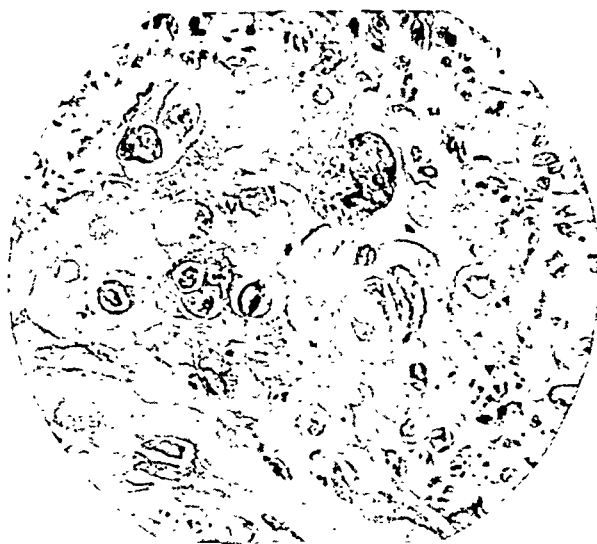


Fig. 5.—Photomicrograph on the twelfth day of treatment, after 2,000 r to a tumor which showed a favorable response to radiation.

The second biopsy specimen (fig. 4), taken on the fifth day of treatment, after 1,000 r had been given, shows an increase in the degree of differentiation. The proportion of the resting and mitotic cells has decreased, while the differentiating cells have increased. The degenerating cells have also increased in size, and two horny pearls are visible.

The third biopsy specimen (fig. 5) taken on the twelfth day of treatment, after 2,000 r had been given, shows still further differentiation. The resting cells have now almost all disappeared and have been replaced by keratinizing, that is, differentiating, cells. These are shown with darkly stained cytoplasm. They are on their way to cell death and will in due course be cast off as cell debris. The clinical end result in this case is in agreement with the histologic prognosis. The

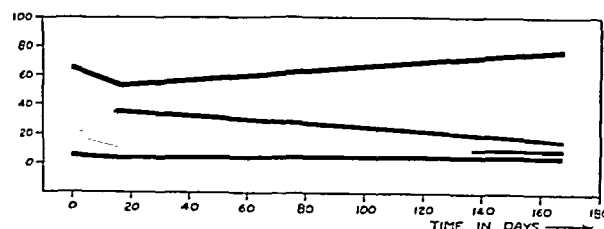


Fig. 6.—Graph of cell counts in a tumor showing an unfavorable response to radiation. The top bar represents resting cells; the second bar represents differentiating cells; the third bar represents degenerating cells, and the bottom bar represents mitotic cells. The horizontal row of figures at the bottom shows time in days, and the vertical column of figures at the left shows cell counts per hundred cubic centimeters.

patient had an extensive epithelioma of the soft palate just extending onto the hard palate. He also had lymph node involvement in the neck. After radiation both primary growth and enlargement of the nodes disappeared, and he has remained symptom free for five years, without any recurrence of the growth, at the time of writing.

Figure 6 shows the response of a tumor in which there are only minor variations in the cell counts, indicating the persistent growth of the tumor and an unsatisfactory response to radiation.

Figures 7, 8 and 9 are photomicrographs of the tumor depicted graphically in figure 6. The biopsy

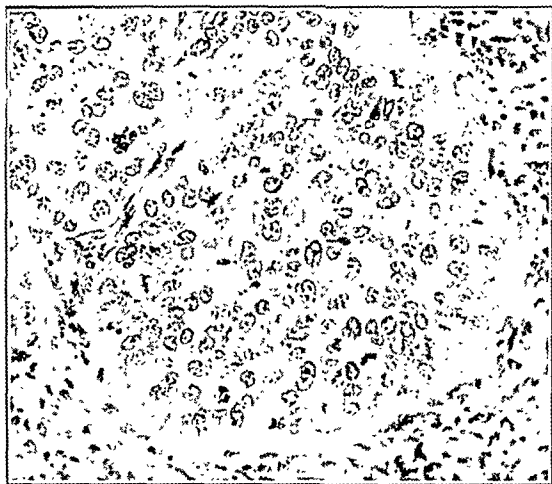


Fig. 7.—Photomicrograph before treatment of a tumor showing an unfavorable response to radiation.

specimen shows a persistence of actively growing tumor tissue, and the only noticeable change is a temporary increase in cell size after 1,000 r had been given.

The first biopsy specimen (fig. 7) was taken before treatment began. The second biopsy specimen (fig. 8) was taken after 1,000 r had been given, five days after the beginning of treatment; the third biopsy specimen (fig. 9) was taken after 2,000 r had been given, ten days after the beginning of treatment. Looking at any of these biopsy specimens, every pathologist would give an actively growing squamous cell population—a very slight decrease in mitotic activity

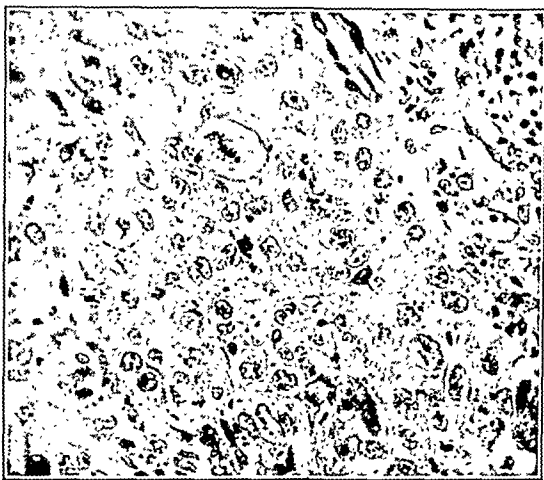


Fig. 8.—Photomicrograph on the fifth day of treatment, after 1,000 r to a tumor showing an unfavorable response to radiation.

and an equally slight increase in the incidence of degenerating cells.

The clinical end result in this patient is again in agreement with the histologic prognosis. This patient had an extensive ulcerating epithelioma involving the right tonsil. No glands were present. The growth

never responded to radiation, and the patient died within eleven months of starting treatment.

The biopsy observations can be regarded as typical for the whole tumor only if the dose delivered to the biopsy site is comparable with that given to other parts of the tumor.

Spear and Glucksmann found that by these cell counts a prognosis could be made for the malignant tissue in the treated area and that the eventual response of individual tumors could be foretold.

We found that in our series of carcinoma of the oral cavity an accurate prognosis was made concerning the end clinical result in the large majority of cases. In a series of 90 cases there was agreement between the histologic prognosis foretold by these cell counts and the subsequent clinical result in 75 cases. It will be seen that in only 1 case in which the histologic prognosis was favorable was the clinical result unfavorable. This is highly significant, and a statistical analysis shows that, if there were no correlation between prognosis and clinical result, agreement such as this would be obtained merely by chance once only in 100,000,000 trials.

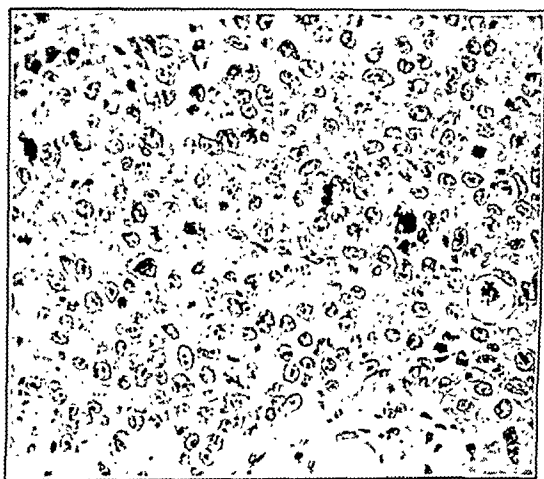


Fig. 9.—Photomicrograph on the tenth day of treatment, after 2,000 r to a tumor showing an unfavorable response to radiation.

These cell counts have led to the conclusion that an increase following radiation in the proportion of differentiating cells distinguishes those epitheliomas which will respond favorably to radiation from those failing to respond. The promotion of differentiation, therefore, appears to be an important factor in the sterilization of tumor tissue. This increase in differentiation takes place most frequently, but not always, in tumors of the differentiating type, though anaplastic tumors do sometimes differentiate as a result of radiation treatment.

The capacity to respond to radiation by differentiation is more likely to be present in the differentiating type of tumor than in the anaplastic; but, as Glucksmann pointed out, it does happen that in some differentiating tumors this capacity appears to have reached its full limits while in some anaplastic tumors there is a latent capacity for differentiation.

The promotion of differentiation by radiation depends on an inherent capacity in the tumor cells, and such changes in individual tumors can be recognized only by examination of serial biopsy specimens. I have already made reference to the fact that we found that

two growths which appear similar both clinically and histologically, when treated by precisely the same radiation technic, do not necessarily give the same response. This difference in response would be explained if the cells of one tumor possessed the capacity to differentiate after radiation, while in the other tumor this capacity was lacking.

It has for many years been a well recognized fact that the highly differentiating epitheliomas of the skin give far better clinical results to radiation treatment than epitheliomas arising in such sites as mouth and throat. These better results in the cutaneous tumors are not due to any refinements in radiotherapeutic technic, but must be ascribed to difference in the incidence in these two sites of tumors which respond to radiotherapy by differentiation.

Inability to cause differentiation is one cause of failure of radiation treatment. These cell counts indicate that another cause may be the persistence of precancerous lesions.

Figure 11 shows a stretch of untreated epithelium of the tongue with both normal and precancerous areas.

		HISTOLOGIC PROGNOSIS		TOTALS
		F	U	
CLINICAL RESULT OF ORIGINAL TREATMENT	F	16	14	30
	U	1	59	60
TOTALS		17	73	90

Fig. 10.—Carcinoma of the mouth and throat. Analysis of the agreement between histologic prognosis and clinical result (F, favorable; U, unfavorable).

in the basal layer. In the precancerous area the small darkly stained resting cells have increased to four or five basal layers. The resting cells have relatively little cytoplasm and a relatively large nucleus; this is why they are stained darker than the larger differentiating cells which have relatively more cytoplasm.

The main characteristic of the precancerous change consists in a relative increase in the number of resting and dividing cells, i. e., the viable cells, and a relative decrease in the number of differentiating cells. The difference in the relative proportions of resting to differentiating cells for normal and precancerous areas is well illustrated in this figure. The cell counts have shown that a precancerous area near a cancer included in the treatment field may respond differently to radiation from the area of frank malignancy. It was found that in some patients it is possible to sterilize the area of frank malignancy while the precancerous lesion persisted in spite of radiation, and subsequently a new tumor (wrongly called a recurrence) developed in the treated area.

Figure 12 shows the reaction to 1,000 r of a normal stretch of epithelium in a carcinoma of the tonsil. The basal layer of the epithelium is denuded of cells which have degenerated and which are still visible as degenerate cells or marked by gaps. Only a few resting cells remain.

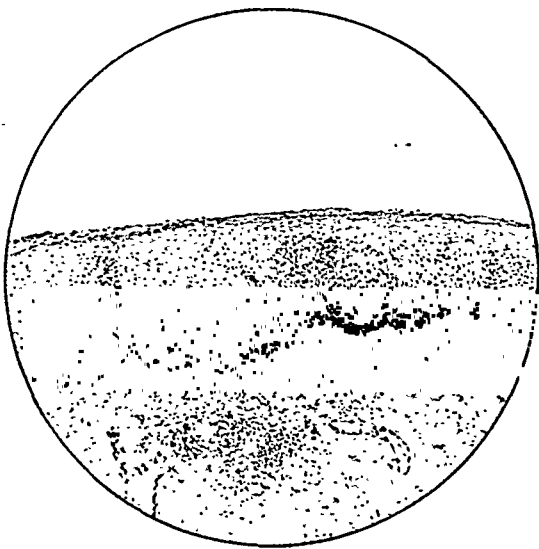


Fig. 11.—Photomicrograph showing a stretch of untreated epithelium of the tongue with both normal and precancerous areas.

Figure 13 shows a precancerous stretch of epithelium after the same time, five days, and after the same dose, 1,000 r. Here the basal layer is complete, one cell layer thick and composed of resting and mitotic cells.

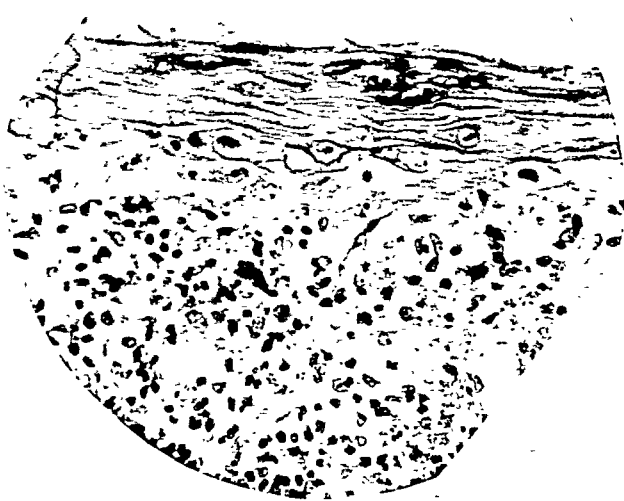


Fig. 12.—Normal stretch of epithelium after administration of 1,000 r.

Figure 14 shows a precancerous area of the epithelium on the fifteenth day and taken after 2,000 r had been administered. The basal stratum is now at least three cell layers thick and composed of resting and mitotic cells. There are a few degenerate cells at the border between the basal layer and the keratin-

ized layers. These biopsies illustrate that the mitotic activity may persist in a treated precancerous lesion and that in such an area, even with radiation treatment, an increase in the proportion of viable resting cells may develop. Thus, in some patients, although the response of the malignant tissue is favorable, as indi-

It is not possible for the end clinical result of radiation on a tumor to be judged by the immediate macroscopic effect, such as shrinkage in size of the tumor, but by these cell counts it is possible to judge what the end clinical result will be.

CONCLUSION

The work of Spear and Glucksmann stresses the importance of tumor type. The problems of nondifferentiating epitheliomas and precancerous lesions are subjects for future research. It appears as if entirely different treatment may be necessary for different types of epitheliomas arising in the same site and that further improvements in physical technic are unlikely to bring about better results without due regard to tumor biology. It is felt that advancement in knowledge of the fundamentals of radiobiology leading to a better understanding of the action of radiation on the living cell offers the greatest possibility of any improvements in the radiation treatment of malignant disease.

ABSTRACT OF DISCUSSION

DR. DOUGLAS QUICK, New York: Dr. Wood has been devoted to improving the accuracy of therapy by irradiation. Her approach has been methodical and carefully planned, first by direction, then by localization, next by calculations of exact amounts at various points of distribution and now an attempted approach through radiobiologic channels. As a clinician long associated with radium, I have never been quite able to accept the accumulating evidence in favor of no variation in tissue effect with varying qualities of radiation. Dr. Wood comes nearer than anyone else to convincing me that there is no difference in effect between roentgen rays and the gamma rays of radium, other than a quantitative one—almost, but not quite. However, I cannot accept Dr. Wood's second assumption, namely, that the primary growth and its metastatic node show equal response to equal quantities of radiation. My statement presumes to oppose pure science—that is, clinical measurements—by opinion. However, careful observations over a period of years and under many and varying conditions are of some value. It is my experience that the metastatic lymph node is regularly more resistant to irradiation than is its parent or primary growth. I see nothing illogical in the fact that there is a higher mortality rate in patients with metastatic nodes than in those without them. It is not a question of radiation at all. It is because that particular growth had extended into or through the lymphatics before any treatment was instituted; it was no longer a local process. When it comes to the study of serial biopsies of patients under treatment by radiation, and the drawing of conclusions attributing the response to radiobiologic reactions, I feel that a tumor pathologist should take over on the discussion, rather than to have the humble opinion of a cancer clinician. Regard for the high caliber of Dr. Wood's work forces me to say that my comment is not to be interpreted as criticism. It becomes a matter of assessing the cause or influence chiefly responsible for bringing about the changes noted histologically. In this country it has been for many years generally accepted that Broder's classification of tumors, based largely on their degree of differentiation, has served as a fairly accurate guide to the anticipated response to a given unit of radiation. I wonder whether Dr. Wood's interpretations are an elaboration and an effort at refinement of that classification as therapy is progressing, and yet I am not quite able to interpret it as such. We have for long known that many clinical factors influence the response in seemingly identical cases to treatment by irradiation. I might refer to just two, that is, secondary anemia and local sepsis. We are all familiar with the improved response to irradiation when these conditions are corrected. They are

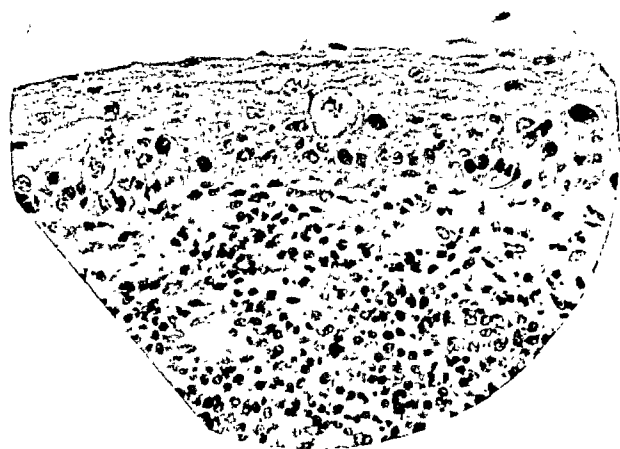


Fig. 13.—Precancerous stretch of epithelium after administration of 1,000 r.

cated by an increase in differentiating cells, yet the prognosis is unfavorable if in later biopsies precancerous lesions persist. This persistence of precancerous lesions can be recognized only histologically, and months or years may elapse before frank malignancy supervenes and produces clinical symptoms. About

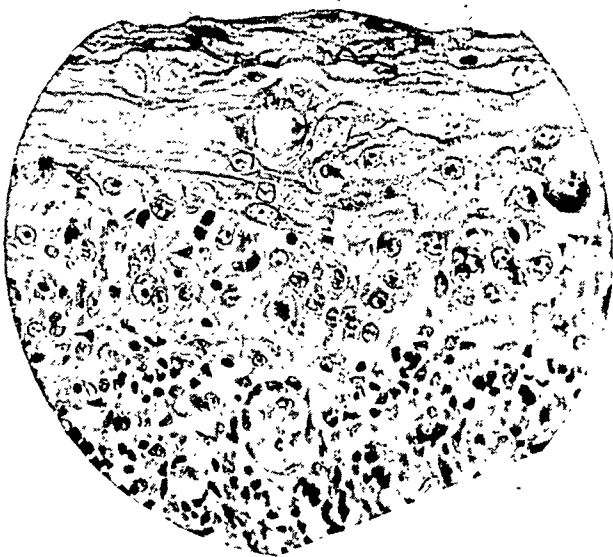


Fig. 14.—Precancerous stretch of epithelium after administration of 2,000 r.

one third of the failures in treatment in our series of carcinoma of the mouth and throat was due to the existence of precancerous lesions. It is interesting that the clinical history of such patients showed decided difference in the incidence and duration of "temporary healing," as compared with that of patients in whom frankly malignant tissue persisted in spite of treatment—80 per cent of patients with precancerous lesions enjoyed a period of complete freedom from symptoms.

controllable today, within reasonable limits and without undue effort, through the use of antianemic drugs and transfusions and by the antibiotics and local hygiene. I would like to suggest that a study such as Dr. Wood has so painstakingly done would be more convincing if all the cases, in addition to similar histologic standards and anatomic locations, be brought to a minimum clinical acceptance standard as well, before institution of the study and treatment. If all patients were selected within a middle life age level, with serious chronic diseases eliminated, with the blood picture brought up to a minimum standard and local and general sepsis eliminated actively by adequate local measures, plus the vigorous use of such antibiotics as penicillin and sulfonamide drugs, if necessary, the changes then found in serial biopsies would be more impressive and less liable to controversial interpretation.

DR. CHARLES L. MARTIN, Dallas, Texas: I, too, wish to express my appreciation to Dr. Wood for her excellent presentation. I am not capable of discussing much of her paper, but am certain that American radiotherapists will be interested in the material presented. Most of us agree that clinical results are not dependent on wavelength and that histologically similar tumors may behave differently when subjected to identical doses of radiation. However, a rather extensive experience with the radiologic treatment of metastatic cervical lymph nodes has led me to believe that the dose needed to eradicate squamous cell carcinoma in nodes is definitely larger than the dose needed for a primary lesion. It is my impression that most of the radiologists in this country are of the same opinion. Perhaps Dr. Wood will be good enough to give us some of her clinical data indicating that the radiosensitivity of cancer cells in the two locations is identical. The second portion of her paper, dealing with tumor cell counts as indicators of biologic effect, is a step in the right direction. Certainly, the time has come for us to develop some method of measuring biologic effect rather than ionization in terms of roentgens. In my opinion, the curability of cancer depends for the most part on the size of the total effective dose—and I wish to underline “effective”—regardless of how sensitive the cells may be to 1,000 or 2,000 gamma roentgens. In fact, my own best end results are obtained with tumors having the lowest radiosensitivity as we measure it in this country. Dr. Wood tells me that her total tumor dose amounts to about 6,000 gamma roentgens given in a period of about forty days. The effective dose with such factors is much smaller than that produced by 6,000 to 12,000 gamma roentgens given in seven days with low intensity radium needles with the technic favored by Sir Stanford Cade and myself. The larger doses should yield a higher percentage of cures. If this be true, her estimation of curability based on the cell response to only 1,000 to 2,000 gamma roentgens would not be applicable to technics such as ours. The work which she has presented is interesting, but I must admit a lack of enthusiasm for prognostic tests based on the administration of small amounts of radiation in short periods.

DR. B. W. WINDEYER, London, England: I was interested in the remarks made by Dr. Quick and Dr. Martin on radiosensitivity and differentiation. Dr. Quick said that it is generally accepted in this country that the Broders classification gave a rather good general index of radiosensitivity. I think that in Great Britain we have been increasingly disappointed with Broders' classification as an index of radiosensitivity. Personally, if I had an epithelioma of the lip, I would rather pray for one which was fairly well differentiated rather than an undifferentiated one, purely from the radiosensitivity point of view. I was also interested in Dr. Martin's view that the majority of his good end results were in cases in which there did not appear to be a great degree of radiosensitivity from a histologic point of view. I think that all these things link up somewhat with the report which Dr. Wood has given us, and I feel that the Broders' classification does not give a true view of radiosensitivity.

DR. CONSTANCE A. P. WOOD, London, England: Dr. Quick and Dr. Martin have referred to my comment on the response of glands to radiation. The accompanying figure shows a

graphic test for correlation between tumor regression time and glandular regression time. Each dot represents a patient; the glandular regression time is plotted along one axis and the tumor regression time along the other. It may be seen that there are about as many cases in which the glands responded more readily than the tumor as there are cases in which the tumor responded more readily than the glands, and there is a tendency for long glandular regression time to be associated with long tumor regression time, and vice versa. My co-workers and I conclude, therefore, that when doses of the same order are delivered to both the glandular region and the primary tumor the glands offer no greater resistance to radiation than does the primary growth. This conclusion is supported by a study we made of the spread of cancer at the time of death in about 400 patients with oral cancer, who died with cancer present. We found that the majority of patients who had no glands present when treated died without cancer in the glands, while those who had glands present at the time of treatment had cancer in both primary site and

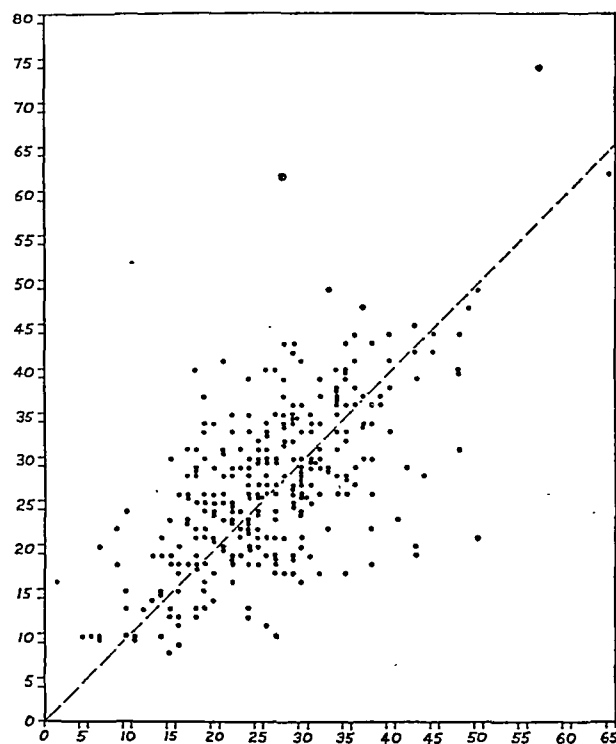


Fig. 15.—Graphic test for correlation between tumor regression time (shown in the horizontal row of figures at the bottom, in days) and glandular recession time (shown in the vertical column of figures at the left, in days).

glands at the time of death. These observations do not support the generally accepted view that cancer in secondary glands yields less readily to radiation than does the primary growth. I agree with Dr. Quick that the more anaplastic types of growth are the most radiosensitive. It is important, however, to distinguish between radiosensitivity and radiocurability. We have found that the more highly differentiated types of squamous epithelioma give better end clinical results to radiation, though their initial response is not so rapid as in the anaplastic types. A higher proportion of patients with the anaplastic types had glands present at the beginning of treatment, and this type gave poor end results in both primary site and glands. The better results universally obtained in the treatment of cutaneous and lip cancer than, for instance, in oral cancer, must be attributed not to any refinements in radiologic technic but to the greater incidence of differentiated tumors in the skin. The method I have described of using cell counts is just one way of attempting to determine what biologic factors influence the response of cancer to radiation. A biopsy gives only a static

picture of what is happening in the tumor. With the advent of radioactive isotopes, we have weapons which make a more dynamic picture possible; and considerable progress has already been made along these lines by work with isotopes in the United States. I think that a better understanding of the action of radiation on the living cell offers the greatest possibility of any improvement in the radiation treatment of malignant disease.

THE DOCTOR AND THE NEW INTERNATIONAL LIST OF DISEASES AND CAUSES OF DEATH

HALBERT L. DUNN, M.D.
Washington, D. C.

The First World Health Assembly, on recommendation of the International Conference, prescribed on July 24, 1948, the use of the International Statistical Classification of Diseases, Injuries, and Causes of Death by its member nations. Thus, the first international morbidity-mortality code came into being. This fact is of significance to the medical profession, particularly those interested in comparability and uniformity of useful morbidity statistics produced by hospitals, clinics and medical insurance plans. Also of significance is the international adoption of a uniform medical certificate of causes of death on which will be based a new procedure for selecting the cause of death to be tabulated. In this new procedure, the physician plays the determining role by indicating the underlying cause to be tabulated.

Every ten years, it has been an international tradition to revise and modernize the international list of causes of death. In accordance with this tradition, an international conference was convened in Paris by the French Government from April 26 to 30, 1948. Delegates from 29 countries were present: Belgium, Bulgaria, Canada, Chile, Cuba, Czechoslovakia, Denmark, Ecuador, Ethiopia, France, Greece, Guatemala, Hungary, Iceland, India, Ireland, Italy, Luxemburg, Mexico, Netherlands, Norway, Poland, Portugal, Siam, Sweden, Switzerland, United Kingdom, United States of America and Venezuela.

The planning for the conference was carried out jointly by the health statisticians of the French Government and the Interim Commission of the World Health Organization. The latter had appointed an expert committee to carry out the preparatory work under the terms of the arrangement of July 1946, concluded by the governments represented at the International Health Conference. A truly epochal advance in the field of disease classification was made at this Sixth Decennial Conference for the Revision of the International List. For the first time, there was established a combined statistical classification for both sickness and causes of death. Previously, only mortality data had been coded according to an internationally accepted statistical classification. Now it will be possible to classify and tabulate both illness and cause of death by the use of the same code, thus making possible comparable morbidity statistics among hospitals, among clinics, among health departments of states and among the health agencies of the nations.

Sweeping changes were incorporated in the new international list. However, most of these changes

were made within the general structure of the previous international list of causes of death. The list was expanded considerably, from 450 to 610 categories for diseases and morbid conditions, with an additional 153 categories for the classification of external causes of injuries and 180 for the characterization of injuries in accordance with the nature of the injury. The injury classifications are supplements to the disease code, and either or both of these two supplemental classifications can be used, the first being particularly adapted for mortality coding and the latter for morbidity purposes.

The revised international list of diseases and causes of death consists of a list of three digit categories with a special fourth digit subdivision. The fourth digit subdivisions will be particularly useful for hospitals, clinics and specialized medical services. In contrast to the previous international code for mortality, the proposed classification is well adapted to mechanical tabulating equipment.

It should be mentioned here that the International Statistical Classification of Diseases, Injuries and Causes of Death is not intended to replace the Standard Nomenclature of Diseases and Standard Nomenclature of Operations, which is now being widely used in the United States. The function of a statistical classification is to provide quantitative data on groups of cases of allied diseases or conditions. On the other hand, a medical nomenclature is basically a list or catalog of approved terms for describing and recording clinical and pathologic observations which has important uses in the study of disease.

Manual of the International Statistical Classification of Diseases, Injuries, and Causes of Death.—A manual of the International Statistical Classification of Diseases, Injuries, and Causes of Death will be published by the World Health Organization in an English, a French and a Spanish edition. There will not be a United States' edition of the list as has been true in previous decennial revisions. All of the English-speaking nations have agreed to purchase their copies of the manual from the World Health Organization in the interest of greater international comparability in classification. The World Health Organization plans to publish this work in two volumes; the first, about 375 pages in length, consisting of the introduction, list of categories, tabular list of inclusion terms, rules for medical certification and classification of the joint causes of death, and certain selected lists for special tabulation purposes. Of particular interest to hospitals are the special supplemental sections on special admissions without illness, and provisions for the count of various types of deliveries. For statistical purposes, the World Health Assembly has recommended, as an interim measure, the inclusion as liveborn infants all infants who after complete separation from the mother show any signs of life. The second volume, approximately 520 pages in length, will contain an alphabetic index. Volume 1 has been published and it is expected that volume 2 will be available for distribution about July 1, 1949.

Other innovations were made at the Paris conference. One which is of particular interest and importance to physicians is the introduction of an international form for the recording of the causes of death in the medical certification of death. The method by which the questions are asked on the medical certificate will be uniform on death certificates throughout the world. This suggested form of medical certification, which is

basically the same as that used in the United States for the past ten years, places on physicians the responsibility for indicating the underlying cause of death, namely, the disease or injury which initiated the sickness or morbid condition leading to death (fig. 1).

Another innovation which is a radical departure from the previous procedure in the United States involves the scrapping of the Manual of Joint Causes of Death for selecting the primary cause of death when several causes are given jointly on the death certificate. Previously, these rules have been applied by code clerks in the processing of mortality statistics. Now, however, the physician's judgment as indicated by the order of the diseases placed on the medical certificate form will be used generally for determining the underlying cause of death. For many years, physicians in this country have wanted to bring about this change. Now that the change is being made, it will be necessary for the members of the profession to strive to secure a better understanding of the medical cer-

lying cause without recourse to any arbitrary joint cause priority system, if the statement of the causes of death is not inconsistent within itself. A few simple rules have been retained to apply to those cases where the entries made by the physicians are obviously given in the wrong order. These rules have been recommended by the World Health Organization and will apply uniformly in every country using the new international list.

IN CAUSE OF DEATH		MEDICAL CERTIFICATION		INTERVAL BETWEEN ONSET AND DEATH	
1. Disease or condition directly leading to death (a)		Pulmonary edema		1 day	
2. Antecedent causes		11. Other significant conditions		21. Autopsy	
3. Date of operation		12. Major findings of operation		22. Date signed	
21a. Accident		21b. Place of injury		21c. City, town, or township	
21d. Time of injury		21e. Injury occurred		21f. How did injury occur?	
22. I hereby certify that I attended the deceased from 19 to 19, that I last saw the deceased alive on 19, and that death occurred at 19, from the causes and on the date stated above.		23. Signature		24. Address	

Fig. 2.—Sample data.

The following example shows how variations in reporting of causes of death may affect the selection of the cause of death to be tabulated, and how the new coding procedure differs from the old joint cause priority system.

On Jan. 26, 1948, a 54 year old woman was admitted to the hospital with coronary sclerosis and was discharged on February 5 as improved. This woman had been receiving treatment for syphilitic aortitis since January 1938. On June 9, 1948, she was readmitted with myocardial infarction. On June 16 pulmonary edema developed, resulting in death on June 17.

If, in the physician's opinion, the pulmonary edema developed from the syphilitic aortitis, the medical certification of death should be made out as in figure 2. On the other hand, if the pulmonary edema was the consequence of myocardial infarction, the cause of death should be reported as in figure 3.

Under the old joint cause rules, both certificates would have been assigned to syphilitic aortitis. However, under the new system the coder accepts the doctor's statement of the underlying cause unless it is inconsistent within itself. Therefore, since the cause leading directly to death, pulmonary edema, could have been the

IN CAUSE OF DEATH		MEDICAL CERTIFICATION		INTERVAL BETWEEN ONSET AND DEATH	
1. Disease or condition directly leading to death (a)		Pulmonary edema		1 day	
2. Antecedent causes		11. Other significant conditions		21. Autopsy	
3. Date of operation		12. Major findings of operation		22. Date signed	
21a. Accident		21b. Place of injury		21c. City, town, or township	
21d. Time of injury		21e. Injury occurred		21f. How did injury occur?	
22. I hereby certify that I attended the deceased from 19 to 19, that I last saw the deceased alive on 19, and that death occurred at 19, from the causes and on the date stated above.		23. Signature		24. Address	

Fig. 3.—Sample data.

consequence of the train of events shown in part 1 of either certificate, the coder would make the assignment in accordance with the doctor's statement. The underlying cause of death shown in figure 2 would be syphilitic aortitis, and in illustration 3, heart disease involving coronary arteries. Thus, it is seen how important it is for the attending physician who knows most about the facts of the death to fill in the certificate to show the proper relation of the conditions involved in the death.

1949 Revision of Standard Certificate		Form approved	
1. PLACE OF BIRTH		2. USUAL RESIDENCE	
3. CITY		4. STATE	
5. LENGTH OF STAY		6. CITY	
7. FULL NAME OF DECEASED		8. STREET ADDRESS	
9. SEX		10. DATE OF BIRTH	
11. MARRIED NEVER MARRIED		12. CITIZEN OF WHAT COUNTRY?	
13. FATHER'S NAME		14. MOTHER'S MARRIAGE NAME	
15. WAS DECEASED EVER IN U.S. ARMED FORCES?		16. SOCIAL SECURITY	
17. I hereby certify that I attended the deceased from 19 to 19, that I last saw the deceased alive on 19, and that death occurred at 19, from the causes and on the date stated above.		18. SIGNATURE	
19. DATE		20. ADDRESS	
21. DATE		22. DATE	
23. NAME OF CEMETERY OR CREMATORY		24. LOCATION (CITY, TOWN, OR TOWNSHIP)	
25. REGISTRATION		26. SIGNATURE	
27. DATE		28. ADDRESS	

Fig. 1.—Standard death certificate.

tification in order to secure more adequate medical information on death. Ultimately, the success of this new type of certificate will depend on the willingness of the attending physician to fill in correctly the information on death certificates.

In this country, the international form of medical certification has been incorporated into the 1949 revised standard death certificate. Without exception, state health departments have agreed to incorporate the international wording into the state death certificate forms. Most physicians are familiar with the change in wording since all the county medical societies were consulted by the National Office of Vital Statistics of the Public Health Service in the planning of the revision of the death certificate. The medical certification form does not differ radically from the one which has been in use over the last ten years. It is anticipated that the inclusion of explicit directions on the face of the form will aid physicians in recording a more complete and more accurate response.

The statistical clerk who receives the death certificate must accept the physician's judgment as to the under-

In agreeing on the new list and classification procedure, the international revision conference also recommended that, besides the usual primary cause tabulations, each nation publish annually a multiple cause tabulation designed to show the force of mortality for combinations of causes. To prepare such a tabulation, it will be necessary to code both the underlying and contributing causes for each death certificate filed. Unless the physician does his part of the job, the final statistical picture of health conditions in this country will not be complete and may even be misleading.

The new international list, certificate and coding procedure went into effect on Jan. 1, 1949. Many statistical offices will also use the old codes during 1949 so as to smooth the transition period and determine the degree of comparability between the death statistics of the 1940's and the 1950's. Of course, some comparability will be lost, but the change to a sounder medical basis of classification will be worth that sacrifice.

For many years, the comparability of causes of death in different localities of the United States and, with some reservations, international comparisons has been accepted. But, in the past, data on illnesses from two different hospitals even within the same state had to be qualified with explanations of whether they were using the Massachusetts General Classification, the United States Public Health Service Classification or some one of a dozen other classifications. Beginning Jan. 1, 1949 all hospitals availing themselves of the new manual will be able to compare their illness statistics. The Medical Research Division of the Veterans Administration is already classifying discharges from all Veterans Administration hospitals by the new morbidity-mortality code. Since the death certificates are classified in the same groups, the possibilities, which the Veterans Administration hopes to see materialize, of amassing data on relationships among the onset of a disease, its duration, the chances of survival, the frequency of complications and the relative value of different medical treatments, all seem to be closer to realization.

It is expected that the private and proprietary hospitals will also benefit by the use of the new international statistical code. These organizations have long expressed a need and a desire for a uniform morbidity classification for statistical purposes. The increasing number and varieties of public and private medical care programs, health and accident insurance plans will find the new statistical list designed to meet their needs. It will enable them to pool their experience statistically to arrive at better measures of morbidity risks.

The needs of national and international health programs can be met only through accurate and consistent mass statistical data. Just as public health thinking has progressed from saving lives to preventing disease, so the International Statistical Classification of Causes of Diseases, Injuries, and Deaths has kept step by making possible improved statistical studies of morbidity along with mortality.

American Legion Endowment Fund.—The American Legion raised a \$5,000,000 endowment fund in 1925, now increased to \$7,000,000, the income from which supports its National Child Welfare and Rehabilitation Services. The American Legion has expended since 1925 nearly \$70,000,000 in financial aid to needy children and veterans, most of the money going for medical treatment, food and clothing.—American Legion News Service, No. 140.

EFFECT OF URECHOLINE® ON THE STOMACH, INTESTINE AND URINARY BLADDER

I. F. STEIN JR., M.D.

and

KARL A. MEYER, M.D.
Chicago

Recent interest has been aroused in the drug urecholine®¹ (urethane of beta methylcholine chloride) by the demonstration of the stimulatory action of this drug on gastric motility following complete vagotomy. This action was first reported by Machella² and confirmed by Grimson,³ Stein,⁴ Smith⁵ and Dragstedt.⁶ Starr and Ferguson⁷ have reviewed the early literature and have demonstrated the value of urecholine® in post-operative urinary retention. The stimulatory effect of urecholine® on intestinal motility was reported by Youmans⁸ and has been further studied experimentally by Postlethwait.⁹

METHOD

The effect of urecholine® on the stomach was studied by means of kymographic tracing of gastric motility as well as clinical observations. A detailed report of the gastric motility studies was previously published.¹⁰

The effect of urecholine® on intestinal motility was studied by clinical observation of patients with adynamic ileus. The effect of urecholine® on the urinary bladder was studied both by manometric determinations of intravesical pressure and by clinical observation.

RESULTS

The results are summarized in the table.

Effect on the Stomach.—The motility response of the stomach to urecholine® was studied by us in 12 instances after complete vagotomy by placing a balloon in the stomach and recording on a kymograph. In each of 3 patients, 5.0 mg. of urecholine® given subcutaneously produced a decided increase in gastric tone and motility in five to ten minutes (fig. 1). When 10 mg. of the drug was given orally, in eight trials, there was usually a moderate to pronounced increase in the gastric motility in thirty minutes to one and one-half hours, lasting thirty minutes to three or more hours. Administration of 10 mg. of urecholine® sublingually produced a slight increase in gastric motility in 1 instance, whereas 25 mg. sublingually produced satisfactory stimulation. Clinical observations were made

From the Hektoen Institute for Medical Research of the Cook County Hospital and from the Departments of Surgery of the Cook County Hospital and Northwestern University Medical School.

1. The drug was supplied by Merck & Co., Inc., Rahway, N. J.
2. Machella, T. E.; Hodges, H. H., and Lorber, S. H.: The Restoration of Gastric Motility by Urethane of B-Methyl Choline After Section of the Vagus Nerves for Peptic Ulcer, *Gastroenterology* 8: 36-51, 1947.

3. Grimson, K. S., in discussion on Symposium on Peptic Ulcer with Particular Reference to Vagotomy, *Gastroenterology* 7: 623-624, 1946.

4. Stein, I. F., Jr.; Steigmann, F., and Meyer, K. A.: Studies of Gastric Motility on Ulcer Patients Before and After Vagotomy: Effect of Parasympathomimetic Drugs, *Federation Proc.* 6: 374, 1947.

5. Smith, R. C.; Ruffin, J. M., and Baylin, G. J.: The Effect of Transthoracic Vagus Resection upon Patients with Peptic Ulcer, *South. M. J.* 40: 1-10, 1947.

6. Dragstedt, L. R.; Harper, P. V., Jr.; Tovee, E. B., and Woodward, E. R.: Section of the Vagus Nerves to the Stomach in the Treatment of Peptic Ulcer: Complications and End Results After Four Years, *Ann. Surg.* 126: 687-708, 1947.

7. Starr, I., and Ferguson, L. K.: B-Methylcholine Urethane: Its Action in Various Normal and Abnormal Conditions, Especially Post-operative Urinary Retention, *Am. J. M. Sc.* 200: 372-385, 1940.

8. Youmans, W. B., and Waisman, R. C.: Effect of B-Methylcholine-Urethane on Normal and Reflexly Inhibited Intestine, *Proc. Soc. Exper. Biol. & Med.* 39: 135-140, 1938.

9. Postlethwait, R. W.; Hill, H. V., Jr.; Chittum, J. R., and Grimson, K. S.: Effect of Vagotomy and Drugs on Gastric Motility, *Ann. Surg.* 128: 184-194, 1948.

10. Stein, I. F., Jr.; Meyer, K. A., and Steigmann, F.: Studies on Vagotomy in the Treatment of Peptic Ulcer: IV. Changes in Gastric Motility and Effect of Drugs on Motility Following Complete Vagotomy, *Surg., Gynec. & Obst.* 87: 465-471, 1948.

of an additional 10 patients who had symptoms of gastric retention following complete vagotomy. The usual dose was 20 to 30 mg. three times a day before meals. The results were satisfactory in all cases. One patient required intermittent therapy for as long as five months.

Urecholine® was used in 5 patients in whom symptoms of poor gastric emptying or gastric retention followed gastric resection without vagotomy. The drug was given orally in doses of 10 to 20 mg. ten to twenty days following operation. In 4 cases the results were

Results of Studies

Condition	Dose (Mg.)	Number of Cases	Satisfactory Stimulation	Variable Response	Failure
I. Effect on the stomach					
1. Postvagotomy motility					
sublingual.....	10	1	..	1	..
oral.....	10	8	5	3	..
subcutaneous.....	5	3	3	..	..
2. Postvagotomy gastric retention					
sublingual.....	10-30	3	1	1	1*
oral.....	10-30	8	7	1	..
3. Gastric retention after partial gastrectomy					
oral.....	10-20	5	4	..	1
subcutaneous.....	5	1	..	..	1*
Total.....		29	20	6	3
II. Effect on the intestine					
1. Adynamic ileus caused by:					
A. Pneumonia subcutaneous.....	5	2	2	..	..
B. Gunshot wound of chest subcutaneous.....	5	1	1	..	..
C. Fractured lumbar vertebra subcutaneous.....	5	1	1	..	..
D. Postoperative					
sublingual.....	20-30	4	1	2	1
oral.....	20-30	4	3	1	..
subcutaneous.....	5	8	5	2	1
Total.....		20	13	5	2
2. Large ventral hernia subcutaneous.....	5	1	1	..	..
3. Megacolon.....	5-30	4	1	..	3
III. Effect on the bladder					
1. Postoperative urinary retention subcutaneous.....	5	18	15	..	3
2. Transverse myelitis					
subcutaneous.....	5	2	1	..	1
oral.....	25	1	1†	..	..
3. Paraplegia					
subcutaneous.....	5	2	2	..	..
oral.....	25	1	1†	..	..
Total.....		24	20	..	4
IV. Effect on the heart					
1. Paroxysmal auricular tachycardia subcutaneous.....	5	2	..	..	2
Total.....		80	55	11	14

* This case is also included under "oral."

† This case is also included under "subcutaneous."

excellent after the drug was given one to three times. In 1 case, repeated administration of the drug both orally and subcutaneously failed to produce gastric emptying. At reoperation, a kink was found obstructing the gastrojejunal anastomosis.

Symptoms of dizziness, warmth and epigastric fullness without vomiting were present in 2 of these patients after the ingestion of small amounts of food. These symptoms were completely relieved by the single or repeated administration of 10 to 20 mg. of urecholine® by mouth. It appears that small oral or sublingual doses of urecholine® may be of benefit in the treatment of the so-called postgastrectomy syndrome, or dumping stomach.

Effect on the Intestine.—Urecholine® was used on 20 cases of adynamic ileus. In 13 instances the patients passed gas and often feces in from ten minutes to two hours after the drug was given. The patients with more severe disease were given an initial dose of 5.0 mg. of urecholine® subcutaneously, followed in three hours by another injection or by 25 to 30 mg. orally or sublingually. The drug was repeated four times a day when necessary. Mild postoperative abdominal distention was usually relieved by the oral administration of 20 to 30 mg. of urecholine®. The response was variable in 5 patients, and gradual improvement was noted over a period of two or three days. Urecholine® failed to relieve the abdominal distention in 2 cases, in both of which only a single dose of the drug was given.

The use of urecholine® in adynamic ileus is illustrated in 2 cases:

CASE 1 (R. T.).—The patient was a 60 year old Negro who entered the hospital with a two day history of cough, pain in the chest, chills and fever. Physical examination revealed an acutely ill man with a temperature of 103 F., pulse rate of 120 and a respiratory rate of 40. Dulness, decreased breath sounds and rales were present over the left side of the chest. The results of the remainder of the physical examination were essentially normal. A diagnosis of left lobar pneumonia was made and confirmed by roentgenogram. A dose of 30,000 units of crystalline penicillin was given every three hours. The following day the condition of the patient was unchanged

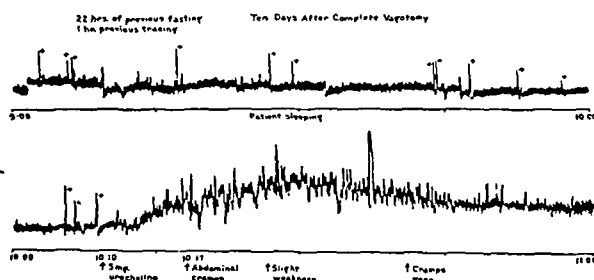


Fig. 1.—Effect of urecholine® on gastric motility.

except for the appearance of moderate distention of the abdomen. On the third hospital day, the abdominal distention became pronounced and the patient vomited. Gastric decompression was started, and intravenous fluids were given. A roentgenogram of the abdomen revealed gas-filled loops of both large and small intestine. On the fourth hospital day the temperature was 101 F., the pulse rate was 100 and the respiratory rate was 30. The abdomen was decidedly distended. The patient had passed no gas, and no relief was obtained with enemas or a rectal tube. On the fifth hospital day the condition was essentially unchanged. The patient had not passed flatus or stool in five days. An enema again failed to relieve the distention. The patient was then given 5.0 mg. of urecholine® subcutaneously. In ten minutes there was a copious passage of flatus, followed in one hour by a bowel movement. The Levine tube was removed, and within twelve hours the abdominal distention was gone and oral feedings started. The patient made an uneventful recovery.

CASE 2 (W. T.).—The patient was a 65 year old Negro who entered the hospital with a five day history of tenderness in the right inguinal region, cramping abdominal pain and vomiting. Physical examination revealed an acutely ill man with an extremely tender, incarcerated inguinal hernia. The patient was prepared for operation with Levine suction and fluids, including blood, given intravenously. At operation a gangrenous loop of small bowel was found in the hernial sac. This was resected and an end to end anastomosis performed. Postoperatively the patient was treated with penicillin, intra-

venous fluids and Levine suction. The patient was afebrile by the third postoperative day, but the abdomen remained decidedly distended. On the seventh postoperative day the patient still was decidedly distended. There had been no passage of gas or stool since five days before operation, or a total of twelve days. The abdomen was not tender, and occasional low pitched bowel sounds were present. It was apparent that the general condition of the patient was rapidly failing because of the severe adynamic ileus. Although urecholine® may be contraindicated after a recent intestinal anastomosis, the patient was given 5.0 mg. of urecholine® subcutaneously. Ten minutes later he passed a large amount of gas by rectum and shortly thereafter had a copious bowel movement. Within an hour the abdominal distention was almost completely relieved. The Levine tube was removed, and oral feedings were started. The patient subsequently made an uneventful recovery without further medication.

These 2 patients with adynamic ileus showed a prompt response to treatment with urecholine®. In the majority of cases the response was less dramatic and took place over a period of several hours.

A patient with a large ventral hernia was given 5.0 mg. of urecholine® subcutaneously in order that we

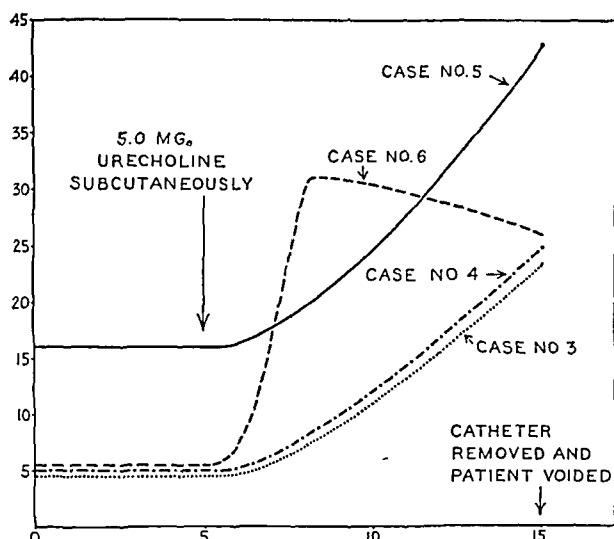


Fig. 2.—Effect of urecholine® on intravesical pressure. The vertical values at the left show bladder pressure in inches of water; the horizontal values show time in minutes.

might observe directly the effect of the drug on the motility of the small bowel. In ten minutes there was a decided increase in the bowel sounds and in both palpable and visible peristalsis. Three children and 1 adult suffering from megacolon received urecholine® orally for varying periods. In 1 case there was clinical improvement.

Effect on the Bladder.—An injection of 5.0 mg. of urecholine® was given subcutaneously to 18 patients with postoperative urinary retention. Fifteen of these patients voided in three to ten minutes following the injection. Catheterization was performed if the patient did not void in fifteen minutes, as was the case in 3 of the patients.

Urecholine® was used for urinary retention in 2 patients with transverse myelitis. In 1 patient (case 3) the result was entirely satisfactory. The other patient was extremely ill, and no beneficial effect was noted.

Two patients with urinary retention due to spinal cord injury and resultant paraplegia were treated with urecholine®. The evacuation of the bladder in 1 patient (case 4) was completely controlled by urecholine®. The

second patient (case 5) was relieved of urinary retention by the use of the drug.

The effect of urecholine® on the intravesical pressure was studied in 4 patients suffering from urinary retention (fig. 2). In all 4 patients there was a prompt increase in the intravesical pressure which reached a maximum in three to ten minutes. Ten minutes after the drug was given, the catheter, through which manometric readings were taken, was removed. In each case, the patient voided spontaneously within one minute. A brief summary of these 4 cases follows.

CASE 3 (A.R.).—The patient was a 40 year old white woman who had entered the hospital fourteen weeks previously with paralysis of both legs. A diagnosis of transverse myelitis was made, and the patient gradually regained the use of her legs. She was unable to urinate, however, and a retention catheter had been used most of the time. On four occasions the retention catheter was removed, but the patient was unable to void and intermittent catheterization was done. On three different occasions the patient was given 0.25 mg. of neostigmine every three hours for four doses, with no effect. After fourteen weeks of inability to urinate, urecholine® was tried. Three hundred cubic centimeters of sterile water was injected into the bladder, and the indwelling catheter was connected to a water manometer for the measurement of intravesical pressure. The basal pressure stabilized in less than five minutes at 4.5 inches (11 cm.) of water. Then 5.0 mg. of urecholine® was given subcutaneously. In two minutes the pressure began to rise, reaching a maximum of 23½ inches (60 cm.) of water in ten minutes. The catheter was then removed and the patient voided spontaneously. Five hours later she was given another 5.0 mg. injection of urecholine®, after which she urinated in five minutes. At this time she had 200 cc. of residual urine. The following day oral medication was started, 25 mg. of the drug three times a day. She urinated spontaneously, and the residual urine gradually decreased to 30 cc. at the end of two weeks, at which time urecholine® therapy was stopped. At the time of reporting she had had no further difficulty.

CASE 4 (J.H.).—The patient was a 48 year old Negro who had been shot in the abdomen. On entering the hospital shortly after being shot, he had signs of peritonitis as well as flaccid paralysis of both legs. At emergency operation, two perforations of the stomach and three of the jejunum were repaired. The transverse colon, containing two additional perforations, was exteriorized. An indwelling catheter was placed in the bladder. The patient made an uneventful recovery from operation, but the paraplegia was unaffected. Two weeks after operation, when ample time had elapsed for complete healing of the sutured stomach and jejunum, manometric readings were taken of bladder pressure. Three hundred cubic centimeters of sterile water were instilled into the bladder. After the pressure was stabilized at 5 inches (13 cm.) of water, 5.0 mg. of urecholine® was given subcutaneously. The pressure rose steadily, reaching a peak of 25 inches (64 cm.) of water after ten minutes. The catheter was then removed, and the patient voided. The patient was then given 25 mg. of urecholine® orally three times a day, as well as three daily injections of 5.0 mg. He voided after each injection, and after two days there was only 30 cc. of residual urine. After one week, the treatment was stopped. The urine then began to overflow, with 1,000 to 1,400 cc. in the bladder. At the time of writing, he was receiving frequent injections of urecholine® again and voiding after each injection.

CASE 5 (B.S.).—The patient was a 30 year old white man who had a broken back six years prior to examination, with resulting paraplegia. Three weeks prior to examination he had had a cordotomy for intractable pain in his legs. He had been unable to void, and an indwelling catheter was in place. One hundred and fifty cubic centimeters of potassium permanganate solution (1 to 5,000) was instilled into the bladder. After the basal pressure was stabilized at 17 inches (43 cm.) 5.0 mg. of urecholine® were given subcutaneously, following which the

intravesical pressure went up to 43 inches (109 cm.) at the end of ten minutes. The catheter was removed, and the patient voided. At the time of reporting, his bladder was overflowing with a small capacity and will probably require some form of tidal irrigation.

CASE 6 (D. H.).—The patient was a 36 year old white woman who had a cystocele and rectocele repaired with spinal anesthesia. An indwelling catheter was kept in the bladder for four days after operation. On removal of the catheter the patient could not void and required additional catheterizations for ten days. During this time the patient was given neostigmine (0.5 mg. every four hours for four doses) on three different occasions without effect. Urethral sounds were passed, and there was no stricture. On the fourteenth post-operative day manometric readings were taken. Three hundred and fifty cubic centimeters of sterile water was injected into the bladder, and the pressure was stabilized at 5.5 inches (14 cm.) of water. Three minutes after 5.0 mg. of urecholine® had been given subcutaneously, the intravesical pressure had risen to 31 inches (79 cm.). After ten minutes the pressure was 26 inches (66 cm.) of water. The catheter was then removed, and the patient voided 250 cc. Six hours later she was given another 5.0 mg. injection, five minutes following which she voided 350 cc. The following morning she voided 600 cc. spontaneously, with no residual urine, and remained asymptomatic.

Effect on the Heart.—A subcutaneous injection of 5.0 mg. of urecholine® had no effect in 2 cases of paroxysmal auricular tachycardia.

COMMENT

Urecholine® is a parasympathomimetic drug which acts on the stomach, intestine and bladder in the presence or absence of the preganglionic parasympathetic innervation. The effect is similar to that of doryl® (carbamylocholine chloride), although probably less toxic because of a weaker nicotine-like action.⁷ Urecholine® appears to have little if any action on the heart. In several cases electrocardiograms were taken while the drug was being given, with no noticeable effect. There has been no effect noted on the blood pressure or the pulse rate.

Dosage and Method of Administration.—The dosage and method of administration of urecholine® must be selected in each case. Intravenous injection was not attempted. Intramuscular injection was given in 10 instances, and, since the results were similar to those obtained after subcutaneous injection, these cases have been included in the text and in the table under the heading "subcutaneous." A dose of 5.0 mg. of urecholine® given subcutaneously produces a rapid but transitory increase in the tone and motility of the stomach, intestine and urinary bladder. This amount has been given as often as every four hours for four doses. A dose of 10.0 mg. of the drug given orally usually causes gradual increase of gastric and intestinal motility. The oral administration of 30 mg. of urecholine® usually causes a decided increase in the motility of the stomach and intestine as well as an increase in the tone of the urinary bladder. This dose has been given as often as three times a day. Sublingual administration of 10 to 30 mg. of urecholine® may produce mild contractions of the stomach or intestine.

Toxic Symptoms.—The toxic symptoms or side effects have been few in number and in no case serious. A feeling of warmth, flushing and sweating occur in about one quarter of the cases after subcutaneous injection of the drug. Mild abdominal cramps may occur after the subcutaneous or oral use of the drug. There

is occasional salivation. In no case was it necessary to give atropine to counteract the effect of urecholine®.

Contraindications.—The contraindications to the use of urecholine® are based on theoretical considerations. Urecholine® may cause a decided increase in gastric and intestinal peristalsis and should not be used after a gastrointestinal anastomosis until healing has taken place. The drug should not be used in the presence of peritonitis or mechanical intestinal obstruction. Urecholine® may cause contraction of the pregnant uterus, and, until this action has been studied, the drug should not be used during pregnancy. Urecholine® should not be given to an asthmatic patient, for it may precipitate an attack.

SUMMARY AND CONCLUSIONS

Urecholine® (urethane of beta methylcholine chloride) is a potent parasympathomimetic drug with relatively low toxicity and no serious side effect. It causes an increase in gastric motility in both the normally innervated and in the vagotomized stomach. It causes an increase in intestinal motility and is of definite value in the treatment of adynamic ileus. Urecholine® causes contraction of the normally innervated bladder as well as the cord bladder and is of considerable therapeutic value in the treatment of post-operative urinary retention. The value of urecholine in the treatment of cord bladder is yet to be determined.

ROENTGENTHERAPY IN CANCER OF THE HYPOPHARYNX

FRANCOIS BACLESSE, M.D.
Paris, France

The prognosis for cancer of the hypopharynx is poor because tumors occurring in this site are usually of an ulcerating and destructive nature. Complications, such as infection, involvement of the cartilage and sometimes considerable extension to the surrounding structures, make these lesions difficult to cure.

ANATOMIC CLASSIFICATION

The upper or membranous portion of the hypopharynx includes the whole aryepiglottic fold and the thyrohyoid membrane. The upper limit is the pharyngoepiglottic fold and the lower limit, approximately, the mucous fold of the superior laryngeal nerve. Radiographically, this part is projected between the hyoid bone and the superior border of the thyroid cartilage.

The lower or osteocartilagenous portion of the hypopharynx is deep, narrow and hidden. It is limited laterally by the thyroid lamina and medially by the arytenoid and the cricoid cartilages covered by muscles and fascia.

The distinction between the two parts is of particular significance when one considers the prognosis. Among patients at the Curie Foundation, those surviving five years, for the most part, are patients in whom the cancers originated and developed in the upper part of the hypopharynx. With two exceptions, lesions originating in the lower part have not been cured.

These results may be explained partly by the fact that carcinomas of the upper part are often fungating and bulky while those of the lower part are more often

From the Curie Foundation, Paris.
Read before the Section on Radiology at the Ninety-Seventh Annual Session of the American Medical Association, Chicago, June 24, 1948.

ulcerating and destructive. The latter rapidly infiltrate the walls, the arytenoid and cricoid cartilages, their muscles and the thyroid lamina. Involvement of these structures creates biologic conditions less favorable than those produced by lesions of the aryepiglottic fold, away from the cartilages and articulations.

Therefore, cancers of the two areas may be described as: (1) cancers of the upper part, including epitheliomas of the aryepiglottic fold and the anterosuperior part of the pharyngolaryngeal fold, which can be cured when they are proliferative, and (2) cancers of the lower part, including those deep in the pyriform sinus, lesions involving the posteropharyngeal area of the arytenoid and the cricoid, and the mouth of the esophagus, or the posterior wall of the hypopharynx. They are much more difficult to cure and practically incurable when they are ulcerating (fig. 1).

In early cases the diagnosis is easy but in advanced cases, laryngoscopic examination is the only way to determine the origin of the disease. This examination should be made during and at the end of treatment,



Fig. 1.—Prognostically favorable (upper row) and unfavorable (lower row) types of hypopharyngeal cancer.

after partial or total regression of the tumor. The observations should be supplemented by radiographic examination.

Anteroposterior and lateral view roentgenograms of the neck to show the pharynx may reveal three radiographic signs which point to the diagnosis of tumor of the upper part of the hypopharynx: 1. The space between the hyoid bone and the superior border of the thyroid cartilage, ordinarily clear, shows a shadow of increased density due to tumor. 2. The superior thyroid horns are not pushed forward; they remain in contact with the cervical part of the spine. 3. The flexibility of the pharyngeal wall is preserved. In the Valsalva test, the thyroid and cricoid cartilages are pushed forward and the lumen of the hypopharynx above the level of the superior half of the cricoid becomes dilated.

The radiographic signs of cancer arising in the lower part of the hypopharynx are: 1. The posterior pharyngolaryngeal shadow is thickened in its superior arytenoid segment or in the inferior cricoid part, or in both. 2. The superior thyroid horns, and occasionally the cricoid, are pushed forward. 3. Flexibility of the

pharyngeal wall is observed to be decreased in the Valsalva test. However, some normal patients are unable to distend their hypopharynx with air.

The degree of flexibility is better demonstrated if the radiograph is taken immediately after oral administration of barium sulfate. The details of the lower part of the pharyngeal "funnel" are outlined by the opaque medium.

INCIDENCE OF CANCER OF UPPER AND LOWER PARTS OF THE HYPOPHARYNX

Clinical and radiographic studies of 240 patients treated during a ten year period yielded the following results:

Cancers of the upper part.....	70
Cancers of the lower part (of which 11 arose in the cricoid region)....	100
Cancers of the posterior part of the hypopharynx.....	52
Not classified because too extensive, treatment not completed, etc.....	18
Total.....	240

These figures indicate a greater incidence of lesions of the lower part of the hypopharynx ($100+52=152$).

FIVE YEAR SURVIVALS AND FOLLOW-UP

From 1921 to 1942, 425 patients were treated for cancer of the hypopharynx. Until 1937, most of the patients were treated by Dr. Coutard, or under his supervision. Of the 425 patients, 27 (6 per cent) were living and apparently healed after five years. Follow-up concerns only those patients who survived five years or more.

Of the 27 patients apparently cured five years after treatment, continued observation over a period of six to nineteen years showed:

- 3 patients lost to follow-up
- 6 patients died of intercurrent disease
- 1 patient died of late local recurrence
- 2 patients died of late distant metastasis (1 case of abdominal lymph nodes, 1 lungs and kidney metastases)
- 7 died from a second cancer

By second cancer is meant a carcinoma originating in another organ or, if in the initial area, clearly separated from the site of the first lesion. It is thus distinguished from the recurrence in situ. The 7 cases of second primary tumors include 2 cancers of the thoracic esophagus and 5 recurrences arising within the irradiated area but decidedly away from the first cancer. These sites are sufficiently interesting to warrant further discussion. They appeared between the sixth and tenth year, most of them occurring about the seventh year. It is interesting to note that 4 of the patients were among the group treated by Coutard in 1932 and 1933. The best results were obtained during those two years; of 8 patients treated, 4 were alive and apparently cured after five years. They later died from a second cancer. It may be pure coincidence; nevertheless, this percentage, even for a very low number, merits some consideration.

The doses given these patients were high (total skin dose distributed over two fields was 7,000 r, 7,500 r, 8,800 r and 9,100 r). On the other hand, these doses were given over a relatively short period, sixteen, twenty-eight, thirty-four and forty-five days. Moreover, treatment was delivered through large fields of 100 sq. cm. or more. All these patients except the one treated over the forty-five day period had severe reactions, i. e., cutaneous changes and muscular and deep tissue sclerosis. One patient required tracheotomy two months after the treatment, and it was necessary for him to retain his cannula permanently.

In contrast, the 7 surviving patients treated from 1937 to 1942 had no postradiation complications and,

so far, have shown no second cancer in the irradiated area. These patients received doses sometimes higher, but over a longer period (from sixty to seventy-four days) and through much smaller fields (10 to 50 sq. cm.). The two latter factors seem significant.

These observations are too few to draw any definite conclusions. However, it seems better to obtain local

TABLE 1.—Incidence of Lymph Node Involvement and Site of Origin of Cancer, 1936-1945 (10 Years)

Site, Hypopharynx	Cases	Lymph Node Involvement	No Lymph Node Involvement
Superior part.....	95	78	17
Inferior part.....	110	93	17
Posterior wall.....	34	21	13
Total.....	239	192	47

healing without damaging the surrounding tissues; for this reason the old method was discarded long ago. My co-workers and I now attempt to reduce cutaneous reactions by prolonging treatment time and by reducing the size of the fields while increasing the total dose.

LYMPH NODE METASTASES

The lymph node metastases deserve special consideration because of their frequent occurrence and the difficulty in curing them.

Table 1 shows the incidence of lymph nodes arising in the three areas, upper, lower and posterior part of the hypopharynx of 239 patients treated from 1936 to 1942.

It may be noted that the incidence of lymph node metastases is nearly the same for tumors of the upper and lower part of the hypopharynx but that they occur

TABLE 2.—Roentgentherapy and Course of 7 Apparently Cured Patients, 1937-1942

Case No.	Age, Yr.	Site of Tumor, Hypopharynx	Lymph Node Size	Approximate Tumor Dose, R	Treatment Period, Days	No. of Years Living current and Well	Died of Disease
1	80	Upper part	1.5 cm.	6,500	57	..	After 9 yr.
2	69	Upper part	3.5 by 3 cm.	(1)6,000	Treated 31 Interruption 51 Treated 17 (2)5,500 Recurrence 49	..	8
3	63	Upper part	.....	5,200	73	9	
4	61	Upper part	3 by 2 cm.	6,900	74	8	
5	64	Upper part	.....	6,800	57	7	
6	57	Upper part	.....	7,400	69	7	
7	74	Lower part	6.5 by 5.5 cm.	6,200	64	6	

less frequently when the primary carcinoma arises on the posterior wall. Because the incidence of lymph node involvement for the upper and lower parts is the same, it seems that failure to cure lesions of the lower part is due not so much to metastasis as to the creation of the biologic conditions mentioned earlier. During the past few years, several pertinent observations have been made, though they are too recent to be included in our statistics. On the one hand we noted the frequent disappearance of the lymph nodes at the end of treatment, or sometimes later. On the other hand,

the primary tumor was not sterilized by the treatment. These two facts seem contradictory and warrant further study.

Of 186 cases of clinically metastatic lymph nodes treated from 1937 to 1945, 50 showed clinical disappearance of the lymph nodes for six months to one year or more. The patients died later of local recurrence. These unilateral or bilateral lymph nodes were classified as to whether they were smaller or larger than 3 cm. in diameter. Clinical disappearance of nodes when the cancer was localized was noted as follows: Of nodes smaller than 3 cm. in diameter, 1 disappeared of 7 treated; of 19 with a diameter larger than 3 cm., 6 disappeared; of 2 patients with bilateral involvement, 1 got well. When the cancer was extensive the corresponding proportions were 10 in 41; 22 in 87, and 10 in 30.

The percentage of clinical disappearance of the lymph nodes has increased during 1946 and 1947, and this is true for the oropharynx and nasopharynx as well as for the hypopharynx. In other words, in a great num-

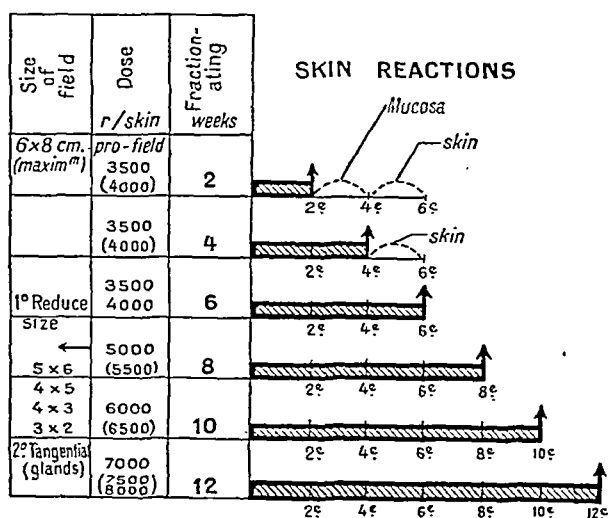


Fig. 2.—Evolution of cutaneous reactions as modified by prolongation of the treatment period and reduction in size of the field.

ber of recent cases, lymph nodes, even rather large ones, seem more amenable to treatment, at least temporarily, than the primary tumor. Explanation may be found, at least in part, in some technical consideration.

TECHNIC

During the last ten years, technic in the radiotherapy department of the Curie Foundation has been directed in the following manner. Attempts are made to avoid exudative reactions. Mucous membrane reaction, when it is produced, should be mild, so that treatment may be continued. If more or less intense reaction is produced in spite of measures to prevent it, treatment is stopped temporarily to that area for the duration of this reaction. In the meantime, irradiation is continued to the lymph nodes through tangential fields which avoid the pharynx.

The total skin dose per field is increased considerably over the generally accepted limits. This increase is possible only when two conditions are observed: First, the size of the field must be reduced after a certain dose and the lymph nodes irradiated tangentially. Second, the fractionation must be prolonged beyond the

period of four to six weeks which is now used by most radiotherapists. The study of this fractionation has led to the following observations:

1. To avoid moist epithelitis, it is important to know the exact time when reaction will appear, for in the course of a continuously and rhythmically conducted treatment there is a precise time (within two or three days) when it will be produced. The first period, as is well known, occurs at the end of the fourth week. It is the classic epidermitis, described by Regaud, which Coutard produced systematically at the beginning of his clinical research. This is followed by other characteristic reactions at regular biweekly intervals. The second period occurs at the end of the sixth week (thirty-nine to forty-two days), the fourth at the end of the tenth week and the fifth at the end of the twelfth

fields, tangential fields for the lymph nodes. Thus the total skin dose reached at the end of twelve weeks coincides with the limit of tolerance of the tissues, about 7,000 or 8,000 r.

Coutard stated the belief that he had established a relation between the periodic mucosal reactions he observed and the curability of cancer. In my opinion, the critical periods of cutaneous reaction are important because they point a way to increase the total dose. By keeping the dose below a certain amount for each period, it is possible to continue treatment and the total dose may be considerably increased.

There are two main therapeutic problems: (1) the effect of irradiation on the cancer cells which sometimes demand considerable dosage and (2) the protection of the surrounding tissue which is achieved through

TABLE 3.—*Carcinoma of the Oropharynx, Five Year Results, 1920-1942*

	Localized Lesions								Extensive Lesions								Total	
	No Lymph Nodes		Unilateral Lymph Nodes		Bilateral Lymph Nodes		Total		No Lymph Nodes		Unilateral Lymph Nodes		Bilateral Lymph Nodes		Total			
	Treated	Healed	Treated	Healed	Treated	Healed	Treated	Healed	Treated	Healed	Treated	Healed	Treated	Healed	Treated	Healed		
Base of tongue.....	15	1	30	3	11	1	56	5	15	0	48	3	34	0	97	3	153	8
Vallecula and epiglottis.....	16	8	14	5	13	0	43	13	16	1	39	3	36	0	91	4	134	17
Not classified (too advanced).....	..	..	..	..	..	..	..	..	7	0	11	0	13	0	31	0	31	0
Total.....	31	9	44	8	24	1	99	18	38	1	98	6	83	0	219	7	518	25
							(18%)								(3.2%)		(7.8%)	

TABLE 4.—*Carcinoma of the Nasopharynx, Five Year Results, 1920-1943*

	Localized Lesions										Extensive Lesions									
	No Lymph Nodes		Unilateral Lymph Nodes		Bilateral Lymph Nodes		Total				No Lymph Nodes		Unilateral Lymph Nodes		Bilateral Lymph Nodes		Total			
	Treated	Healed	Treated	Healed	Treated	Healed	Treated	Healed	Treated	Healed	Treated	Healed	Treated	Healed	Treated	Healed	Treated	Healed	Treated	Healed
Epitheliomas.....	6	1	3	1	5	1	3	1	6	0	23	4	7	1	1	0	10	2	24	4
Lymphoepitheliomas.....	9	2	1	0	6	1	1	0	15	0	32	3	2	1	0	9	0	16	2	48
Total.....	15	3	4	1	11	2	4	1	21	0	55	7	9	2	2	0	19	2	40	6

week. These periodic reactions become apparent only if irradiation is given daily or every other day, with reduced doses and rotating fields.

2. By avoidance of exudative epithelitis, treatment may continue without interruption until the next critical period, and so on during eight, ten and twelve weeks.

3. To avoid the exudative epithelitis at the known and expected times, it is important not to exceed a certain dose for each term of the fourth, sixth, eighth and tenth weeks. At the end of treatment, which may last from six to twelve weeks according to the individual case, the moist epithelitis may appear without inconvenience because the planned dose has been delivered. The higher this dose may be, the longer the period of fractionation.

4. It is possible to give twice as much dosage per field with minimal damage to the tissues by adhering to the rules, namely, small fields, reduction in size of field even toward the end of treatment, alternating

fractionation. Fractionation is probably less important in sterilization of the cancer cells, but its role in protecting normal tissues is much more important than is sometimes admitted.

According to this theory, there is no rigid routine in treating cancers in general, and this includes lesions of the pharynx. Selection of the most effective total dose with fractionation may be made from figure 2, and the choice is influenced by the clinical observations, i. e., site and extent of the lesion, presence or absence of lymph nodes and fast or slow regression of the lesion during treatment.

The application of this method of irradiation requires strict technic. It is made easier by the use of the light-directed and diaphragm-controlled beam. The diaphragm of the localizer consists of movable plates which permit great adaptability of the fields of the configuration of the area to be treated. Special localizer tubes can be adapted to the diaphragm which are

especially useful near the end of treatment when the size of the lymph nodes has been reduced. Centering over very small fields is done rapidly, accurately and easily. The localizer tube attached to the diaphragm has a movable glass surface which may be flat or oblique, according to the area to be irradiated. The small illuminated skin surface is well visualized through the glass, and the center of the skin field is easily recognized if marked with a skin pencil. I believe that the increased skin dose, made possible by this technic of small well centered fields, explains the disappearance of lymph nodes, even large ones, noted in the past few years.

On the other hand, sterilization of the primary tumor seems much more difficult. While failures are due partly to the anatomic and clinical conditions previously outlined, the difficulty in delivering sufficient irradiation to the remaining primary tumor through a very small field is also responsible. The radiotherapist must stress greater technical precision in centering over the site of origin of the cancer.

Table 2 shows the approximate tumor dose and the duration of treatment period for 7 patients treated from 1937 to 1942 and apparently healed five years or more. The site of origin in 6 of these was in the upper part and 1 in the lower part of the hypopharynx. Four patients had lymph nodes, one measuring 6.5 by 5.5 cm.

The tumor doses are high, varying from 5,200 to 7,400 r. Fractionation was from fifty-seven to seventy-four days except for 1 patient whose treatment was irregular because of war conditions. First, the tumor received approximately 6,000 r over a period of ninety-nine days in two series (treated thirty-one days, rest fifty-one days, treated seventeen days). After this there was a local recurrence which was again treated fourteen months later with a tumor dose of nearly 5,500 r over forty-nine days. The last course was given without interruption. The lymph nodes (3.5 by 3 cm.) and the hypopharyngeal lesion disappeared, and the patient was apparently well after eight years.

The postirradiation changes in all these patients have been minimal. The treatment was tolerated without incident, and this is remarkable because some of these patients were very old. Results here are different than the complications noted when the total dose was less and given through a larger field in a shorter period of time.

COMPARISON OF FIVE YEAR RESULTS IN ORO-PHARYNX AND NASOPHARYNX CARCINOMA

Tables 3 and 4 show the five year result in oropharynx and nasopharynx epitheliomas classified according to the extent of the lesions. Of 318 patients with carcinoma of the oropharynx, 25 were well after five years, and of 95 patients with epithelioma of the nasopharynx, 13 were living and well after five years. The prognosis seems slightly better for the vallecular and epiglottic lesions than for the other areas and, on the whole, the rate of cure for the nasopharyngeal carcinomas is a little better than for those of the oropharynx.

SUMMARY AND CONCLUSION

By studying each case clinically and radiographically to localize the site and origin of the cancer, by adhering to a dosage schedule pertaining to the time of appearance of biologic reaction and by further protracting the course of treatment, one may hope for a cure in more cases of carcinoma of the hypopharynx. The

ulcerating and destructive tumors will remain a difficult problem for some time. Technical improvements alone will not suffice, and radiologists, collaborating with biologists, should search for methods of increasing the sensitivity of these tumors.

ABSTRACT OF DISCUSSION

DR. JUAN A. DEL REGATO, Columbia, Mo.: We are honored to welcome Dr. Baclesse as the representative of the Radium Institute of the University of Paris. The clinical endeavors of the French school are widely appreciated by the pragmatic radiotherapist of this country. Dr. Baclesse has distinguished himself for his radiographic study of the pharynx and larynx and also for his work in the treatment of advanced carcinoma of the cervix. He now brings the results of roentgen therapy on a remarkably large series of cases that includes all of Coutard's material. These results, however poor, have not been obtained easily. Dr. Baclesse has noted the relatively better prognosis of carcinomas arising near or around the free border of the epiglottis. It is pertinent to emphasize that the lesser curability of the others is not due to difference in radiosensitivity but to their early invasion of vascular structures and laryngeal cartilages and to the extensive necrotic defects that result from their irradiation. The presence of a metastatic adenopathy is not a factor of incurability, since many of the patients that are cured presented metastasis when treated. These facts should help us to come to an agreement on the concept of radiosensitivity, a word so variedly interpreted and so widely misused, as different from radiocurability. From *stagier* at the Foundation Curie in the 1920's Baclesse has risen to become one of Europe's most distinguished therapeutic radiologists and to be recognized as Coutard's most brilliant pupil; we are pleased to congratulate him for his fine presentation, but we must congratulate ourselves also for the opportunity of listening to him.

DR. MAURICE LENZ, New York: According to Dr. Baclesse, prognosis in cancer of the hypopharynx is not good. It is especially bad when the origin of the growth is in the lower portions of this cavity. By prolonging roentgen therapy for cancer of the hypopharynx to ten or twelve weeks, Baclesse was able to administer larger tumor doses than given heretofore, without a corresponding increase in the radiation damage of the normal tissues included in the irradiated area. Increased protraction of the treatment period holds even more promise in irradiation of large volumes of the body and in those regions in which the normal tissues are especially radiosensitive. It has been used by Baclesse and others in roentgen therapy of cancer of the cervix, breast and other sites. For instance, the Standardization Committee of the American Radium Society (*Am. J. Roentgenol.* 38: 377, 1937) reported that proctitis complicating radiotherapy of cancer of the cervix in the experience of its members occurred chiefly when the time for the administration of intracavity radium treatment was forty hours or less and the roentgen therapy a correspondingly short period. My co-workers and I investigated this problem because of a number of intestinal complications caused by this technic at the Presbyterian Hospital, New York; these stopped occurring as soon as we increased the treatment period (*Am. J. Roentgenol.* 39: 871 [June] 1938). In cancer of the breast (*Acta Radiol.* 28: 583, 1947) we gave larger doses than were given previously by prolonging the treatment to three months. Regaud and Coutard were the first to stress the advantage of protraction, but neither carried it to the degree that Baclesse has. Baclesse has tried to avoid radio epithelitis and has now cured patients without producing the severe mucous membrane reaction. It is this lessening of damage to the normal structures without reducing the number of cures for which Baclesse deserves credit; I congratulate him.

DR. FRANCOIS BACLESSE, Paris, France: With this method, in ten weeks—and, even in the very extensive condition, in twelve weeks—the following facts are noted: First, in a certain number of cases, there was clinical disappearance of

the lymph nodes, even when enlarged. Second, the healing of the primary lesion is more difficult to obtain. For example, of 186 cases of lymph nodes treated from 1937 to 1945, a clinical disappearance of the lymph node was obtained for a duration of six months to one year and more in 50 of the patients, the patients dying later from a local recurrence. The percentage of the clinical disappearance of the lymph node has increased during 1946 and 1947, and this applies to the hypopharynx as well as to the oropharynx and the nasopharynx. In other words, presently, and in a great number of cases, it seems easier to make the lymph nodes—even rather large ones—disappear, at least temporarily, than the primary tumor. These facts can be explained, at least partly, by some technical and biologic considerations, such as a large dose, well centered, through small fields, at the end of the treatment and with fractionation over a long time—eight, ten and even twelve weeks.

THE CORNELL MEDICAL INDEX

An Adjunct to Medical Interview

KEEVE BRODMAN, M.D.
ALBERT J. ERDMANN Jr., M.D.
IRVING LORGE, Ph.D.
and
HAROLD G. WOLFF, M.D.
With the Technical Assistance of
TODD H. BROADBENT
New York

It has been the purpose of this investigation to develop a quick and reliable method of obtaining important facts about a patient's medical history without expenditure of the physician's time. The Cornell Medical Index, the method developed, is a form on which persons undergoing medical examination indicate their symptoms and other significant medical information before being interviewed. As will be shown, the Cornell Medical Index collects a large body of data similar to that recorded in comprehensive hospital medical histories, so that the physician has at hand, even before he interviews the patient, information on which to base tentative diagnostic and prognostic appraisals of the patient's total medical problem.

This communication describes the Cornell Medical Index and compares the data it collects with information recorded by examining physicians in the hospital histories of patients in the general medical department of a large teaching hospital.

DESCRIPTION OF THE CORNELL MEDICAL INDEX

The Cornell Medical Index (abbreviated C.M.I.) is a four page letter-sized sheet. Like the psychiatric forms of the Cornell Index,¹ the C.M.I. collects data by asking questions. The 195 questions on the

C.M.I. were chosen to correspond closely to those usually asked in a detailed and comprehensive medical interview, including many on the psychologic aspects of the patient's disorder. Questions are in informal language and worded to be understood by persons with a reading knowledge of simple English. Technical terms are avoided, but when their use is necessary an explanation is given. Thus, diabetes is explained as "sugar disease," urinate as "passing water" and varicose veins as "swollen veins." After each question a "Yes" and a "No" appear; the patient answers the question by circling one. In every instance, a "Yes" response indicates that the patient does have the symptoms about which he is being questioned.

In constructing the C.M.I., items were selected only after a pilot study of more than 1,000 subjects had shown that the items collected data accurately. The questions are of four kinds: those relating to bodily symptoms (for example, "Do you usually feel bloated after eating?"), those relating to past illnesses ("Has a doctor ever said you had kidney or bladder disease?"), those relating to family history ("Did anyone in your family ever have a nervous breakdown?") and those relating to behavior ("Do you often feel unhappy and depressed?").

The questions on the C.M.I. are arranged in sections headed by letters of the alphabet, questions in each section being related. A list of these sections, together with the number of questions in each, is given in table 1.

There are two forms of the C.M.I., one for men and the other for women. Both are identical except for six questions in the genitourinary section.

The C.M.I. is headed: Cornell Medical Index, Health Questionnaire. The term "Cornell Medical Index" distinguishes this from the psychiatric forms of the Cornell Index (the military Form S and the civilian Form N2). "Health Questionnaire" explains the nature of the form to the patient and has been shown by test to reduce the patient's suspicion about the purpose of the questions.

The C.M.I. is administered simply by handing the form to the patient and asking him to complete it. It can be administered to patients either individually or in groups, the additional equipment necessary being a pencil or pen and a table or board on which to rest the form. The New York Hospital Out-Patient Department uses a pressed paper board, 10 by 12 inches, which the patient rests on his knees.

THE SAMPLE STUDIED AND METHODS

Between April and October 1948, all patients except illiterate persons who newly entered the New York Hospital Out-Patient Department completed a C.M.I. The sample reported here consists of 179 consecutive patients attending the adult general medical clinic, a teaching clinic for fourth year students at Cornell University Medical College. These patients were examined, and their histories recorded, by forty-nine physicians on the staff of the Medical Department of the New York Hospital.

Since the data on the C.M.I. and those recorded by attending physicians in the medical histories were collected independently, it is possible to make valid comparisons. Each item answered on the C.M.I. was compared with each item recorded in the medical history and tabulations made in four categories: (1) items that appeared in both the C.M.I. and the history,

The work described in this paper was done under a contract, recommended by the National Research Council, between the Veterans Administration and Cornell University.

From The New York Hospital and the Departments of Medicine (Neurology) and Psychiatry, Cornell University Medical College, and Teachers College, Columbia University.

1. Weider, A.; Brodman, K.; Mittelman, B.; Wechsler, D., and Wolff, H. G.: Cornell Service Index: A Method for Quickly Assaying Personality and Psychosomatic Disturbances in Men in the Armed Forces, *War Med.* 7: 209-213 (April) 1945. Mittelman, B.; Brodman, K.; Weider, A.; Wechsler, D., and Wolff, H. G.: The Cornell Indices and Cornell Word Form, *Ann. New York Acad. Sc.* 46: 573-591, 1946. Weider, A.; Brodman, K.; Mittelman, B.; Wechsler, D., and Wolff, H. G.: The Cornell Index: A Method for Quickly Assaying Personality and Psychosomatic Disturbances, to be Used as an Adjunct to Interview, *Psychosom. Med.* 8: 411-413, 1946. Brodman, K.; Mittelman, B.; Wechsler, D.; Weider, A., and Wolff, H. G.: The Relation of Personality Disturbances to Duration of Convalescence from Acute Respiratory Infections, *Psychosom. Med.* 9: 37-44, 1947. Brodman, K.; Mittelman, B.; Wechsler, D.; Weider, A., and Wolff, H. G.: The Incidence of Personality Disturbances and Their Relation to Age, Rank and Duration of Hospitalization in Patients with Medical and Surgical Disorders in a Military Hospital, *Psychosom. Med.* 9: 45-49, 1947.

(2) items that appeared in the history but not in the C.M.I., (3) items that appeared in the C.M.I. but not in the history and (4) items in the history that elaborated data appearing in the C.M.I.

RESULTS

An average of 16.9 items of similar data were recorded in the C.M.I. and in each history (table 2). In addition, an average of 6.4 items were recorded in each history that did not appear in the C.M.I. However, only 1.4 of these were items of critical data about the present illness, the other 5.0 being routine quantitative historical data concerning such matters as

cance. The C.M.I. thus collected considerable information not included in the history.

Ninety-five per cent of the questions on the C.M.I. were answered identically in the C.M.I. and the history.

TABLE 1.—The Sections on the Cornell Medical Index

Section	Questions Referring to:	Number of Questions
A	Eyes and ears.....	9
B	Respiratory system	18
C	Cardiovascular system	13
D	Digestive tract	23
E	Musculoskeletal system	8
F	Skin	7
G	Nervous system	18
H	Genitourinary system	11
I	Fatigability	7
J	Frequency of illness.....	9
K	Miscellaneous diseases	15
L	Habits	6
	Mood and Feeling Patterns	
M	Inadequacy	12
N	Depression	6
O	Anxiety	9
P	Sensitivity	6
Q	Anger	9
R	Tension	9
	Total	195

TABLE 2.—Average Number of Items Noted in Each Cornell Medical Index and in Each Hospital History*

	Average Number of Items			
	In Both C.M.I. and History	In History Only	In C.M.I. Only	In History Elaborating C.M.I.
Items answered affirmatively....	7.9	4.4	27.7	14.1
Items answered negatively.....	9.0	2.0	148.4	1.2
Total items noted.....	16.9	6.4	176.1	15.3

* The sample consisted of 179 patients.

the details of diet, the number of pounds gain or loss of weight, the number of siblings, data on the menstrual cycle, obstetric history, personal history and family history. The C.M.I. thus collected most of the critical data recorded in the history. In only 1 instance, a case of tuberculous cervical adenitis, the history gave information of crucial importance that was not found on the C.M.I., but which appeared in the C.M.I. supplementary sheet (described later).

The history also contained an average of 15.3 items of elaboration of data appearing on the C.M.I., for example, when the C.M.I. indicated the presence of chest pains, the physician noted its location, nature, onset, duration or radiation. These elaborations are, of course, important diagnostic criteria.

The C.M.I., on the other hand, contained an average of 176.1 items of data not recorded in the history. Of these, an average of 27.7 were answered affirmatively and so must be presumed to be of diagnostic signifi-

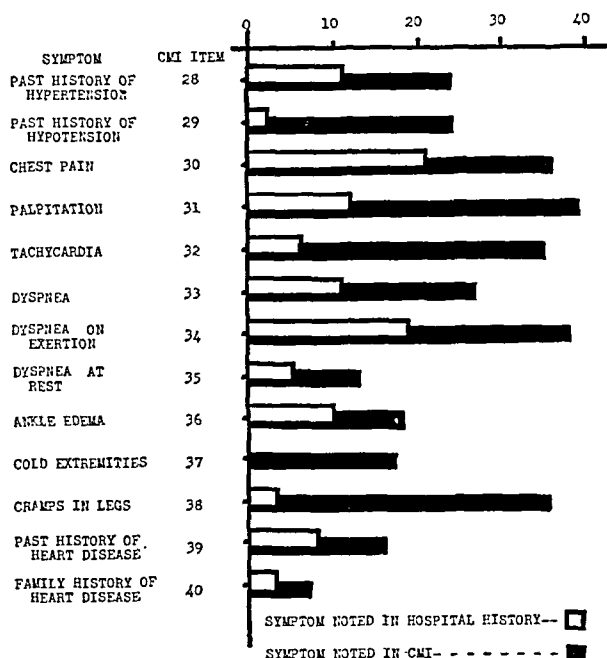


Fig. 1.—The percentage of patients with symptoms referable to the cardiovascular system (horizontal values), as indicated in the Cornell Medical Index and as noted in the hospital histories.

This corresponds closely to the agreement of two independent oral interviews with the same patient. Patients thus appear to answer printed questions in

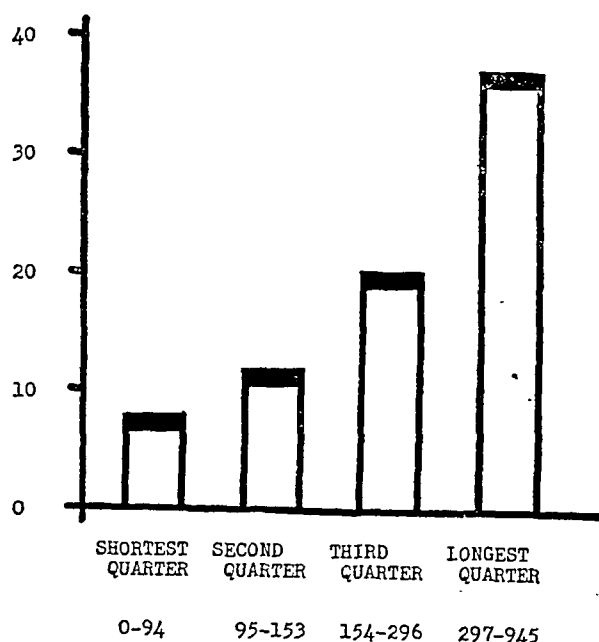


Fig. 2.—The average number of C. M. I. items (vertical values) included in long and in short hospital histories. The horizontal row of figures at the bottom shows the number of words in the histories.

the C.M.I. as honestly and accurately as they do similar questions in interview. This was further confirmed by questioning more than 200 patients, after they had completed the C.M.I., about each of their responses;

it was found that if they could read the questions they almost always understood what was being asked and then answered accurately.

The symptoms appearing in the C.M.I. but not in the history are of special interest. A study was made of these in one section of the C.M.I. The cardiac section was chosen for study because the items of cardiac data recorded in medical histories are comparatively standard. In figure 1 are shown the number of patients who indicated symptoms in the C.M.I. referable to the cardiovascular system in comparison to the number in whose histories these same symptoms were recorded. In every instance more patients indicated symptoms in the C.M.I. than the examining physicians recorded in their histories. The histories must be considered deficient in these data. The value of filing the C.M.I. with the patient's medical records in situations like this is obvious.

The length of each history was compared with the number of items it contained that were noted on the C.M.I. Figure 2 shows that the longer the history the more data were included that appear in the C.M.I. The data in the C.M.I. are therefore those that physicians included in their histories, more being included when they wrote a longer history. The histories studied, like most others recorded in the best ordered hospitals, were especially deficient in information about the patient's emotions, there being an average of only 0.4 items in each history. The C.M.I., on the other hand, collects 51 items, of which an average of 7.8 were answered affirmatively. It is to be emphasized that to evaluate properly the patient's psychologic status it is necessary to know definitely which symptoms are absent as well as which are present.

THE SUPPLEMENTARY SHEET

In addition to completing the C.M.I., each patient was asked to fill out a separate sheet on which appeared the directions: "Write out all the troubles for which you come to the clinic." Because it was a record of the patient's own formulation of his illness, the information patients entered on this sheet was found to increase the usefulness of the C.M.I. Although 25 per cent of the patients did not write anything, 70 per cent indicated the chief complaint noted in the hospital history, 50 per cent wrote information that highlighted the C.M.I., that is, indicated which symptoms were most troublesome, and 30 per cent wrote information not otherwise found on the C.M.I. In most instances, this information contained additional data about the present illness. The C.M.I. and the supplementary sheet together usually included practically all the basic data, and some of the elaborations, in the hospital history.

Patients took from ten to thirty minutes to complete both the C.M.I. and the supplementary sheet. The time depended in part on their level of education, but for the most part on the ease with which they came to decisions. For instance, compulsive and depressed persons took longer than others to answer the questions on the C.M.I. More than 70 per cent of the patients with at least an elementary school education finished the C.M.I. in less than fifteen minutes and almost 90 per cent in less than twenty minutes.

Only rarely did a patient show any disinclination to fill out the C.M.I. Almost all completed it. As a matter of course, many, in fact, expressed

faction that the doctors were making as thorough an investigation of their medical problems as the varied and searching questions on the C.M.I. indicated. Although some patients found difficulty in formulating and writing out their complaints on the supplementary sheet, they found no trouble in answering the printed questions by circling a "Yes" or "No."

CASE HISTORIES

The value of the C.M.I. in calling attention to, and clarifying, aspects of the patient's disorder is illustrated in the following case histories. It is to be noted that during the course of this study the C.M.I. was not available to the examining physicians.

Patient's Symptoms Not Fully Described in the History.—T. O., a woman aged 43, sought medical advice for known hypertension and obesity. The medical history recorded by the examining physician did not mention the following symptoms of which the patient complained on the C.M.I.: chest pains, palpitation, tachycardia, dyspnea, ankle edema, cramps in the legs, headaches, dizziness, faintness and muscular twitching. Whether the physician did not elicit and record these symptoms because of lack of time, or pre-knowledge of the diagnosis, is not known. Nevertheless, it is obviously desirable to have them a part of the patient's permanent record. This could be done at no further expenditure of the physician's time by filing the C.M.I. with the hospital history.

An Important Item of Medical History Overlooked.—C. J., a woman aged 38, reported to the admitting clinic complaining of a "stroke" of three months' duration, with impairment of speech and right-sided weakness. In the general medical clinic, to which she was referred, she was examined extensively by a fourth year student and by an attending physician. Because she had hypertension in her lower extremities and hypotension in her upper, it was decided to admit her to the hospital for further study.

On the ward she was interviewed and examined by three physicians independently. Perhaps because her speech impairment made inquiry difficult, none of the five physicians who interviewed her obtained a history of syphilis, an item of crucial diagnostic importance. She had noted a history of syphilis on the C.M.I. on her first visit to the admitting clinic. Not until the result of her Mazzini test was reported positive did the staff elicit her history of syphilis. Had the C.M.I. been available to the examining physicians, to call attention to the past history of syphilis, the final diagnoses of syphilitic aortitis, central nervous system syphilis and cerebral vascular accident would have been facilitated.

An Important Emotional Disorder Overlooked.—O. K., a man, aged 70, sought medical help because of urinary complaints. A diagnosis of benign prostatic hypertrophy was made in the urology clinic, and the patient was admitted to the hospital for treatment. During his forty hours in the hospital, on his chart by two physicians, only one note about his emotional state was made. The nurse who stated that the patient was nervous about operation, complained of the admission to hospital, and was abruptly terminated by being put out of the

bathroom window and falling nine stories to the ground. He was instantly killed.

A subsequent review of the C.M.I. he had completed on his first visit to the hospital showed that he had indicated eighty-five symptoms in addition to his urinary difficulties. Many were indicative of an emotional disturbance. He complained of such symptoms as feeling unhappy and depressed, being keyed up and jittery, having frightening thoughts coming to his mind, life looking entirely hopeless, and often wishing he were dead and away from it all. Obviously, had the C.M.I. been available to the staff physicians, attention would have been directed to the urgent need for psychiatric appraisal and treatment, and it is not unlikely that prompt measures, including psychotherapy, might have prevented the suicide.

The Importance of the Patient's Total Medical Problem Overlooked.—G. R., a man aged 34, complained of loss of vision in the right eye. He was referred by the admitting physician to the ophthalmology department for immediate consultation. He was seen there the next day, where a diagnosis was made of right optic atrophy, due either to spasm of the central retinal artery or to other occlusive disease, such as syphilis. The day after he was seen in the general medical department, where additional diagnoses were made of inactive rheumatic heart disease and atopic dermatitis, with a history of paroxysmal tachycardia, a history of prostatitis and possible hysterical reaction. That afternoon he was seen in the dermatology department, where the diagnosis of atopic dermatitis was confirmed. His next visit was again to the dermatology department, ten days later, where a diagnosis of neurodermatitis was made. The following day he was seen in the ophthalmology department; no further diagnoses were made, but the use of amyl nitrite was recommended. Eight days later the patient again visited the ophthalmology department, where one physician noted on the history, "Patient wants psychosomatic care, or at least evaluation, and I think it a worth while idea; in view of precipitation of all attacks when under tension and a probable organic etiology, I do not know how much good it will do." Six days later the patient was seen in the neurology department, where diagnoses were made of right optic atrophy, due to vasospastic phenomenon, and severe emotional problems. The next day, twenty-eight days after his initial visit to the admitting clinic, the patient was seen for the first time in the psychosomatic department. There, on investigation, the close relation of his ocular disorder to other bodily symptoms and to his emotional disturbance was recognized.

This relation, typically found in such ocular disorders, was indicated by the patient himself on his first visit to the hospital. In the admitting clinic, he had indicated on the C.M.I. eighty-seven symptoms in addition to the three about his eyes, many suggestive of vasomotor disturbances in other parts of his body and many outlining a severe emotional disorder. In addition, he wrote on the C.M.I. supplementary sheet, "I am afraid, or rather I don't seem to care about anything any more. I can't breathe, I feel hungry but I don't want to eat. I make dates and promises (in all sincerity) but hate to keep them—and at the same time I want to. I feel that I am about to become totally blind (I have been on several occasions). I want a girl,

but I'm afraid to take the steps to get one. I have lost all interest in my talents, which are art, music (my hearing dims from time to time), science—as I write about them I feel enthusiasm, but if I follow my impulses, which is to leave and try again, I know that I won't follow through. I have no skills and no real job—I work for a commission and live under the constant harassing of my mother, who is slowly driving me mad. She criticizes me on my habits and is responsible for my being here, as she has preached psychology to me for years."

Obviously, if the C.M.I. and the supplementary sheet had been reviewed by the physicians who examined the patient, it would have been impossible to overlook the strong suggestion that the ocular symptoms were not an isolated medical phenomenon, but only one manifestation of a generalized systemic and emotional disorder. The patient might then have been referred immediately for comprehensive evaluation and treatment of his total problem, instead of this being postponed for a month while only a single aspect of his disorder was being considered.

COMMENT

In investigation of the medical value of the data it collects, the C.M.I. was compared with recorded medical histories; this comparison was made with the knowledge that such histories are open to criticism, because the items included have been chosen empirically. However, no better criterion for the diagnostic value of general medical data exists than those chosen for recording in medical histories of a university teaching hospital. As shown previously, the data collected by the C.M.I. include those recorded in these general medical histories in addition to many others of diagnostic importance.

Until a statistical method of scoring is formulated, the C.M.I., like medical data on a hospital history, is interpreted by clinical evaluation. Interpretation is facilitated because the affirmative responses, indicating the presence of symptoms, are conspicuous. The physician can quickly note which symptoms the patient has and how many, in each section of the C.M.I., and so can form a tentative evaluation of the patient's medical problems. Interpretation of the C.M.I. is, of course, more searching after the patient's affirmative responses have been elaborated in interview.

Most of the data on hospital histories and on psychiatric forms of the Cornell Index are to be found on the C.M.I., and valid somatic and personality appraisals are often possible with the use of the C.M.I. alone. However, the C.M.I. is intended only as an adjunct to, and not a substitute for, oral interview.

The C.M.I. has been found useful in medical clinics, in specialty clinics, in teaching, in industry and in the private practice of general and internal medicine. The time-saving features of the C.M.I. recommend it for use in military induction stations, in military hospitals and in Veterans Administration clinics and hospitals.

The C.M.I. has the following facts to recommend it:

1. The physician is not burdened with the task of asking the 195 questions on the C.M.I. and recording the answers, in addition to elaborating the present illness and items of past history. The questions patients have already answered in the negative on the C.M.I. need not be repeated in interview.

2. It orients the physician, even before he sees the patient, with a rapid survey of the patient's total medical problem and suggests immediately what matters need investigation. After acquaintance with the C.M.I. it is possible to review it in as little as one minute.

3. Since the questions are identical for each patient, comparisons of the responses among individual patients are valid, a value important for research.

4. In teaching, the standardization of the data and their systematic arrangement facilitate study and comparisons among patients.

The most effective technic for use of the C.M.I. as an adjunct to interview has been found to be for the patient to complete the C.M.I. before he sees the physician and for the physician to review the C.M.I. before he interviews the patient. The physician thereby gains a background of knowledge about the patient to orient him in interview.

When first using the C.M.I. some physicians conduct medical interviews according to their established routine. However, inquiry need consist only of eliciting the details of the present illness and asking the patient to tell more about the symptoms he indicated on the C.M.I. and supplementary sheet. In telling more, patients usually reveal important relations of their symptoms to other complaints and to life situations. This technic of history taking is not unformulated and time consuming, as may first appear. Discussion with the patient of his responses to the questions about his psychologic status usually leads directly to a discussion of his emotional problems and life situation and to the establishment of a good physician-patient relationship.

SUMMARY

The Cornell Medical Index, a self-administered form, was constructed to obtain important facts about a patient's medical history for comprehensive diagnostic and prognostic appraisals, at no expense of the physician's time. Most of the data physicians recorded in the histories of patients in the Medical Department of the New York Hospital, and, in addition, a large body of supplementary data, were collected by the Cornell Medical Index. These data were collected as accurately as in oral interview. The Cornell Medical Index has been found to be of use in hospitals, in teaching, in industry, in private practice and in research and would appear to offer aid to physicians in military induction stations and Veterans Administration hospitals.

In these situations the Cornell Medical Index has been found to be useful because: It collects for appraisal a large and comprehensive body of information about the patient's medical history at no expenditure of the physician's time; it facilitates interview by making available to the physician a preliminary survey of the patient's total medical problems; its data, being systematically arranged, are easier to review than those on conventional medical histories, and, by calling attention to the patient's symptoms and significant items of past history, it assures that their investigation will not be overlooked because the physician lacked time to elicit them.

Ireland has cut its population in half during the last hundred years (partly by means suggested by Malthus) and has improved its level of living from one of the lowest to one of the highest in Europe.—Guy Irving Burch, *Population Bulletin*, April 1949.

Council on Pharmacy and Chemistry

REPORT TO THE COUNCIL

The Council has authorized publication of the following statement from the Therapeutic Trials Committee, a standing committee of the Council on Pharmacy and Chemistry.

AUSTIN SMITH, M. D., Secretary.

METHODS OF CLINICAL STUDY AND EVALUATION OF THERAPEUTIC AGENTS IN POLIOMYELITIS

Early in 1947, the Therapeutic Trials Committee was asked by the National Foundation for Infantile Paralysis to investigate the feasibility of and methods available for evaluating the effect of moist heat in the treatment of poliomyelitis. A subcommittee was formed which, together with a number of consultants, studied this problem for nearly two years. Although a report was rendered to the National Foundation outlining in detail the methods which, in the opinion of the subcommittee and its consultants, should be used in evaluating the effect of this modality in poliomyelitis, certain principles applicable to the evaluation of any agent in this disease became evident from these studies. It was thought desirable to present these principles in the form of a report in the hope that they will prove useful to any who may be charged with the task of testing the effectiveness of some new agent in this disease.

WALTON VAN WINKLE JR., M.D., Secretary.

Before selecting methods for the evaluation of any agent in the treatment of a disease, the ultimate effect that is desired must be clearly in mind. In the case of poliomyelitis, four possible results of therapy may be produced by an effective agent: (1) alleviation of symptoms during the acute phase, such as pain, muscle "stiffness" or "spasm"; (2) prevention of paralysis; (3) prevention of death, and (4) more complete restoration of full muscular function. In this report, attention will be focused on the first two and the last of these effects, since death from poliomyelitis results from specific localization of the disease, either bulbar or affecting the innervation of the respiratory muscles.

The basic problem in evaluating any therapeutic agent in a disease such as poliomyelitis is to overcome or diminish the errors introduced by the wide variations in the spontaneous course of the disease and the inability to predict the probable outcome of a given case when seen early in the disease at the time therapeutic measures are instituted. In order to understand the reasons for the recommendations contained in this report, it is necessary to appreciate these variables, and, therefore, a brief discussion of the more important ones is presented.

VARIABLES TO BE CONSIDERED

The Diagnosis of Poliomyelitis.—The diagnosis of poliomyelitis must be based primarily on symptoms and clinical findings. The earlier in the disease a case is seen, the less characteristic these are. In addition, certain laboratory observations are of value, but none which is available to the clinician is absolutely diagnostic. The committee believes that for the purpose of evaluating a proposed therapeutic agent, the following diagnostic criteria should be met:

1. The history of onset and course must be compatible with poliomyelitis; i.e., acute onset of a febrile illness, sometimes resembling influenza, with headache, fever and a recognizable stiff neck as determined at least by some disinclination to forward flexion of the head. Vomiting may, or may not, be present.

The Subcommittee on Poliomyelitis consisted of Dr. William T. Green, Boston, Chairman; Dr. Hugo Muench, Boston; Dr. Derek Denny-Brown, Boston, and Dr. James L. Wilson, Ann Arbor, Mich. Consultants to the Subcommittee: Dr. Montgomery Blair, Washington, D. C.; Dr. Edward Shaw, San Francisco; Dr. Frank E. Sutton, Richmond, Va.; Dr. John A. S. Wall, Washington, D. C., and Dr.

2. The fever should rarely exceed 104 F. and should not persist longer than six days, unless obvious secondary complications are noted or bulbar palsies develop.

3. If no paralysis is present at the time of admission, there must be a fever and an abnormal spinal fluid with a range of cell count between 10 and 500. The protein content is elevated and the sugar content normal.

4. Cases of paralytic disease seen during the febrile period should show a localized paralysis that is definitely demonstrable and not a diffuse generalized weakness.

5. For a proper evaluation of therapeutic measures, cases first seen after the twenty-eighth day of the disease should not be admitted to the study.

It is appreciated that the foregoing criteria will result in the exclusion of some cases of poliomyelitis, but they will also prevent the inclusion of many cases of other diseases which, in the initial stages, may be mistaken for atypical poliomyelitis, particularly during an epidemic. These criteria are recommended, therefore, as a means of decreasing the influence of one variable in the study.

The Course of the Disease.—Poliomyelitis shows extreme variability in its course; on one hand, a patient may show extensive muscular involvement during the acute stage but have no residual paralysis or weakness at the end of eighteen months; on the other hand, a patient with only minor involvement at the onset of the disease may become a hopeless cripple. In some patients paralysis never develops, and others show remarkable spontaneous recovery from seemingly severe paralysis. It must be emphasized that at present it is not possible to predict the eventual outcome of a case of poliomyelitis by any tests or examinations made during the acute or early convalescent phases of the disease.

Since it is known that a large number of patients showing severe involvement during the early stages of the disease recover spontaneously, any method of evaluation of a therapeutic agent must be so designed as to take into account this spontaneous improvement and not credit the agent with this result.

The tendency to spontaneous improvement not only affects the evaluation of the final results of therapy but also affects the evaluation of the agent from the standpoint of relieving symptoms and shortening the course of the disease. For instance, it is difficult, in the acute phase, to distinguish between the pseudoparalysis of pain and the actual paralysis due to nerve cell involvement. It is impossible to determine whether the functionless anterior horn cell, as manifested by a paralyzed muscle, is a destroyed cell or is one which will recover.

Variations in the Virus.—It is now known that there are at least three immunologic types of poliomyelitis virus.¹ Whether or not these different, although related, viruses are responsible for the differences in clinical course of patients with poliomyelitis in one epidemic as compared with those in another is not known, nor is it known whether different viruses will respond differently to therapeutic agents. Thus, any evaluation of such agents should be made in a manner that will be most likely to include patients with various types of viruses utilizing different seasons and geographical source.

Variations in Geography.—It has long been noted that poliomyelitis is most prevalent in the late summer months but in certain localities tends to occur throughout the year. Certain other characteristics associated with geographical distribution have been suggested, and, therefore, this factor must be considered in the evaluation of any therapeutic agent.

Age Distribution.—Poliomyelitis formerly was primarily confined to the youngest age groups. In recent years a higher proportion of older persons have been affected. Reliable data are not available which would indicate whether the course or outcome of the disease differs in the various age groups. It is essential, therefore, to consider the age factor in designing a study of the treatment of the disease.

Differences in Time.—It has been noted that various epidemics observed in different years vary not only in the geographic

distribution of cases, but also with respect to the severity of the disease and the incidence of such forms of poliomyelitis as the bulbar type. Whether this is due to differences in types of the virus or to other factors is not known. It is important, therefore, to observe both control cases and cases in which the agent is tested at the same time in order to eliminate this difference. An excellent discussion of the importance of the general factor of time and other factors which may influence an investigation has been given by Albritton²; those planning to undertake clinical investigations should refer to these discussions.

Methods of Appraising the Condition of the Patient.—Poliomyelitis does not lend itself readily to quantitative study. Reliance must be placed on the subjective response of the patient in the evaluation of pain and tenderness, on semiquantitative muscle examinations in the evaluation of progress and extent of specific muscle involvement and on deformity and function for the over-all end result of treatment. In all of these, the judgment and experience of the person making the examinations provide an imponderable variable in any evaluation of a therapeutic procedure.

PROPOSED DESIGN OF INVESTIGATION

It is obvious from the brief discussion just presented that any study designed to evaluate a therapeutic agent in a disease the nature of which is as variable as poliomyelitis must be rigidly controlled if it is to have any value. Because of these variables, it is also apparent that a large number of cases will have to be studied simultaneously at various clinics, well distributed geographically. Because of differences in diagnostic criteria, age distribution of patients admitted, economic level from which patients come and methods of examining muscles and evaluating function among different clinics, any study involving more than one institution will have to be conducted in a collaborative manner. It would seem wise, therefore, to outline briefly the opinion of the committee with regard to the conduct of a collaborative investigation.

Collaboration of Several Clinics in Evaluating a Therapeutic Agent.—In general, there are three principal ways in which a collaborative investigation may be organized. An individual or small group may devise the details of the project, secure the cooperation of a number of investigators and direct the project from a central headquarters. The investigators have no voice in planning, operation or evaluation of the investigation but serve merely as agents of the central group. A second method involves the collaboration of various groups, each carrying out an investigation of its own choosing but exchanging and pooling information. No central planning group is involved and each clinic maintains its autonomy. The third method, a compromise of the first two, involves joint planning by all collaborators with a central group to execute the decisions and maintain uniformity of procedures. The central group makes no policy but merely carries out the decisions agreed on by the collaborators.

It is the last method that, in general, is most practical and at the same time reasonably efficient and is the one probably best suited for thorough evaluation of therapeutic agents in poliomyelitis. Each investigator must be convinced of the soundness of the project and understand fully the reasons for any restrictions of the investigation or procedures to be followed. This is secured by joint planning. On the other hand, some of the procedures which must be employed require central direction, as will be evident later, and this can be secured by the establishment of a central executive group.

It is important that, before embarking on any collaborative investigation, all details of methods and procedures be agreed on by all participants. Once agreed on, it becomes the duty of the central executive group to insure that these methods and procedures are followed. Finally, the central group should be responsible for the collection of records for analysis and providing a rapid interchange of information. A scheme similar to this has been used in developing the methods which will be outlined.

Selection of Participating Clinics.—The prime requisites for participation in any collaborative investigation of the value of a therapeutic agent in poliomyelitis are the following: (1) quali-

1. Kessel, J. F., and Pait, C. F.: Differentiation of Three Groups of Poliomyelitis Virus, *Proc. Soc. Exper. Biol. & Med.* **70**:315 (Feb.) 1949. Bodian, D. W.: Poliomyelitis: Another Strain of the Lansing Type, *ibid.* **70**:1 (Jan.) 1949. Roberts, E. C.: A Flocculation Test as a Possible Method for Differentiating Immunologic Types of the Poliomyelitis Virus, *Pub. Health Rep.* **64**:212 (Feb. 18) 1949.

2. Albritton, E. C.: *Experimental Design and Judgment of Evidence*, Ann Arbor, Mich., Edwards Bros. Inc., 1948.

fied physicians, experienced in the diagnosis and treatment of the disease in all its manifestations; (2) qualified medical ancillary personnel experienced in the care of patients with poliomyelitis; (3) facilities and technical staff adequate to carry out procedures in excess of those usually used in the routine treatment of patients with poliomyelitis, and (4) a probable case load sufficient to provide adequate clinical material for study.

Number of Participating Clinics.—The number of clinics participating in a collaborative effort should be sufficient to insure the admission of 750 to 1,500 cases suitable for study within a two year period. The clinics should be well distributed geographically for reasons mentioned previously. An excessive number of participants makes the project unwieldy and may tend to introduce additional uncontrolled variables. It is believed that in a study of this character ten to fifteen clinics would be an optimum number.

Acceptance of Cases to Study.—Cases must be accepted by all participating groups in accordance with uniform criteria. These have already been discussed and do not need repetition here. On admission, the exact stage of the disease in each case should be noted, and in particular the precise time of onset of fever should be determined.

Controls.—Because of the great variability of the clinical course of poliomyelitis and because of the impossibility of making an accurate prognosis in a given case, it is essential that any group of patients treated with a new agent be compared with another group of patients exactly comparable in every respect except that the agent under investigation is omitted. To do this is not as simple as it would seem. A group of patients treated at one clinic cannot be compared with a control group seen at another clinic. Differences in the details of care of the patients, environmental surroundings, climate and many other factors cannot be made identical for the two groups. It is important, therefore, that the two groups to be compared be formed at each participating clinic.

Extraordinary care must be exercised in assigning cases to the test group and to the control group to insure exact comparability of the two groups. In order to minimize those differences which might occur because one patient is admitted on the first day of the disease and another on the twentieth day of the disease, a scheme of classification or "stratification" of patients must be adopted before assigning them to control or test groups. In the discussion of diagnostic criteria, it was recommended that no case seen after the twenty-eighth day of the disease be admitted to the study. It is recommended that those cases seen before the twenty-eighth day be grouped as follows: (1) pre-paralytic cases seen during the febrile illness; (2) paralytic cases seen during the febrile state up to seven days after the onset of the disease; (3) paralytic cases seen from the eighth to the twenty-eighth day after the onset of the disease.

The day of onset is considered as the day on which fever first appears. Control and test groups are to be formed within each of these three groups of patients.

It is recognized that the proposed stratification is crude and that each group will include cases of widely varying severity and clinical course. Although it might be desirable to make more restricted classifications and thus reduce the variability within each group, such refinement does not seem to be practicable unless it is known that each clinic will handle an extraordinarily large number of patients; otherwise the groups will be too small from which to form adequate control and test subgroups. The purpose of this procedure, however, is to insure that the control and test groups contain patients in approximately the same stage of the disease when the test procedures are applied.

The scheme of stratification may have to be modified, depending on the type of agent being studied. For instance, an antibiotic should be tested only during the acute febrile stage, since, presumably, the virus is no longer active in the disease after that time. It might be important in such circumstances to establish classifications or strata for short time periods; i.e., eighteen, twenty-four and thirty-six hours after onset.

The cardinal principle in assigning patients to either the control or the test group is that the assignments must be made in a completely random manner.² This means that such assign-

ments must not be made in any systematic fashion. This requirement precludes the assigning of alternate cases to the control or test groups. Several schemes may be used to secure the desired randomization such as tossing a coin or drawing straws. The scheme proposed here is not considered to be better than other methods of randomization, but may have certain advantages from an administrative standpoint. It also insures that a uniform system is used by all clinics collaborating in the investigation. It is adopted from a method used in the British Empire Cancer Campaign, an investigation of estrogens in cancer.

Three books, corresponding to the three classifications of cases, are provided each clinic. These books contain lines on which the names of the patients are written in consecutive order as they are admitted and assigned a classification. Each line has previously been identified with a letter, C or T, indicating that the patient whose name falls on that line is to be assigned to the control or the test group.

The assignment of the letters T and C to the lines is performed by the central executive group in the following manner: Ten black balls and ten white balls are placed in a box and are removed one at a time by a blindfolded person. If a black ball is removed, a T is entered on a line; if a white ball is removed, a C is entered on the line. This operation is repeated until all lines in all books have been marked.

This procedure insures that the assignment of letters, and hence cases, is done in a random manner and also insures that in every twenty consecutive admissions 10 patients will be assigned to the test group and ten assigned to the control group. Thus one group can never exceed another by more than 10 cases.

The books should be kept so that the admitting physician who determines the data (time of onset, presence of localized weakness) on which the patient is classified never knows whether the incoming patient is to be assigned to the control or the test group.

Treatment of Patients.—It is of the utmost importance that both the test group and the control group of patients receive identical treatment with the one exception that the patients in the test group have added to their treatment the agent under investigation. Furthermore, it is important that the effects of the agent being tested be not confused with the effects of other therapeutic procedures. This requirement imposes certain technical and psychologic difficulties which merit discussion.

Only in diseases which are self limited and in which complete recovery can be expected without therapy is it permissible to compare a test group of patients with a control group receiving no treatment. Poliomyelitis is certainly not a disease in this classification. On the other hand, there is not now a universally agreed upon method of treatment, and it is exceedingly difficult, therefore, to devise a basic form of therapy, acceptable to all workers, adequate for the patient and at the same time of such a nature that comparison of patients treated by this regimen with those receiving some form of therapy can be depended on to demonstrate significant differences in results should the agent under investigation be effective.

No form of therapy of poliomyelitis in use today, except such procedures as tracheotomy or use of a respirator in certain forms of the disease, has been conclusively proved to be superior in end results to those observed in patients with no treatment. Even the value of tracheotomy is disputed. This, of course, does not refer to orthopedic procedures to correct deformity. Also, this does not mean that certain forms of therapy may not produce superior results, but the critical test has never been performed in an adequate manner. There is not, therefore, a generally accepted basic treatment for the disease. For instance, hot pack therapy as advocated by Sister Kenny as part of her treatment is used in comparatively few places, although many modifications are in use. Physical therapy procedures have not been standardized and vary markedly from clinic to clinic.

Unfortunately the public has become aware of certain procedures under the name of their original protagonist without knowing precisely of what those procedures consist. Public opinion has, in a number of instances, forced the adoption of costly treatment procedures against the better judgment of the responsible physicians and without adequate proof that such procedures are advantageous or superior to others advocated by more rational minds.

These factors make the adoption of a so-called basic treatment on which the therapeutic agent under test can be superimposed a difficult task. On the one hand, the treatment must be simple and easily standardized, and on the other hand it must satisfy the physicians, patients and the patients' relatives.

Because of this pronounced public opinion regarding treatment of poliomyelitis, some physicians and some physical therapists have formed strong convictions regarding treatment methods, based more on emotion than on scientific evidence. This emotional feeling may tend to introduce bias on the part of the physician and inadvertent or intentional differences in application of treatment procedures by physical therapists to patients in the control group as compared with the procedures used in the test group. Constant awareness of this possibility is necessary in order to avoid interference with or destruction of the design of the investigation.

It is also apparent that the precise details of the treatment procedures employed in both control and test groups will depend to some extent on the nature of the therapeutic agent to be tested. For instance, in the problem originally presented to the Therapeutic Trials Committee, moist heat was the agent to be tested. This precluded the use of hot packs, or for that matter, heat in any form, in procedures for the control group. If a drug were the agent to be tested, it might be possible to include heat in the basic treatment but might mean the exclusion of other drugs. It is necessary, therefore, in designing an experiment of this character to eliminate from the basic treatment any procedure or agent which would tend to confuse or augment the possible actions of the agent being tested. For these reasons it is not possible to outline in detail recommended basic treatment procedures, but certain aspects of treatment can be mentioned.

It is important to emphasize again that whatever basic treatment is adopted, both the control and test groups should receive this treatment in an identical manner. Furthermore, since any treatment of poliomyelitis involves manipulation of the patient, the personnel administering the treatment should each handle an equal number of patients in both test and control groups in order to minimize the effects of personal differences in technics.

It seems generally agreed that certain physical therapy procedures should be instituted early in the treatment of patients with poliomyelitis. The nature and extent of these procedures vary considerably among hospitals, and it is important that before embarking on a collaborative investigation agreement be reached among all participants regarding the detailed methods to be used and the frequency and duration of application to cases. Furthermore, physical therapy is applied by physical therapists whose training and experience vary in different institutions. No written directions can be prepared which would be wholly satisfactory for the standardization of such procedures. It should be apparent that such standardization is important in order to minimize a major variable which might affect the results of the investigation. If a drug is being tested, both the test and the control groups should receive the same symptomatic care for relief of pain and for maximum comfort.

The committee believes that the most satisfactory method of achieving standardization of physical therapy procedures to be used in treating patients included in a collaborative program would be to have the principal physical therapists from each collaborating institution brought together at one institution equipped to teach them the procedures agreed on by the investigators. The suggested training period for these physical therapists should be four to six weeks in duration and the training should be given not too far in advance of the contemplated time of starting the investigation. Training should be given under the direction of a competent physiatrist or orthopedic surgeon and a qualified physical therapist.

In order to insure that the standardization of procedures is maintained throughout the investigation, the personnel responsible for giving the original training should visit the collaborating institutions at intervals during the investigation, observe the procedures in operation and correct any departures from agreed technics. This activity is of importance, since it is likely that the duration of the investigation may be prolonged, depending on the number of cases available. The possibility of unconscious variations in technical procedures among the various institutions involved in the program must be guarded against.

If the application or administration of the therapeutic agent to the test group involves manipulation of the patient or necessitates some concomitant procedure, such manipulation or procedure must be given to the control group in exactly the same manner with the exception that the agent itself is omitted. It would be advisable, for instance, if the agent were a drug requiring frequent injection, to administer a "blank" or an injection of the vehicle at precisely the same intervals to the control group.

The question of when patients should be discharged from the hospital to the outpatient clinic is a difficult one and should be decided in advance of the investigation. The principle to bear in mind is that both the control and test groups be treated alike in this respect. This means that should it be decided that patients will be discharged at a certain stage of convalescence, all patients, in both the control and the treated groups, should be discharged at that stage of the disease.

The duration of observation of patients included in an investigative program should be sufficiently long for any spontaneous recovery to become fully apparent. In general, there seems to be no evidence that natural recovery extends beyond sixteen to eighteen months after the onset, and it is suggested that final examination of each patient be made eighteen months after the onset of the disease.

EVALUATION OF RESULTS

In a disease such as poliomyelitis the end results in a given patient cannot be appraised without an accurate knowledge of the extent of the original disability and the progress of the recovery. In the evaluation of the extent of the disease and

Grade as Used by National Foundation for Infantile Paralysis		Definition
Grade 0	0	No palpable contraction
Trace or 1	1	Palpable contraction of muscle, but no motion of the part which the muscle should move
Poor — or 2	2—	Muscle will move part, but not against gravity and not through a full range
Poor or 3	2	Muscle moves the part through its range, but not against gravity
Fair — or 4	3—	Muscle will move part against gravity, but not through a full range
Fair or 5	3	Muscle will carry part through its range of motion against gravity, but not against added resistance
Good or 6	4	Muscle will lift part against gravity and added resistance, but lacks normal strength
Normal or 7	5	Normal strength

the degree of residual paralysis at the end of observation, reliance has to be placed on manual muscle examination. Unfortunately, manual muscle examination is not a procedure which lends itself readily to quantitative evaluation and the factor of judgment of the observer plays an important role in the interpretation of results. Furthermore, some muscles can be examined and their functional capacity determined more readily and more accurately than others. Poliomyelitis is frequently, if not always, selective with respect to the muscles affected, and it is seldom, if ever, possible to find 2 patients with the same muscles involved to exactly the same degree. It is not possible, therefore, to design an experiment wherein one patient may be paired with another for purposes of comparison.

Muscle Examinations.—The first muscle examination of each patient should be made as early in the disease as possible. It is probably not feasible to make an adequate examination during the acute febrile stage, but a complete examination should be commenced within forty-eight hours after the fever has subsided and, depending on the condition of the patient, carried out in piecemeal fashion over a period of several days. Examinations should then be made at monthly intervals after the onset of the disease during the first six months, at two month intervals during the second six months and at the fifteenth and eighteenth month after the onset of the disease.

It is not within the province of this report to detail the precise methods to be used in making muscle examinations. It is important, however, that the same methods be used on every patient in all participating institutions. This will be discussed in more detail later. The methods used should permit a semi-quantitative grading of the functional capacity of the muscle, and the committee recommends that some such scheme as the one shown in the accompanying table be used in assessing and recording the function of each muscle tested.

It must be recognized that these are arbitrary classifications and that there is no sharp dividing line between them. If the numerical values are used, it should be borne in mind that these numbers do *not* have the properties or accuracy suggested by their commonly accepted values and that numerical manipulation of the results of several muscle examinations may easily lead to erroneous or ridiculous conclusions.

The questions of how many muscles to examine and, if not all are examined, which shall be subject to study, are difficult to answer. To examine every muscle in every patient is a task which would require a large personnel, and if many patients are seen such a task might be impossible. Because of the fact that poliomyelitis can affect almost any of the muscles, a large number must be examined and evaluated. Before commencing the investigation, a complete list of muscles to be studied should be prepared and agreed on by all investigators.

In making muscle examinations, particularly early in the disease, it is important to distinguish between paralysis and spasm. Furthermore, diminution of motion or pseudoparalysis due to pain must be distinguished from actual paralysis due to anterior horn cell damage. Therefore, there is need for repeated examinations and separate reporting of results in cases with and without pain.

Evaluation of Pain and Tightness.—Neither pain nor tightness lends itself to quantitative determination. The judgment of the observers will have to be relied on, and too much consideration should not be given to changes in these symptoms, unless the changes are large and dramatic.

Muscle Examiners.—Since differences in technique and in judgment affect the results of manual muscle examinations, it is not always possible to compare the results of an examination made by one group of examiners with those of another. However, in a collaborative study, where data are pooled, it is essential that the data derived from muscle examinations made at the various collaborating institutions be comparable. To meet this difficulty it appears advisable to have all muscle examinations made by the same persons.

The Committee recommends that in any collaborative study of poliomyelitis in which the evaluation depends on the results of muscle examinations a team of muscle examiners be established and trained in a uniform manner, and that they travel among the various collaborating institutions, examining all patients.

It is further recommended that the examiners not be informed as to which patients are in the control group and which in the test group. Furthermore, on repeat examinations of the same patient, the examiners should not be permitted to see the records of their previous examination. These recommendations are made with the view of preventing the results of a given examination from being influenced by unconscious bias on the part of the examiner or by observations made previously on the same patient.

Criteria of Evaluation.—The principal basis on which the effects of the agent on the outcome of the disease will be measured is the degree of difference in residual paralysis between the test and the control groups. This difference will have to be determined by comparison of the results of muscle examinations in the two groups. From a technical standpoint this is a difficult task and is one in which the services of a competent statistical consultant will be needed. Such a consultant should be a member of the joint planning group and attached to the central executive group.

The factors which enter into the final evaluation are the following: (1) rapidity of improvement in paralysis as shown by repeated muscle examinations; (2) the residual disability as revealed by muscle examination at the end of eighteen months after the onset of the disease; (3) the comparative incidence of paralysis in test and control groups for those first admitted in the preparalytic stage; (4) residual weakness; (5) muscle spasm with residual shortening and fibrosis; (6) atrophy; (7) evidence of vasomotor disturbances including cyanosis of extremities, thrombophlebitis, etc.; (8) total disability (this takes into account differences in importance of various muscle groups); (9) effects of therapy on pain and tightness.

It should be pointed out that the appraisal of the end result of therapy from the standpoint of the effectiveness of the tested agent is approached from a different point of view than an appraisal of the end result of the disease. From the standpoint of the rehabilitation of the patient it is more important that certain muscles regain useful function than it is for other muscles to recover from paralysis. From the standpoint of appraising the effects of a therapeutic agent, the effect on the muscle function *per se* without regard to its importance to the patient is the major aspect. It is also important to distinguish between objective measurable paralysis and purely functional results. Some patients are undoubtedly more effective in overcoming their handicaps than others. The fact that one patient could, somehow or other, walk and another could not would not necessarily mean a difference in their paralysis.

Method of Evaluation.—It should be obvious from the discussion of the criteria that the element of judgment based on experience plays an important role in the evaluation of the results. That this judgment may vary among those who might be called on to evaluate the results of an investigation is inevitable, and some means must be devised to reduce this variable. The precise determination of the end result in a given patient, while important, is not as important as that of insuring uniformity in evaluation of the end results in all patients.

It seems advisable, therefore, to recommend that the evaluation of results be performed on all patients by the same persons. For this purpose, a team of competent experts should be formed, whose duty would be to visit each institution, examine each patient in both the control and test groups at the end of the period of treatment and observation. At the time of examination of the patient these experts should not know whether the patient is in the test group or in the control group, so as to avoid any influence of unconscious bias on the judgment of the examiner.

The proper selection of these experts is an important matter. They should not be drawn from among the participating investigators for obvious reasons. They should be persons who have no strong convictions regarding the efficacy of any form of therapy but who are familiar with the results of orthodox treatments. It would seem advisable to include in the evaluating group an orthopedic surgeon, a physiatrist, a pediatrician and a neurologist, all of whom have had considerable experience with poliomyelitis and are recognized as authorities in their respective fields.

After all data have been collected, the task of evaluating them must be performed jointly by the participating investigators, evaluating group, and the statistician. The data which should be available for study are:

1. The results of the repeated muscle examinations on the patients.
2. The appraisal of the investigators as to the amount of pain, tenderness and tightness at various stages of the diseases in the patients.
3. The comparative incidence of paralysis in those patients admitted in the preparalytic stage.
4. The results of the examinations of the evaluating group with respect to:
 - (a) Residual disability of the patients at the end of observation.
 - (b) Residual weakness.
 - (c) Atrophy.
 - (d) Evidence of vasomotor disturbances.
 - (e) Total disability.

The participants and experts must evaluate the relative importance of the various observations in order that the statistician can apply the proper weighting to the data. Finally, any observed differences in results between the two groups, control and test, must be tested for their significance. The investigators must agree as to the magnitude of the difference which they will consider significant from a practical standpoint, and the statistician can inform them whether, from the data obtained, such a difference could have occurred from the operation of chance and what the probability is that chance would produce the observed difference.

SUMMARY

Poliomyelitis is a disease characterized by extreme variability in its course and in the degree of disability produced in victims.

Among the variables which must be controlled in any investigation of the efficacy of a therapeutic agent in this disease are the following: variations in diagnostic criteria, unpredictability of the course of the disease, unpredictability of outcome, effects of different immunologic types of the virus, effects of climatic and geographic variations, age distribution of cases, variations in technique of applying treatment and variations in measuring and judging extent of paralysis, deformity and disability.

Because of the many variables involved, it is necessary to observe a large number of patients in order to evaluate the effects of any therapeutic regimen in poliomyelitis; this, then, involves a collaborative effort of a number of institutions.

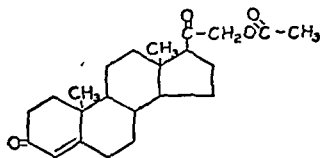
The methods proposed for investigation and evaluation involve acceptance of cases according to predetermined diagnostic criteria, classification of cases according to the stage of the disease on admission, establishment of control and test groups within each classification and assigning cases to these groups in a completely random manner, administering identical treatment to both the test and control groups with the single exception of the variant to be studied, administering treatment by physical therapists pretrained in uniform procedures, following the progress of each patient by semiquantitative standardized muscle examinations administered by a traveling group of specially trained examiners, evaluation of results in each patient by a group of experts especially chosen for this purpose and weighing of the results according to their reliability and importance and subjecting them to statistical analysis to determine the probable significance of any observed differences.

NEW AND NONOFFICIAL REMEDIES

The following additional articles have been accepted as conforming to the rules of the Council on Pharmacy and Chemistry of the American Medical Association for admission to New and Nonofficial Remedies. A copy of the rules on which the Council bases its action will be sent on application.

AUSTIN SMITH, M.D., Secretary.

DESOXYCORTICOSTERONE ACETATE-U. S. P.—
Doca Acetate-Organon.—17-(β)-[1-keto-2-acetoxyethyl] Δ^4 androstene-3-one. The structural formula may be represented as follows:



For description and standards see the U. S. Pharmacopeia under Desoxycorticosterone Acetate.

Actions and Uses.—Desoxycorticosterone has been isolated from the adrenal cortex in small amounts and is prepared synthetically as the acetate. Desoxycorticosterone acetate is highly selective in its biologic activity. It has no demonstrable direct effect on protein or carbohydrate metabolism in man and little if any in experimental animals. It has no effect on estrogenic or androgenic activity and no effect on pigmentation. Its known activity is limited to that of the metabolism of sodium, potassium and water and is mediated through its action on the renal mechanism. It causes an increase in retention in the sodium ion and water and an increase in the excretion of potassium, presumably by modification of reabsorption of these substances by the renal tubules. In therapeutic dosages, in patients with adrenal insufficiency, it restores the serum sodium and potassium and the plasma volume to normal levels. It also elevates the blood pressure. Secondary to the increase in blood volume, there results an increase in cardiac output with a decrease in nitrogen retention, increase in the absorption of fat and glucose from the intestine and increase in strength as well as appetite.

It has been established that desoxycorticosterone acetate,

despite its limited range of physiologic activity, is of great value in the management of adrenal insufficiency, both in maintenance and in the treatment of crises. Many patients with chronic adrenal insufficiency are enabled to resume essentially normal activity by the administration of desoxycorticosterone acetate and sodium chloride alone. In patients with recurrent hypoglycemia and in patients with acute adrenal insufficiency, therapy with this synthetic adrenal steroid should be supplemented with adrenal cortical extracts containing other physiologically active steroids.

Dosage.—The dosage of desoxycorticosterone acetate required for maintenance varies from 1 to 7 mg. daily. It is dependent primarily on individual variation and on the amount of sodium salts in the diet; i. e., the higher the salt intake the lower the requirement of the adrenal steroid. Experience indicates that most patients require about 3 mg. daily when taking 3 to 6 Gm. of sodium chloride in addition to that contained in the normal diet.

In the management of acute adrenal crises, 10 to 15 mg. may be required twice a day for one or two days in conjunction with liberal quantities of whole adrenal cortical extract and with 1 or 2 daily infusions of 1,500 cc. of 5 per cent dextrose in isotonic sodium chloride solution. Transfusion of whole blood or plasma may also be indicated to combat shock.

Desoxycorticosterone acetate is insoluble in water and usually administered in oil by subcutaneous or intramuscular injection. After the maintenance dose has been carefully determined, pellets may be implanted subcutaneously to avoid repeated injections. A pellet of 125 mg. is approximately equivalent to a daily injection of about 0.5 mg. Pellets are usually effective for about one year. Symptoms of adrenal insufficiency begin to recur when the pellets are absorbed. Crumbling of pellets may result in increased absorption and evidence of overdosage.

Caution: Significant toxicity results from excessive amounts of desoxycorticosterone acetate. The most frequent signs are edema, pulmonary congestion, cardiac dilatation and failure. Arterial hypertension develops in about 30 per cent of patients with chronic adrenal insufficiency after treatment for several months or years. This may require a cautious reduction in the dosage of the steroid or salt or both. Occasionally toxicity due to a decrease in serum potassium concentration in the blood is associated with sudden bouts of weakness and characteristic changes in the electrocardiogram.

ORGANON, INC., ORANGE, N. J.

Solution Doca Acetate in Oil: 5 mg. per cc. in peanut oil, 1 cc. ampuls and 10 cc. vials.

U. S. patent 2,312,481; U. S. trademark 372,214.

ESTROGENIC SUBSTANCES (WATER INSOLUBLE) (See New and Nonofficial Remedies 1948, p. 370).

The following dosage form has been accepted:

KREMERS-URBAN COMPANY, MILWAUKEE

Solution Estrugenone in Oil: 2,000 I. U. per cc. in sesame oil, 1 cc. ampuls and 30 cc. vials; 10,000 I. U. per cc. in sesame oil, 1 cc. ampuls and 10 cc. vials, and 20,000 I. U. per cc. in sesame oil, 10 cc. vials. Preserved with chlorobutanol 0.5 per cent.

U. S. Patent 377,549.

PENICILLIN (See New and Nonofficial Remedies 1948, p. 148).

The following dosage forms have been accepted:

COMMERCIAL SOLVENTS CORPORATION, NEW YORK

Tablets Crystalline Potassium Penicillin G: 50,000 units, 2 cc. vials, each containing two tablets for the preparation of sterile solution.

PREMO PHARMACEUTICAL LABORATORIES, NEW YORK

Crystalline Procaine Penicillin G in Oil: 300,000 units per cc. in sesame oil with hydrogenated peanut oil, 1 cc. disposable syringe.

THE WM. S. MERRELL CO., CINCINNATI

Crystalline Procaine Penicillin G in Oil: 300,000 units per cc. in sesame oil, 10 cc. vials.

SCHENLEY LABORATORIES, INC., NEW YORK 1

Ointment Potassium Penicillin: 1,000 units per gram, 28.35 Gm. tubes.

It must be recognized that these are arbitrary classifications and that there is no sharp dividing line between them. If the numerical values are used, it should be borne in mind that these numbers do *not* have the properties or accuracy suggested by their commonly accepted values and that numerical manipulation of the results of several muscle examinations may easily lead to erroneous or ridiculous conclusions.

The questions of how many muscles to examine and, if not all are examined, which shall be subject to study, are difficult to answer. To examine every muscle in every patient is a task which would require a large personnel, and if many patients are seen such a task might be impossible. Because of the fact that poliomyelitis can affect almost any of the muscles, a large number must be examined and evaluated. Before commencing the investigation, a complete list of muscles to be studied should be prepared and agreed on by all investigators.

In making muscle examinations, particularly early in the disease, it is important to distinguish between paralysis and spasm. Furthermore, diminution of motion or pseudoparalysis due to pain must be distinguished from actual paralysis due to anterior horn cell damage. Therefore, there is need for repeated examinations and separate reporting of results in cases with and without pain.

Evaluation of Pain and Tightness.—Neither pain nor tightness lends itself to quantitative determination. The judgment of the observers will have to be relied on, and too much consideration should not be given to changes in these symptoms, unless the changes are large and dramatic.

Muscle Examiners.—Since differences in technique and in judgment affect the results of manual muscle examinations, it is not always possible to compare the results of an examination made by one group of examiners with those of another. However, in a collaborative study, where data are pooled, it is essential that the data derived from muscle examinations made at the various collaborating institutions be comparable. To meet this difficulty it appears advisable to have all muscle examinations made by the same persons.

The Committee recommends that in any collaborative study of poliomyelitis in which the evaluation depends on the results of muscle examinations a team of muscle examiners be established and trained in a uniform manner, and that they travel among the various collaborating institutions, examining all patients.

It is further recommended that the examiners not be informed as to which patients are in the control group and which in the test group. Furthermore, on repeat examinations of the same patient, the examiners should not be permitted to see the records of their previous examination. These recommendations are made with the view of preventing the results of a given examination from being influenced by unconscious bias on the part of the examiner or by observations made previously on the same patient.

Criteria of Evaluation.—The principal basis on which the effects of the agent on the outcome of the disease will be measured is the degree of difference in residual paralysis between the test and the control groups. This difference will have to be determined by comparison of the results of muscle examinations in the two groups. From a technical standpoint this is a difficult task and is one in which the services of a competent statistical consultant will be needed. Such a consultant should be a member of the joint planning group and attached to the central executive group.

The factors which enter into the final evaluation are the following: (1) rapidity of improvement in paralysis as shown by repeated muscle examinations; (2) the residual disability as revealed by muscle examination at the end of eighteen months after the onset of the disease; (3) the comparative incidence of paralysis in test and control groups for those first admitted in the preparalytic stage; (4) residual weakness; (5) muscle spasm with residual shortening and fibrosis; (6) atrophy; (7) evidence of vasomotor disturbances including cyanosis of extremities, thrombophlebitis, etc.; (8) total disability (this takes into account differences in importance of various muscle groups); (9) effects of therapy on pain and tightness.

It should be pointed out that the appraisal of the end result of therapy from the standpoint of the effectiveness of the tested agent is approached from a different point of view than an appraisal of the end result of the disease. From the standpoint of the rehabilitation of the patient it is more important that certain muscles regain useful function than it is for other muscles to recover from paralysis. From the standpoint of appraising the effects of a therapeutic agent, the effect on the muscle function per se without regard to its importance to the patient is the major aspect. It is also important to distinguish between objective measurable paralysis and purely functional results. Some patients are undoubtedly more effective in overcoming their handicaps than others. The fact that one patient could, somehow or other, walk and another could not would not necessarily mean a difference in their paralysis.

Method of Evaluation.—It should be obvious from the discussion of the criteria that the element of judgment based on experience plays an important role in the evaluation of the results. That this judgment may vary among those who might be called on to evaluate the results of an investigation is inevitable, and some means must be devised to reduce this variable. The precise determination of the end result in a given patient, while important, is not as important as that of insuring uniformity in evaluation of the end results in all patients.

It seems advisable, therefore, to recommend that the evaluation of results be performed on all patients by the same persons. For this purpose, a team of competent experts should be formed, whose duty would be to visit each institution, examine each patient in both the control and test groups at the end of the period of treatment and observation. At the time of examination of the patient these experts should not know whether the patient is in the test group or in the control group, so as to avoid any influence of unconscious bias on the judgment of the examiner.

The proper selection of these experts is an important matter. They should not be drawn from among the participating investigators for obvious reasons. They should be persons who have no strong convictions regarding the efficacy of any form of therapy but who are familiar with the results of orthodox treatments. It would seem advisable to include in the evaluating group an orthopedic surgeon, a physiatrist, a pediatrician and a neurologist, all of whom have had considerable experience with poliomyelitis and are recognized as authorities in their respective fields.

After all data have been collected, the task of evaluating them must be performed jointly by the participating investigators, evaluating group, and the statistician. The data which should be available for study are:

1. The results of the repeated muscle examinations on the patients.
2. The appraisal of the investigators as to the amount of pain, tenderness and tightness at various stages of the diseases in the patients.
3. The comparative incidence of paralysis in those patients admitted in the preparalytic stage.
4. The results of the examinations of the evaluating group with respect to:
 - (a) Residual disability of the patients at the end of observation.
 - (b) Residual weakness.
 - (c) Atrophy.
 - (d) Evidence of vasomotor disturbances.
 - (e) Total disability.

The participants and experts must evaluate the relative importance of the various observations in order that the statistician can apply the proper weighting to the data. Finally, any observed differences in results between the two groups, control and test, must be tested for their significance. The investigators must agree as to the magnitude of the difference which they will consider significant from a practical standpoint, and the statistician can inform them whether, from the data obtained, such a difference could have occurred from the operation of chance and what the probability is that chance would produce the observed difference.

SUMMARY

Poliomyelitis is a disease characterized by extreme variability in its course and in the degree of disability produced in victims.

Among the variables which must be controlled in any investigation of the efficacy of a therapeutic agent in this disease are the following: variations in diagnostic criteria, unpredictability of the course of the disease, unpredictability of outcome, effects of different immunologic types of the virus, effects of climatic and geographic variations, age distribution of cases, variations in techniques of applying treatment and variations in measuring and judging extent of paralysis, deformity and disability.

Because of the many variables involved, it is necessary to observe a large number of patients in order to evaluate the effects of any therapeutic regimen in poliomyelitis; this, then, involves a collaborative effort of a number of institutions.

The methods proposed for investigation and evaluation involve acceptance of cases according to predetermined diagnostic criteria, classification of cases according to the stage of the disease on admission, establishment of control and test groups within each classification and assigning cases to these groups in a completely random manner, administering identical treatment to both the test and control groups with the single exception of the variant to be studied, administering treatment by physical therapists pretrained in uniform procedures, following the progress of each patient by semiquantitative standardized muscle examinations administered by a traveling group of specially trained examiners, evaluation of results in each patient by a group of experts especially chosen for this purpose and weighing of the results according to their reliability and importance and subjecting them to statistical analysis to determine the probable significance of any observed differences.

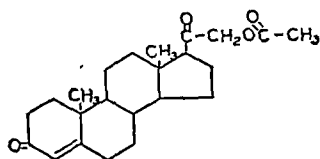
NEW AND NONOFFICIAL REMEDIES

The following additional articles have been accepted as conforming to the rules of the Council on Pharmacy and Chemistry of the American Medical Association for admission to New and Nonofficial Remedies. A copy of the rules on which the Council bases its action will be sent on application.

AUSTIN SMITH, M.D., Secretary.

DESOXYCORTICOSTERONE ACETATE-U. S. P.—

Doca Acetate-Organon.—17-(β)-[1-keto-2-acetoxyethyl] Δ^4 androstene-3-one. The structural formula may be represented as follows:



For description and standards see the U. S. Pharmacopeia under Desoxycorticosterone Acetate.

Actions and Uses.—Desoxycorticosterone has been isolated from the adrenal cortex in small amounts and is prepared synthetically as the acetate. Desoxycorticosterone acetate is highly selective in its biologic activity. It has no demonstrable direct effect on protein or carbohydrate metabolism in man and little if any in experimental animals. It has no effect on estrogenic or androgenic activity and no effect on pigmentation. Its known activity is limited to that of the metabolism of sodium, potassium and water and is mediated through its action on the renal mechanism. It causes an increase in retention in the sodium ion and water and an increase in the excretion of potassium, presumably by modification of reabsorption of these substances by the renal tubules. In therapeutic dosages, in patients with adrenal insufficiency, it restores the serum sodium and potassium and the plasma volume to normal levels. It also elevates the blood pressure. Secondary to the increase in blood volume, there results an increase in cardiac output with a decrease in nitrogen retention, increase in the absorption of fat and glucose from the intestine and increase in strength as well as appetite.

It has been established that desoxycorticosterone acetate,

despite its limited range of physiologic activity, is of great value in the management of adrenal insufficiency, both in maintenance and in the treatment of crises. Many patients with chronic adrenal insufficiency are enabled to resume essentially normal activity by the administration of desoxycorticosterone acetate and sodium chloride alone. In patients with recurrent hypoglycemia and in patients with acute adrenal insufficiency, therapy with this synthetic adrenal steroid should be supplemented with adrenal cortical extracts containing other physiologically active steroids.

Dosage.—The dosage of desoxycorticosterone acetate required for maintenance varies from 1 to 7 mg. daily. It is dependent primarily on individual variation and on the amount of sodium salts in the diet; i. e., the higher the salt intake the lower the requirement of the adrenal steroid. Experience indicates that most patients require about 3 mg. daily when taking 3 to 6 Gm. of sodium chloride in addition to that contained in the normal diet.

In the management of acute adrenal crises, 10 to 15 mg. may be required twice a day for one or two days in conjunction with liberal quantities of whole adrenal cortical extract and with 1 or 2 daily infusions of 1,500 cc. of 5 per cent dextrose in isotonic sodium chloride solution. Transfusion of whole blood or plasma may also be indicated to combat shock.

Desoxycorticosterone acetate is insoluble in water and usually administered in oil by subcutaneous or intramuscular injection. After the maintenance dose has been carefully determined, pellets may be implanted subcutaneously to avoid repeated injections. A pellet of 125 mg. is approximately equivalent to a daily injection of about 0.5 mg. Pellets are usually effective for about one year. Symptoms of adrenal insufficiency begin to recur when the pellets are absorbed. Crumbling of pellets may result in increased absorption and evidence of overdosage.

Caution: Significant toxicity results from excessive amounts of desoxycorticosterone acetate. The most frequent signs are edema, pulmonary congestion, cardiac dilatation and failure. Arterial hypertension develops in about 30 per cent of patients with chronic adrenal insufficiency after treatment for several months or years. This may require a cautious reduction in the dosage of the steroid or salt or both. Occasionally toxicity due to a decrease in serum potassium concentration in the blood is associated with sudden bouts of weakness and characteristic changes in the electrocardiogram.

ORGANON, INC., ORANGE, N. J.

Solution Doca Acetate in Oil: 5 mg. per cc. in peanut oil, 1 cc. ampuls and 10 cc. vials.

U. S. patent 2,312,481; U. S. trademark 372,214.

ESTROGENIC SUBSTANCES (WATER INSOLUBLE) (See New and Nonofficial Remedies 1948, p. 370).

The following dosage form has been accepted:

KREMERS-URBAN COMPANY, MILWAUKEE

Solution Estrugene in Oil: 2,000 I. U. per cc. in sesame oil, 1 cc. ampuls and 30 cc. vials; 10,000 I. U. per cc. in sesame oil, 1 cc. ampuls and 10 cc. vials, and 20,000 I. U. per cc. in sesame oil, 10 cc. vials. Preserved with chlorobutanol 0.5 per cent.

U. S. Patent 377,549.

PENICILLIN (See New and Nonofficial Remedies 1948, p. 148).

The following dosage forms have been accepted:

COMMERCIAL SOLVENTS CORPORATION, NEW YORK

Tablets Crystalline Potassium Penicillin G: 50,000 units, 2 cc. vials, each containing two tablets for the preparation of sterile solution.

PREMO PHARMACEUTICAL LABORATORIES, NEW YORK

Crystalline Procaine Penicillin G in Oil: 300,000 units per cc. in sesame oil with hydrogenated peanut oil, 1 cc. disposable syringe.

THE WM. S. MERRELL CO., CINCINNATI

Crystalline Procaine Penicillin G in Oil: 300,000 units per cc. in sesame oil, 10 cc. vials.

SCHENLEY LABORATORIES, INC., NEW YORK 1

Ointment Potassium Penicillin: 1,000 units per gram, 28.35 Gm. tubes.

THE JOURNAL OF THE
AMERICAN MEDICAL ASSOCIATION

535 NORTH DEARBORN STREET - - - CHICAGO 10, ILL.

Edited by

MORRIS FISHBEIN, M.D.

Assistant Editor, AUSTIN SMITH, M.D.

Associate Editors

JOHNSON F. HAMMOND, M.D. RICHARD J. PLUNKETT, M.D.

Editor for Current Medical Literature, GEORGE HALPERIN, M.D.

Assistant to the Editor, JEWEL F. WHELAN

Subscription price - - - Twelve dollars per annum in advance

Cable Address - - - "Medic, Chicago"

Please send in promptly notice of change of address, giving both old and new; always state whether the change is temporary or permanent. Such notice should mention all journals received from this office. Important information regarding contributions will be found on second advertising page following reading matter.

SATURDAY, JUNE 11, 1949

A FEMALE ALEXIS ST. MARTIN

When William Beaumont treated Alexis St. Martin, whose stomach as a result of a shotgun wound could be viewed directly through an external opening, he made physiologic observations which greatly increased our knowledge of the physiology of the stomach. These studies were carefully made for many years and have become a classic example of research limited largely to simple and direct clinical investigation.

Since these pioneer studies, other observers have gained insight regarding gastric physiology by observing other persons who have, for one reason or another, presented external openings through which the interiors of their stomachs could be examined. Until recently all these patients were male. Now a woman patient with a large gastric fistula has become available for study and observations have been made which in some respects at least differ from those made in the male.

These recent observations were made on a Negro woman, 24 years old, by Drs. Crider and Walker¹ of the Washington University School of Medicine in St. Louis. The patient was first studied at the Homer Phillips Hospital and later at the Barnes Hospital and in the Department of Physiology of the Medical School. The patient's fistula followed an infection developing around a gastrostomy opening which had been made in order to feed her following a complete closure of the esophagus as an aftermath to the accidental swallowing of lye. The stricture was an extensive one, starting at the upper end of the esophagus and involving much of the rest of the glottis down to the cardia. A large number of plastic and other procedures were necessary in order to restore the lumen. During this period the patient consented to a proposed series of

physiologic studies, and indeed seemed eager to cooperate. Not only was this the first opportunity to observe directly the interior of the stomach in a woman, but, as pointed out by Crider and Walker, the opening in this instance was much larger than in any of the previous persons studied.

After establishing a standard base line of observation, Crider and Walker became interested in the response of the stomach to various emotional situations. In all men previously studied, beginning with Alexis St. Martin, resentment, anger and similar emotions were nearly always followed by hyperemia, hypermotility and hypersecretion of the gastric mucosa. It was unexpected, therefore, when such an effect failed to appear in the woman in spite of many trials. Indeed, emotional situations seemed to have the opposite effect in that a decrease in gastric activity followed. Repeatedly, situations involving anger, resentment, fear and anxiety were associated with decreased motility and secretion of the stomach with blanching of the mucosa. This was accompanied by a secretion which had a lower hydrochloric acid content. The investigators suggest that this difference may explain the well established fact that peptic ulcer has a much lower incidence in women than in men. Menstruation did not have any appreciable effect on the behavior of the stomach. Painful stimuli caused a pronounced increase of the motility, but had little effect on secretion or blood supply as shown by the color gradient of the mucosa. Heartburn, nausea, retching and reflux of bile-stained secretion could be readily produced by mechanical stimulation in the region of the cardiac sphincter, which was within reach through the large fistula.

Other observations were made² on the influence of intravenous injections. Solutions containing dextrose and sodium chloride alone did not provoke change in the resting activity of the stomach, whereas the addition of amino acid mixtures was followed by a decrease both in the motility and in the secretion. This inhibiting effect was produced by a mixture of pure amino acids as well as by hydrolyzed protein. On several occasions when amino acids were injected at a sufficiently rapid rate to provoke nausea and vomiting, a change was not observed in the stomach itself, thus suggesting that this effect was probably central in origin.

Further studies will no doubt be made in this woman; they may well provide further information regarding gastric physiology as influenced by many factors and particularly those of psychogenic nature with special reference to sex differences.

1. Crider, R. J., and Walker, S. M.: Physiologic Studies on the Stomach of a Woman with a Gastric Fistula, *Arch. Surg.* 57:1-9 (July) 1948.

2. Crider, R. J., and Walker, S. M.: Effect of Intravenously Administered Amino Acids on the Stomach of a Woman with a Gastric Fistula, *Arch. Surg.* 57:10-17 (July) 1948.

RECOVERY FROM CYANIDE POISONING

The annual number of reported deaths from cyanide poisoning in the United States since 1909 has varied from 79 to 245. Cyanide poisoning is commonly believed to be always fatal. Actually 22 cases of recovery after ingestion of sodium or potassium cyanide have been reported in the American, English and French literature. Additional cases of recovery from poisoning by cyanide from routes other than ingestion, including a number in which silver polish was supposed to have been the toxic agent, have also been recorded. As a rule, the exact quantity that has entered the body is difficult to ascertain. The patient's testimony is obviously unreliable, and seldom is there an adequate determination of the content of cyanide in the patient's blood or urine.

Liebowitz and Schwartz¹ have recently recorded the case of a chemist who was admitted to the hospital one hour after ingestion of potassium cyanide in a suicidal attempt. Shortly after admission a qualitative test of the stomach washings showed cyanide present in large amounts. Blood cyanide determinations revealed 20 mg. of hydrogen cyanide per hundred cubic centimeters of blood in a specimen drawn two hours after admission to the hospital, thus making an estimated total of 1.2 Gm. of hydrogen cyanide in the total blood volume. Assuming that there was twice this amount in the entire body, and since the patient weighed approximately 80 Kg., the concentration of hydrogen cyanide would have been 30 mg. per kilogram. This is about thirty times the estimated lethal dose. Nevertheless, the patient recovered, although specific therapy was not given. The paper by Liebowitz and Schwartz is believed to be the first in which blood cyanide determinations were recorded as having been done in the living person.

Treatment of cyanide poisoning has thus far been unsatisfactory, largely because cyanide is usually so rapidly fatal. Methylene blue was one of the first drugs used for cyanide intoxication. Originally, methylene blue was believed to act as a respiratory catalyst, but more recently it has been claimed that its specific antidotal effect was in producing methemoglobinemia. The methemoglobin then combines with the cyanide ion to form the relatively nontoxic cyanmethemoglobin. The latter is believed to be slowly converted by sulfhydryl groups to thiocyanate and eliminated as such. Glucose is also thought to have an antidotal effect. Combined therapy with amyl nitrite, sodium nitrite and sodium thiosulfate has been determined to be several times more effective than methylene blue alone in protecting dogs from otherwise fatal doses of cyanide. The currently favored treatment² includes the immediate use of amyl nitrite pearls followed by intravenous

injection of sodium nitrite and, finally, of sodium thiosulfate. Excess methemoglobin formation from administration of nitrites may be ascertained roughly by increasing cyanosis despite clinical signs of improvement and may be combated by repeated blood transfusions and the administration of oxygen.

SEXUAL REPRODUCTION IN VIRUSES

Bacterial viruses can enter bacteria, where they reproduce themselves in large numbers; later they are released by rupture of the bacterium and its conversion into a mass of bacteriophage or virus particles.¹ Bacteria and the viruses that feed on them have been considered one of the best and simplest systems for study of multiplication of viruses. Discussing the "interference phenomena" in virus diseases, Andrews² wrote that the existence of one virus in a host often precludes the entrance of a second virus. Such interference phenomena have been demonstrated many times in tissue cultures and with the bacterial viruses. With a variation of this principle, Delbrück and Bailey³ recently uncovered new information about the reproductivity and method of establishment of mutant strains of virus. They worked with viruses T₂ and T_{4r}, which are genetically related and can enter and reproduce in the same bacterium of a strain B. Differentiation characteristics of T₂ were that it produced a small colony and could destroy a mutant strain of a bacterium A; characteristics of virus T_{4r} were that it produced a large colony and could destroy a mutant strain of a bacterium C. When both were grown jointly in bacterium B, both parent types were released as expected. In addition, two new types of virus were released with the parent characteristics switched; i. e., one type with a small colony that destroyed bacterium C and a second type with a large colony that destroyed bacterium A. This obviously suggested an interchange of material between the parent viruses typical of the interchange of parent factors in formation of new individuals, which characterizes sexual reproduction.

Other experimentation relative to mutations in viruses by S. E. Luria, Indiana University, revealed that in viruses considered to be composed of a number of vital elements several elements could be destroyed by ultraviolet radiation. Evidence was advanced that a virus thus treated was singly unable to reproduce itself; when two or more partially destroyed viruses entered a single bacterium, however, an apparent combination of the remaining uninjured elements occurred, resulting in a new individual, which was able to reproduce itself and destroy the bacterium. This experimental process closely parallels the production of

1. Liebowitz, D., and Schwartz, H.: Cyanide Poisoning, *Am. J. Clin. Path.* **18**: 965, 1948.

2. Chen, K. K.; Rose, C. L., and Clowes, G. H. A.: Methylene Blue, Nitrites and Sodium Thiosulphate against Cyanide Poisoning, *Proc. Soc. Exper. Biol. & Med.* **31**: 250, 1933.

1. Wyckoff, R. W. G.: Electron Microscopic Study of Viruses *J. A. M. A.* **136**: 1081 (April 24) 1948.

2. Andrews, C. H.: Viruses and Disease in Man, *Practitioner* **160**: 82 (Feb.) 1948.

3. Delbrück, M., and Bruce, M.: Bacterial Viruses and Sex, *Scient. Am.* **179**: 46 (Nov.) 1948.

artificial mutations in *Drosophila*, wherein selective destruction of genes is procured by irradiation of chromosomes. Although much further study of these apparent reproductive characteristics in viruses is necessary, the implications are startling. Most investigators hold that viruses are living organisms even though some of their characteristics, particularly their tendency to assume true crystallization forms, have led others to consider that viruses lie at the lowest level of life or on the borderline between life and nonlife. Biochemical studies which have demonstrated a close parallel between viruses and enzymes that can be synthesized in the laboratory have emphasized this latter view. Implications of the present studies are that viruses have a natural method for production of infinite numbers of new strains closely approximating the sexual mechanisms of higher organisms. The probabilities are that new disease-producing forms will occur frequently. Mutant strains of viruses have already been extremely beneficial to man. The 17 D strain of yellow fever virus and vaccinia virus are considered to be mutations of the viruses of yellow fever and smallpox. Therefore the probability of eventual development of an effective poliomyelitis vaccine exists. A much broader interpretation of virus, gene and enzyme studies is that the cell, as a sharp line of demarcation between life and nonlife, must be considered more relative than real.

Current Comment

ADDICTION LIABILITY OF METHADONE

Methadone, one of the newer synthetic analgesic drugs, has found wide usage as a substitute for morphine to relieve pain. In therapeutic doses methadone produces less sedative or hypnotic effects than morphine. The pharmacologic properties of the drug are already well established, as well as the fact that it is capable of producing addiction, similar to that produced by morphine. The addiction liability of methadone and tolerance to its analgesic action have been the subject of previous reports warning against this inherent danger.¹ Because methadone is not an opiate, physicians may have underestimated its addiction potentiality, despite the fact that the drug has been made subject to all the provisions of the Harrison Narcotic Act. Studies of morphine addicts have shown that while methadone produces less physical dependence than morphine, it does produce sufficient euphoria, emotional dependence and signs of abstinence on withdrawal to make it acceptable as a substitute for morphine in persons strongly addicted to that drug. The total addiction liability of methadone is thus con-

sidered to be almost as great as that of morphine. For this reason, physicians who prescribe methadone should do so with full awareness that this drug deserves the same respect and caution that is exercised in the prescribing of opiates such as morphine.

GRANULOMATOUS NOCARDIOSIS

Cuttino and McCabe¹ describe a new disease in man of which symptoms included are enlargement of the abdomen, malnutrition and an afebrile course. A recently discovered acid-fast organism which the authors assign to the family of Actinomycetaceae under the name of *Nocardia intracellularis* appears to be the cause. "In man the disease produced by this organism is a pure form of granulomatous inflammation, characterized by phagocytosis of the pathogen by reticulo-endothelial cells and proliferation of these cells." In the case described, the body was extremely emaciated with great abdominal distention by some 500 cc. of chylous fluid. Similar fluid was found in lesser quantities in the pleural cavities. The abdominal organs were displaced by a large mass consisting of conglomerate lymph nodes which, on section, were brilliant yellow. In the small intestine lesions were not apparent, but ulcers were strewn through the length of the colon and in the immediate vicinity the lymph nodes were enlarged and bright yellow. The spleen was only slightly enlarged, and scattered through it were yellowish areas which, on microscopic examination, consisted of phagocytosed macrophages. The marrow of the sternum, the vertebrae and femur was partially replaced by similarly yellowish tissue. Since the most numerous and largest lesions were found in the retroperitoneal and mesenteric lymph nodes and in the lymphoid tissue of the intestines, the gastrointestinal tract is suggested as the portal of entry. The authors state that the intracellular parasitism of an acid-fast organism resembling that of granulomatous nocardiosis finds its analogue in human and rat leprosy and in Johne's disease in cattle. However, in sections of rat leprosy compared with the new lesion, while extensive phagocytosis and macrophagic proliferation were found, the lymph node structures did not show the widespread alteration in the disease which they described. In Johne's disease the lesions are distributed chiefly through the gastrointestinal tract and the causative organism possesses cultural and morphologic characteristics which differentiate it sharply from the one that is responsible for granulomatous nocardiosis. As the causative organism is regarded as a species of *Nocardia* and as there are sharp differences between it and known species of this genus, the investigators conclude that the organism represents a hitherto undescribed variety. Furthermore, *Nocardia intracellularis* produces a nonlethal disease in guinea pigs, rats and mice but does not cause lesions in chickens, rabbits, frogs and goldfish; the lesions heal rapidly in the susceptible animal.

1. Isbell, H.; Wikler, A.; Eddy, N. B.; Wilson, J. L., and Moran, C. F.: Tolerance and Addiction Liability of 6-Dimethylamino-4,4-Diphenyl-Heptanone-3 (Methadone), *J. A. M. A.* 135: 888-894 (Dec. 6) 1947; Anslinger, H. D.: Methadone Addiction, Correspondence, *J. A. M. A.* 138: 609 (Oct. 23) 1948.

1. Cuttino, J. T., and McCabe, A. M.: Pure Granulomatous Nocardiosis: A New Fungus Disease Distinguished by Intracellular Parasitism, *Am. J. Path.* 25: 1, 1949.

ORGANIZATION SECTION

Official Notes

EIGHT STATES NOW

The Delaware House of Representatives, on May 12, passed a resolution memorializing Congress not to enact legislation imposing compulsory health insurance on the people of the country. This makes eight states to date expressing objection from one or both houses to the federalization of medicine.

Washington Letter

(From a Special Correspondent)

June 6, 1949.

New Health Legislation Introduced as Hearings Continue

House and Senate committee hearings on proposed national health legislation, now approaching the end of the first month, won fresh interest late in May with the introduction of additional bills. Most noteworthy were the eight identical bills, filed simultaneously in Senate and House, on federal subsidization of voluntary prepayment plans and the Miller bill, which calls for an impartial, bipartisan study of the nation's health. The new measures have been referred to the health subcommittees which are in the midst of conducting public hearings.

Meanwhile, Federal Security Administrator Oscar R. Ewing continued his speech-making campaign in support of compulsory health insurance. Addressing the annual meeting of the Proprietary Association of America at White Sulphur Springs, W. Va., on June 3, he said that one of the benefits it would bring about is great improvement of the drug business. Another is its guarantee against racial discrimination, Mr. Ewing said two days earlier in an address before the Association of Freedmen's Internes.

During the week ended June 4, witnesses appearing before the Senate subcommittee on health (Senator James E. Murray, chairman) included Dr. Paul R. Hawley, Dr. Hugh R. Leavell, Dr. R. H. Hutcheson, representatives of the three national hospital associations, spokesmen for organized labor and others.

Medical, dental and nursing educators were scheduled to go before the Murray subcommittee during the week beginning June 6. Provisions of the Thomas-Murray-Dingell, Taft, Hill and Flanders-Herter bills for government assistance to professional schools and their students were to be the subject of their testimony. The same issue is scheduled to be taken up June 9-10 by the House subcommittee, of which Representative J. Percy Priest is chairman.

Senator Ralph E. Flanders (Vermont) and Representative Christian A. Herter (Massachusetts) are principal sponsors of the new all-Republican bill, which has seven other co-sponsors. They are Senator Irving M. Ives (New York) and Representatives Case (New Jersey), Javits (New York), Fulton (Pennsylvania), Hale (Maine), Morton (Kentucky) and Nixon (California). Theirs is an omnibus measure, with provisions for federal grants to medical and nursing schools, inducements to improve conditions in areas where there are shortages of medical and hospital facilities, increased government aid for hospital expansion generally and more funds for development of local public health units.

The bill's most novel feature, and the one expected to provoke the most discussion, is its plan to promote universal coverage in voluntary prepayment plans through sliding scales of premium payments. Rates would be based on the subscriber's income. Figured on a "yardstick" charge of 3 per cent, the family with a \$2,500 annual income would pay a monthly premium of \$6.25 for medical and hospital coverage, for example. Deficits would be made up through government subsidy.

Witnesses who presented arguments against adoption of compulsory health insurance were Dr. Hawley, speaking for the Blue Cross and Blue Shield Commissions; Mr. van Steenwyk, Associated Hospital Service of Philadelphia; Dr. Hutcheson, Tennessee health commissioner and president of the Association

of State and Territorial Health Officers; John H. Hayes, representing the American Hospital Association; John H. Olsen, for the American Protestant Hospital Association; Rev. Donald A. McGowan, National Catholic Welfare Conference, and Rt. Rev. Msgr. George Lewis Smith, president of the Catholic Hospital Association.

Supporters of the Thomas-Murray-Dingell bill who appeared before the subcommittee were James Carey and Nelson Cruikshank, for the Congress of Industrial Organizations and the American Federation of Labor, respectively. Dr. Leavell, representing the American Public Health Association, confined his presentation to a comparison of strength and weaknesses of various titles of the Taft, Hill and Thomas-Murray-Dingell bills.

Sole witness to be heard by the Murray subcommittee in support of S. 1106, which would provide "free" drugs and certain medical services at government expense, was the bill's sponsor, Senator Henry Cabot Lodge Jr., Republican, of Massachusetts.

Medical Legislation

Florida

Bill Enacted.—H. 138 became Law without Approval May 16, 1949. It grants to expert witnesses a witness fee in such reasonable amount as the trial judge may determine, the same to be taxed as costs in the case.

Oregon

Bill Enacted.—H. 530 was approved May 2, 1949. It provides for the establishment of a temperance and rehabilitation division of the Oregon liquor control commission which is authorized to continue, maintain and operate a rehabilitation clinic and agency for the treatment of persons addicted to the excessive use of alcoholic beverages.

Pennsylvania

Bills Enacted.—H. 911 has become Act No. 323 of the Acts of 1949. Among other things, it provides that the registration of a pharmacist or assistant pharmacist may be revoked for paying rebates to physicians or entering into any agreement with a physician for payment in any form for the recommending of the professional services of either party. S. 834 has become Act No. 378 of the Acts of 1949. It amends the law relating to prepaid medical service plans by authorizing the organization of prepaid dental service corporations.

Rhode Island

Bills Enacted.—H. 507 was approved May 9, 1949. It authorizes the appointment of a chief medical examiner to perform all autopsies and act as state pathologist. Such person must be a doctor of medicine, qualified in pathology, with at least one year of medicolegal training. He shall make examinations on the bodies of such persons only as appear to have met their death from violence, or suddenly when in apparent good health, or when unattended by a physician or in any suspicious or unnatural manner or as the result of an abortion or suspected abortion. H. 904 was approved May 13, 1949. It is a general amendment to and reenactment of the hospital licensing law. H. 923 was approved May 9, 1949. It requires the giving of instruction in health and physical education at least twenty minutes each school day in all grades, 1 through 12, of the public schools.

Vermont

Bill Enacted.—H. 330 was approved May 12, 1949. It provides an appropriation of \$350,000 for the construction of a public health laboratory and workshop in the city of Burlington, to be constructed under the supervision of the building council in consultation with the state board of health.

Coming Medical Meetings

- American Association of Railway Surgeons, Chicago, Drake Hotel, June 30-July 2. Dr. Chester C. Guy, 5800 Stony Island Ave., Chicago 37, Secretary.
- American Neurological Association, Atlantic City, Chalfonte-Haddon Hall, June 13-15. Dr. H. Houston Merritt, 710 W. 168th St., New York 32, Secretary.
- Idaho State Medical Association, Sun Valley, June 20-23. Dr. Alfred M. Popma, 220 N. First St., Boise, Secretary.
- Maine Medical Association, Poland Spring, Poland Spring House, June 19-21. Dr. Frederick R. Carter, 142 High St., Portland 3, Secretary.
- New Hampshire Medical Society, Newcastle, Hotel Wentworth, June 14-15. Dr. Carleton R. Metcalf, 5 S. State St., Concord, Secretary.
- Society for Investigative Dermatology, Atlantic City, Ritz Carlton Hotel, June 11-12. Dr. S. William Becker, 55 E. Washington St., Chicago 2, Secretary.
- Society of Biological Psychiatry, Atlantic City, Chalfonte-Haddon Hall, June 12. Dr. George N. Thompson, 1136 W. Sixth St., Los Angeles, Secretary.

PROGRAM OF THE AMERICAN MEDICAL ASSOCIATION FOR THE ADVANCEMENT OF MEDICINE AND PUBLIC HEALTH

A Federal Department of Health

1. Creation of a Federal Department of Health of Cabinet status with a Secretary who is a Doctor of Medicine, and the coordination and integration of all Federal health activities under this Department, except for the military activities of the medical services of the armed forces.

Medical Research

2. Promotion of medical research through a National Science Foundation with grants to private institutions which have facilities and personnel sufficient to carry on qualified research.

Voluntary Insurance

3. Further development and wider coverage by voluntary hospital and medical care plans to meet the costs of illness, with extension as rapidly as possible into rural areas. Aid through the states to the indigent and medically indigent by the utilization of voluntary hospital and medical care plans with local administration and local determination of needs.

Medical Care Authority with Consumer Representation

4. Establishment in each state of a medical care authority to receive and administer funds with proper representation of medical and consumer interest.

New Facilities

5. Encouragement of prompt development of diagnostic facilities, health centers and hospital services, locally originated, for rural and other areas in which the need can be shown and with local administration and control as provided by the National Hospital Survey and Construction Act or by suitable private agencies.

Public Health

6. Establishment of local public health units and services and incorporation in health centers and local public health units of such services as communicable disease control, vital statistics, environmental sanitation, control of venereal diseases, maternal and child hygiene and public health laboratory services. Remuneration of health officials commensurate with their responsibility.

Mental Hygiene

7. The development of a program of mental hygiene with aid to mental hygiene clinics in suitable areas.

Health Education

8. Health education programs administered through suitable state and local health and medical agencies to inform the people of the available facilities and of their own responsibilities in health care.

Chronic Diseases and the Aged

9. Provision of facilities for care and rehabilitation of the aged and those with chronic disease and various other groups not covered by existing proposals.

Veterans' Medical Care

10. Maintenance of existing high standards of medical care for veterans, including extension of facilities where the need can be shown and, where practicable, care of the veteran in his own community by a physician of his own choice.

Industrial Medicine

11. Greater emphasis on the program of industrial medicine, with increased safeguards against industrial hazards and prevention of accidents occurring on the highway, at home and on the farm.

Medical Education and Personnel

12. Adequate support with funds free from political control, domination and regulation of the medical, dental and nursing schools and other institutions necessary for the training of specialized personnel required in the provision and distribution of medical care.

GOVERNMENT SERVICES

NAVY

NEW FLIGHT SURGEONS

At graduating exercises at the Naval School of Aviation Medicine, Pensacola, Fla., April 13, seven newly designated flight surgeons received diplomas after having completed a nine month course. The new flight surgeons are:

Lieut. (jg) William F. Bennett Jr. Columbus, Ga.
Lieut. Sidney D. Bond Jr. Crawfordsville, Ark.
Lieut. (jg) Calvin J. Curtis. Kansas City, Mo.
Lieut. (jg) Wayne L. Erdbrink. Cincinnati
Lieut. (jg) John W. Reece. Birmingham, Ala.
Lieut. (jg) Lee W. Stewart. West Memphis, Ark.
Lieut. (jg) James I. Thorn. Vina, Ala.

NOMINATED FOR POSTGRADUATE INSTRUCTION

The following medical officers have been nominated for courses in postgraduate instruction: Comdr. Edward T. Byrne, to a fellowship in radiology at the Washington University School of Medicine, St. Louis; Comdr. William F. MacKoske, to a residency in general surgery at the Naval Hospital, San Diego, Calif.; Lieut. (jg) Thomas J. Coleman, to a residency in surgery at the Naval Hospital, Philadelphia; Lieut. (jg) Leo J. Frank Jr., to a residency in obstetrics and gynecology at the Naval Hospital, Oakland, Calif.; Lieut. Comdr. Jack C. McCurdy, to a residency in surgery at the Naval Hospital, Oakland, Calif.; Lieut. Alan Raftery, to a fellowship in pathology at the Henry Ford Hospital, Detroit; Lieut. (jg) Newman A. Hoopingarner, to a fellowship in children's orthopedics at St. Charles Hospital, Brooklyn; Lieut. Robert J. McCarthy, to a residency in internal medicine at the Naval Hospital, Bethesda, Md. Comdr. Ross P. Black of Amarillo, Texas, to a residency in urology at the Naval Hospital, Long Beach, Calif.; Comdr. Charles S. Hascall Jr., Baldwin, N. Y., to a residency in sur-

gery at the Naval Hospital, Chelsea, Mass., and Lieut. (jg) Donald E. Lloyd; Emporia, Kan., to a residency in psychiatry at the Naval Hospital, Bethesda, Md.

FIRST ACTIVE DUTY

The following lieutenants (jg) in the Reserve Medical Corps have been nominated for their first active duty: David E. Brown, Sacramento, Calif.; Kenneth D. Gaver, Santa Barbara, Calif.; Billy N. Golden, Hattiesburg, Miss.; John W. Lauder, Temple City, Calif.; John R. Marks, Madison, Wis.; Louis B. Matthews Jr., Franklin, Ind.; Roger P. Mattson, McVillie, N. D.; John A. Moore, Hampden-Sydney, Va., and Thomas C. Puchner, Wauwatosa, Wis.; Alan A. Basinger, Hayden, Colo.; William E. Bellamy Jr., Scotland Neck, N. C.; Henry J. Fowler, Walnut Cove, N. C.; Milton M. Lownes Jr., Philadelphia, and Warren L. Niccum, Muncie, Ind.; Samuel E. Feinman, Jersey City, N. J.; Quentin L. Green of Houston, Texas; Matthew Rosenschein Jr. of New York, and Carson E. Taylor of St. Louis; Arthur P. Kaupe, Neptune, N. J., and John W. Wilson Jr., Chattanooga, Tenn.

PERSONALS

The following reserve officers have been nominated for extended active duty: Lieut. (jg) Bruce A. Elrod, Birmingham, Ala.; Lieut. (jg) Frank J. Haufe, Middle Village, Long Island, N. Y.; Lieut. (jg) Daniel M. O'Toole, Los Angeles, and Lieut. (jg) Paul Pipik of Cleveland Heights, Ohio.

Comdr. Thomas A. Harris, M.C., recently addressed the Fairfax County Mental Hygiene Society, Falls Church, Va., on the clinical structure and community role of a child consultative clinic.

Lieut. (jg) David M. Spencer, Troy, Ohio, has been nominated for voluntary recall to active duty in the Medical Corps Reserve.

VETERANS ADMINISTRATION

THE 128TH VETERANS HOSPITAL OPENED

The Veterans Administration in May opened its one hundred and twenty-eighth hospital, at Grand Junction, Colorado.

The new six story 152 bed general medical and surgical hospital admitted its first patients two years and three months after ground was broken on the 40 acre site near the center of town.

The hospital contains some of the most up-to-date equipment designed for the well-being of both patients and staff members. Included is a suite of operating rooms adaptable to any major surgical procedure. The hospital also is equipped with small kitchens on each ward so that patients may get nourishment between meals, bedside radios giving patients their choice of three stations, "telecards" enabling patients to make telephone calls from their beds, a complete dental clinic and special services facilities such as recreation hall, library and chapel.

Among the hospital's officials are Dr. John D. Shea, acting chief of professional services; Dr. James K. McClintock, chief of surgical service; Dr. Geno Saccomanno, chief of the clinical laboratory, and Mr. C. I. Lemoine, chief pharmacist.

At the dedication ceremonies, April 27; addresses were delivered by Carl R. Gray Jr., Administrator of Veterans Affairs; Governor W. Lee Knous of Colorado, and Mayor John Harper of Grand Junction.

MERGE TWO MINNESOTA OFFICES

Veterans Administrator Carl R. Gray Jr. has directed consolidation of the Minneapolis Veterans Administration Regional Office with the Fort Snelling District Office into a new combined office. The merged offices will occupy space at Fort Snelling. The move is expected to improve service to veterans of the Twin Cities area by permitting more efficient utilization of personnel. The move to Fort Snelling will not delay processing of veterans' benefit claims and examinations. Effective date for completion of the moving is tentatively set for mid-April.

PERSONALS

Dr. W. Ivan King has been appointed to the staff of the Veterans Hospital at St. Petersburg, Fla. Dr. King, a graduate of Rush Medical College, Chicago, and a veteran of World War II, will become director of admissions at the hospital.

Dr. Thomas J. Hardgrove, formerly chief of professional services, Veterans Administration center, Waco, Texas, became manager of the Veterans Hospital at American Lake, Washington, May 1. Dr. Hardgrove has been with the Veterans Administration since 1935. He is a specialist certified by the American Board of Psychiatry and Neurology and formerly was in private practice in Milwaukee.

Medical News

(Physicians will confer a favor by sending for this department items of news of general interest: such as relate to society activities, new hospitals, education and public health. Programs should be received at least two weeks before the date of meeting.)

CONNECTICUT

Fifty Year Service Pins.—The Connecticut State Medical Society honored 26 fifty year members at a special ceremony during the society's annual dinner May 5 in New Britain. Dr. Samuel C. Harvey, New Haven, presented the service pins. The occasion marked the first time the society has extended formal recognition to its earliest living members. Among the twenty-six physicians is Dr. John C. Lynch, Bridgeport, who has been a member of the state medical society for sixty-two years. Dr. Charles J. Foote, New Haven, having joined the society in 1888, is second oldest, and third is Dr. William L. Higgins, South Coventry, who became a member in 1891.

Expand Facilities of Yale Plan Clinic.—Connecticut's facilities for the care and study of alcoholism were recently expanded with the opening of a state-supported outpatient clinic in New Haven and reorganization of the Yale Plan Clinic. Along with the transfer of headquarters and establishment of the new clinic by the Connecticut Commission on Alcoholism at 412 Orange Street, the Yale Plan Clinic has moved from 432 Temple Street to the Yale Laboratory of Applied Physiology. Since 1944 the Yale clinic has provided services for the treatment of alcohol addiction for persons in all sections of the country. While the reorganization program calls for the continuation of these services, they will be limited, and for the first time fees will be charged in accordance with the economic status of the patient. The clinic will continue to function as a consultant to industry and community agencies on problems of alcoholism, and will conduct research to correlate clinical experience and the work of the Yale Laboratory of Applied Physiology. Mr. Raymond G. McCarthy, executive director of the clinic, explains that the Yale clinic need no longer operate as a community service facility, since the Connecticut Commission on Alcoholism is operating a local clinic.

The new state outpatient clinic is organized to render services to alcoholic addicts in New Haven County without charge. Dr. Giorgio Lolli, associate professor of applied physiology at Yale and medical director of the university clinic, will direct the treatment program of the commission's local clinic. Similar clinics have been established in Bridgeport, Hartford, Stamford, the State Veterans Hospital at Rocky Hill and the State Farm for Women at Niantic.

IDAHO

State Medical Meeting.—The Idaho State Medical Association will hold its annual meeting June 19-22 in Sun Valley. Guest speakers include:

William D. Stroud, Philadelphia, Congenital Heart Disease.
E. W. Alton Ochsner, New Orleans, Carcinoma of the Lung.
William Boyd, Toronto, Canada, Structural Basis of Nephritis.
Rea E. Ashley, San Francisco, Allergy of Upper Respiratory Tract and Allergic Management.
Alexis F. Hartmann, St. Louis, Fundamentals of Carbohydrate Metabolism and Their Clinical Application.
Howard C. Stearns, Portland, Ore., Recognition and Treatment of Ovarian Carcinoma.

The annual banquet will be held Tuesday evening at the Lodge.

ILLINOIS

Dr. Cross Reappointed State Health Officer.—Dr. Roland R. Cross has been reappointed as state director of health, a post he has held since 1940. He has been employed by the health department since 1933, was promoted to assistant director in January 1940 and became director the following October. Before joining the state department, Dr. Cross had been in government and army service.

Army Deeds Hospital to State.—Mayo General Hospital at Galesburg, a World War II Army institution, was deeded to the Illinois Department of Welfare May 31 through the War Assets Administration. The hospital will be ready to care for aged and mental patients late in September. The hospital, built at a reported cost of \$5,000,000 with accommodations for 2,000 patients and personnel, opened in 1944 and was closed in October 1946.

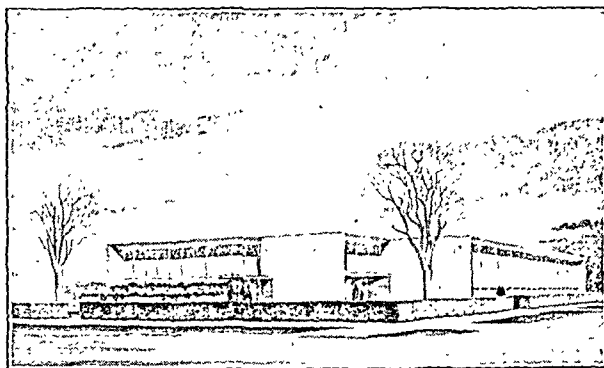
Chicago

Renew Rothschild Grant to Institute.—The Hektoen Institute for Medical Research of the Cook County Hospital has received a second grant of \$2,000 from the Mildred Rothschild Memorial Foundation for the continued study of pemphigus disease in the departments of bacteriology and virology.

Discussion of School Health Services.—The health division of the Welfare Council of Metropolitan Chicago will hold its annual meeting June 14 at 12 noon at the Standard Club. Dr. George M. Wheatley of the Metropolitan Life Insurance Co., New York City, will speak on "Health Services for the School Child."

Memorial Fund for Diabetic Children.—Friends of the late Helen C. Baker, *Chicago Daily News* columnist, have started a memorial fund for diabetic children with contributions totalling \$1,020. The funds will be administered by the Chicago Diabetes Association, of which Dr. Arthur R. Colwell is president. Mrs. Baker was publicity secretary for the Chicago Council of Social Agencies, and her weekly columns related to social work.

Institution for Tuberculosis Research.—Ground was broken May 20 for the Institution of Tuberculosis Research, to be erected by the State Department of Public Health at the cost of about \$550,000, in the Medical Center District on Chicago's near West Side. The institution will supply BCG vaccine to health agencies in the United States and abroad. Research will be directed toward improvement of the vaccine and tuberculosis prevention. Another objective of the new unit will be to instruct health officers in the use of BCG. The



Architect's drawing of Institution of Tuberculosis Research

institution will be operated jointly by the University of Illinois, the Research Foundation and the Municipal Tuberculosis Sanatorium. Speakers included Gov. Adlai Stevenson, Mayor Martin F. Kennelly, Dr. Walter H. Theobald, president of the Medical Center Commission; Dr. Roland R. Cross, director of the State Department of Public Health; Dr. Ernest E. Irons, president of the board of directors of the Municipal Tuberculosis Sanatorium; Mr. Herbert R. DeYoung, president of the Tuberculosis Institute of Chicago and Cook County; Park Livingston, president of the board of directors of the Research Foundation, and Dr. Andrew C. Ivy, vice president of the University of Illinois. The Research Foundation, a recently established nonprofit organization, is coordinating the BCG activities of the various agencies which will be housed in the new building.

Hospital Affiliates with Loyola.—Loretto Hospital, 645 South Central Avenue, has become affiliated with the Stritch School of Medicine of Loyola University, the second important step in forming a new Loyola University Hospital Group. Last fall the University Hospital, 432 South Wolcott Avenue, was made available to the school as a teaching and research unit. The educational program at Loretto for training young physicians will be broadened and will be integrated by Loyola's clinical dean, Dr. Charles J. Thill. The eight story, 125 bed hospital, which overlooks Columbus Park, was built in 1923 as Austin Hospital, in 1929 became Frances E. Willard Hospital and was renamed Loretto Hospital in 1938. Surgical and obstetric facilities are being enlarged, and new operating rooms for neurosurgery and bone surgery have been added. Nursery facilities also are being altered and improved. A new 29 bed psychiatric unit was established in 1947 under the direction of Dr. John J. Madden, chairman of the department of neuropsychiatry at the medical school. The division of obstetrics and gynecology will be under the direction of Dr. George Z. Wickster. A general practice division of the hospital

staff will be maintained and will be unique in that these patients, as well as those admitted for specialized conditions, will be specially studied and incorporated in the teaching program. A research program will be carried on under the joint auspices of the hospital and the university.

LOUISIANA

History of Medicine Society Awards.—Student awards of the History of Medicine Society of Tulane University, New Orleans, were presented at the annual banquet May 12. The I. I. Lehmann Award for the best student discussion was presented to Mr. Isadore Yager for his paper "The History of Diabetes Mellitus." The Rudolph Matas Award for the best paper was given to Mr. Bruce Sullivan for "Medicine of the American Indians." The B. Bernard Weinstein Award for the paper showing the greatest amount of original research was presented to Miss Jeanne Marcoux for her paper "Women in New Orleans Medicine." The guest speaker was Emmett B. Carmichael, Ph.D., professor of biochemistry at the University of Alabama College of Medicine, who spoke on "Josiah Nott."

MARYLAND

Osler Anniversary Meeting.—The Johns Hopkins Medical History Club observed the hundredth anniversary of the birth of William Osler at its meeting May 19 in Johns Hopkins Hospital, Baltimore. Speakers were:

Alan M. Chesney, Baltimore, Osler's Attitude Toward Full-Time Clinical Chairs.

Eugene L. Opie, New York, Osler as a Pathologist.

Joseph H. Pratt, Boston, Osler as a Clinical Teacher.

MASSACHUSETTS

Course in Gastrointestinal Surgery.—The National Gastroenterological Association, in cooperation with Tufts College Medical School and the First and Second Surgical Services of the Boston City Hospital, will present a course in gastrointestinal surgery at the hospital October 27-29, under the personal direction of Dr. Owen H. Wangenstein, professor of surgery, University of Minnesota Medical School, assisted by Lord Alfred Webb-Johnson, president of the Royal College of Surgeons, London, England, and members of the surgical staff of the hospital. Enrollment is limited to 250. The fee will be \$35 a person. Veterans may take this course under the G.I. Bill of Rights. For information write to the National Gastroenterological Association, Dept. GSJ, 1819 Broadway, New York 23.

MINNESOTA

Dr. Matson Named Blood Bank Director.—G. Albin Matson, Ph.D., director of the centralized blood banking system for the Salt Lake City area, became director of the Minneapolis War Memorial Blood Bank May 1. He received his Ph.D. degree at Washington University, St. Louis, was associate professor of bacteriology at the Montana State University, Missoula, and from 1937 to 1948 was assistant professor and then associate professor of bacteriology at the University of Utah in Salt Lake City. The Minneapolis War Memorial Blood Bank is the result of the combined efforts of the Hennepin County Medical Society and the Junior Chamber of Commerce. The majority of hospitals in the county are now serviced with blood from the central blood bank, and it is hoped that the remaining few in the area will now avail themselves of the facilities of the community service.

NEBRASKA

Fifty-Year Practitioners.—At a staff dinner of the Lincoln General Hospital, Lincoln, Drs. H. Winnett Orr and Irvin C. Munger, emeritus staff members, were honored recently on the completion of their fiftieth year of practice. Both physicians have served the hospital since it opened in 1923. Dr. Munger, a surgeon, is a graduate of the Illinois Medical College, Chicago, 1900. Dr. Orr, a graduate of the University of Michigan Department of Medicine and Surgery, Ann Arbor, 1899, has practiced in Lincoln since 1899 and is a former president of the American Orthopaedic Association.

NEW YORK

Dr. Whipple Receives Kaiser Medal.—Dr. George H. Whipple, dean of the University of Rochester School of Medicine and Dentistry, is the 1949 recipient of the Albert David Kaiser Medal of the Rochester Academy of Medicine for "his distinguished services to medical science and the distinction he has brought to the city through the development of the University of Rochester School of Medicine and Dentistry." Dr. Whipple, a graduate of Johns Hopkins University School of Medicine, Baltimore, 1905, came to the University of Rochester

in 1921 as dean of the newly founded school of medicine and dentistry. Previously he was dean of the University of California Medical School, Berkeley-San Francisco. Dr. Whipple was a co-winner of the Nobel Prize in medicine in 1934 for his research on anemia.

Postgraduate Instruction.—Otsego County Medical Society will hear Dr. Milton L. Kramer, New York City, speak on "Management of the Failing Heart" at a meeting at the Sportsman Tavern, Fly Creek, June 15 at 8 p. m. This lecture has been arranged by the Medical Society of the State of New York in cooperation with the New York State Department of Health.

Hospital Expands Maternity Care.—Ellis Hospital in Schenectady has adopted a new program to contribute toward better prenatal maternity care in Schenectady County. Any maternity patient who anticipates being delivered at the hospital may be sent there by her physician at any time early in pregnancy to have a roentgen examination of the chest and a blood determination for the Rh factor. The hospital is extending these services without charge in the interest of improved obstetric practice.

New York City

Dr. Reiss to Lecture in Berlin.—Dr. Frederick Reiss, associate clinical professor of dermatology and syphilology, New York University-Bellevue Medical Center, has been invited by the U. S. Military Government, at the request of the Free University of Berlin, to lecture on Recent Advances in Dermatology and Mycology. The lectures will be given during July at the university. Dr. Reiss will be in Europe about two months.

Appointed Post-Graduate Dean.—Dr. Robert Boggs will become dean of the New York University Post-Graduate Medical School, New York University-Bellevue Medical Center July 1. He has been acting dean of the school since its formation by the consolidation of the former New York Post-Graduate Medical School with New York University. Dr. Boggs came to New York University after five years in the U. S. Navy. A graduate of the McGill University Faculty of Medicine, Montreal, Canada, 1933, Dr. Boggs was a research fellow in surgery at the Harvard Medical School and trained at the Peter Bent Brigham Hospital of Boston and was on the house staff of New York Hospital.

Dr. Von Storch Goes to New York.—Dr. Theodore J. C. von Storch, professor of neurology at Albany (N. Y.) Medical College, has been appointed chief of the Division of Neuropsychiatry of Montefiore Hospital, New York, effective July 1. Dr. von Storch is a graduate of Johns Hopkins University School of Medicine, Baltimore, 1931, and did most of his graduate work in neurology at the Harvard Medical School, Boston. He served with the Medical Corps of the United States Army throughout World War II. He succeeds Dr. H. Houston Merritt, who has been appointed professor of neurology in Columbia University College of Physicians and Surgeons, New York, and consultant in neuropsychiatry to the hospital.

NORTH CAROLINA

Open Blood Center.—The American Red Cross Regional Blood Center at Asheville was opened April 25. Dr. Ross T. McIntire, director of the Red Cross Blood Program, was the principal speaker.

Grants for Research.—The Bowman Gray School of Medicine, Winston-Salem, recently received grants of \$51,802 from the U. S. Public Health Service and the John and Mary Markle Foundation. Postdoctoral fellowships granted by the Atomic Energy Commission have been renewed for another year to Dr. Kingsley M. Stevens and Dr. Jerry K. Aikawa, both of whom are doing research with radioisotopes in the department of medicine of the Bowman Gray School of Medicine. Dr. Stevens is studying the synthesis of protein by bacteria, and Dr. Aikawa's research is concerned with the alteration in the distribution of body fluids in infectious diseases.

Appropriation for Hospitals.—The legislature of North Carolina at its 1949 session appropriated \$214,576 for general administration operating expenses for the biennium July 1, 1949 to June 30, 1951. This is an increase over the previous biennium appropriation of \$123,040. For permanent improvements in local hospitals and health centers, the legislature appropriated \$6,826,972, an increase of nearly \$577,000 over the previous biennium appropriation. To state-owned hospitals for permanent improvements including \$1,000,000 for building equipment for the dental school, the legislature made an appropriation of \$32,744,251, an increase of more than \$17,000,000 over the previous biennium. The sum includes \$533,645 of federal funds devoted to state-owned hospitals.

SOUTH CAROLINA

State Medical Election.—The South Carolina Medical Association at its recent annual meeting installed Dr. Robert B. Durham, Columbia, as president and selected Drs. Rosco D. McMillan of Red Springs as president elect and M. D. Hill of Raleigh, secretary-treasurer.

TENNESSEE

State Medical Election.—The Tennessee State Medical Association recently installed Dr. Nathaniel S. Shofner, Nashville, as president and chose Dr. Ralph H. Monger, Knoxville, as president elect. Dr. William M. Hardy, Nashville, was reelected secretary-editor of the association.

Appoint Assistant Dean.—Dr. Frank L. Roberts, professor of preventive medicine, has been given additional duties as assistant dean of the University of Tennessee College of Medicine, Memphis, effective July 1. He succeeds Dr. Robert H. Miller, who is retiring from the university. Dr. Roberts has been on the faculty of the university since 1937. He is a graduate of the University of Minnesota Medical School, Minneapolis, 1918, and holds a D.P.H. degree from Johns Hopkins University School of Medicine, Baltimore. Dr. Miller joined the university faculty in 1924 as an assistant professor of anatomy and was made assistant dean in 1939.

TEXAS

Reestablish Memorial Research Laboratory.—The Sealy and Smith Foundation for the John Sealy Hospital, Galveston, has reestablished the Memorial Research Laboratory in association with the hospital. This laboratory was originally developed by the late Meyer Bodansky, Ph.D., and closed at his death in 1941; it is designed to investigate the application of current biochemical and physiologic knowledge to the management of disease. Dr. Raymond L. Gregory, professor of internal medicine at the University of Texas Medical Branch, Galveston, will be director of the laboratory.

University Appointments.—Dr. Clarence S. Livingood, professor of dermatology and syphilology at Jefferson Medical College of Philadelphia, has accepted appointment as professor of dermatology and syphilology and chairman of the department at the University of Texas Medical Branch, Galveston. Dr. Elwood E. Baird, professor of clinical pathology at the University of Colorado School of Medicine, Denver, has accepted appointment as professor of clinical pathology. Dr. Baird, a graduate of Northwestern University Medical School, 1935, will have charge of the clinical laboratories at the University of Texas Medical Branch Hospital.

WEST VIRGINIA

Report on Premature Nursery.—During the first year of operation of the nursery for premature infants set up in Kanawha County as a demonstration project by the state department of health a total of 123 premature infants were given care. The nursery, which was opened Feb. 16, 1948, is located at the Herbert J. Thomas Memorial Hospital in South Charleston. Eighty-one or 66 per cent of the infants survived. This compares favorably with records of other centers for premature infants throughout the nation. In an effort to determine accurately the relationship between malnutrition and premature birth a dietary study of mothers of premature infants has been instituted by the chief nutritionist of the division of maternal and child health. This study is patterned after Harvard's Burke-Stewart research. The professional staff of the nursery includes the following pediatricians practicing in Kanawha County: Drs. Henrietta B. Marquis, Arthur A. Shawkey, Helen M. Belknap, Lloyd Cox, Harry Baldock, Jack Basman and Mary Gallagher.

Diagnostic Clinic for Children.—A children's diagnostic clinic, a cooperative project of the state department of health, the Kanawha-Charleston Health Department, the Kanawha County School System and local pediatricians, was opened in March at the City Building in Charleston. Clinics will be held the first and third Wednesday afternoon in each month. Referral will be made by private physicians, well-child conferences in the Kanawha Valley, school physicians and nurses, welfare clinics, and the general medical clinics in the county-city health department. Each child referred will be given a thorough physical examination for the purpose of diagnosis, and a report of the findings will be sent to the family doctor. A limited fund has been allocated by the Children's Bureau, through the Division of Maternal and Child Health, for hospitalization and treatment of the more deserving cases when the family is unable to assume this responsibility. The staff will be

composed of local pediatricians who will rotate their services, clinical nurses at the county-city health department, the state nutritionist and the state medical social worker. The clinic is the first of its kind in the state and was established as a demonstration project.

WISCONSIN

Testimonial to Dr. Marshall.—Dr. Victor F. Marshall, who has practiced medicine in Appleton for fifty years, was honored at a testimonial dinner May 12. Speakers at the dinner attended by about 150 persons included Dr. Ernest E. Irons, Chicago, then President-Elect of the American Medical Association, and Dr. Karl H. Doege, Marshfield, president of the State Medical Society of Wisconsin.

Chippewa River Basin Cleanup.—The State Committee on Water Pollution has ordered eight cities, two villages and seven industrial plants located in the Chippewa river basin to install sewage and waste treatment facilities to end gross pollution of the Chippewa and its tributaries. Studies of river samples collected by the Bureau of Sanitary Engineering during the past four years and a public hearing preceded the action. The municipalities were ordered to treat their sewage before discharging it into streams and gave deadlines for the completion of the projects step by step. All construction facilities are to be completed by Dec. 31, 1950.

GENERAL

French Welcome U. S. Doctors.—Last summer the French Medical Association founded the French Welcome Organization for the World Medical Corps. According to Dr. Valentin Charry, director of the corresponding center in Paris, the purpose of the organization is to welcome and help doctors from every country, in any field of interest to them. American doctors planning to visit France this summer are invited to obtain letters of introduction from the American Medical Association, and then communicate with the French organization. The address is 60 Boulevard de Latour-Maubourg, Paris VIIe. The organization expects to have offices in Chicago, New York and San Francisco.

Evarts Graham Receives Chest Physicians Medal.—Dr. Evarts A. Graham, St. Louis, who performed the first successful operation for cancer of the lung, was awarded the gold medal of the American College of Chest Physicians at a dinner at the Ambassador Hotel, Atlantic City, June 4. Dr. Graham is professor of surgery at the Washington University School of Medicine. It was in 1933 that he performed the operation of removing an entire lung for cancer. The patient, fifteen years later, is still alive and active. Since then similar operations have been performed with good results by surgeons in other countries. The gold medal award was presented to Dr. Graham by Dr. Jay A. Myers, professor of preventive medicine and public health at the University of Minnesota, a previous recipient of this award.

Library Association Scholarship.—The first Medical Library Association scholarships have been assigned to three foreign medical librarians from funds granted by the Rockefeller Foundation. The recipients are Miss Lydia Pazos Pérez, assistant to the director of the library of the Faculty of Medicine, University of Havana; Miss Maria Alicia Izquierdo Guzman, assistant of the Library of the Faculty of Medicine, University of Chile, and Mrs. Maria José Lessa da Fonseca, librarian of the Faculty of Medicine, University of São Paulo. A program planned to meet the individual interests of each fellow has been arranged to emphasize one or more of the following specialties: cataloging, classification and subject headings for medical literature, administrative methods of medical librarians, special service problems in medical libraries and medical bibliographic sources.

Demonstration Program in Pediatric Teaching.—The American Academy of Pediatrics and its state chairmen are working out a demonstration program with district medical schools and community hospitals. This program, involving decentralized teaching and pediatric services, is based at the medical teaching centers in Philadelphia and will emanate throughout Pennsylvania and into parts of New Jersey and Delaware. Dr. Glidden L. Brooks, Lewiston, Maine, has been appointed associate director of the academy's Committee for the Improvement of Child Health, Philadelphia. Dr. Brooks has been executive director and chief of pediatrics of the Central Maine General Hospital, Lewiston. He will aid in developing the action program for the nationwide improvement of child health based on the three year study of child health services just completed by the academy with the cooperation of the U. S. Public Health Service and the Children's Bureau. He

will work with Dr. John P. Hubbard, executive director of the committee, and Dr. Philip S. Barba, Philadelphia, academy district chairman for Pennsylvania, New Jersey and Delaware.

National Foundation Fellowship Awards.—The National Foundation for Infantile Paralysis has awarded twenty-one postgraduate fellowships to physicians in the fields of research, physical medicine and public health. Seven other physicians have been approved for fellowships in the same fields to be awarded later in the year. The latest awards total an estimated \$80,594 for training, which in some cases will require three years' work. National Foundation fellowships in physical medicine are made to physicians who wish to prepare for eligibility for certification by the American Board of Physical Medicine. Fellows must agree to practice as specialists in physical medicine for a minimum of two years following their training. Fellowships in public health are awarded to physicians who undertake studies leading to Master of Public Health degrees. They must agree to work as public health officers for at least two years following the study.

Squibb Research Appointments.—In a general regrouping of Squibb research responsibilities, the appointments of Dr. Geoffrey W. Rake, Millstone, N. J., as medical director and of Asger F. Langlykke, Ph.D., as director of the Research and Development Laboratories, New Brunswick, have been announced. Activities will be coordinated and directed by Mr. Roland J. Dahl, New York, vice president. Dr. Langlykke received his Ph.D. degree from the University of Wisconsin, Madison, in 1936. He will have two associate directors, Frederick Y. Wiselogle, Sc.D., to be in charge of chemical research, and Tillman D. Gerlough, to be in charge of the biologic research. Dr. Rake has also been appointed recently as director of the Squibb Institute for Medical Research. He will supervise Squibb fellowships and grants, publication of papers in scientific journals, the conduct of seminars, and the Squibb libraries. He succeeds Dr. James A. Shannon, New York, who has been appointed associate director of the National Heart Institute, Bethesda, Md., where he will be engaged not only in administrative work but also in original investigations.

Medical Film Service.—Medical Film Institute, a central clearing house for medical films, was opened April 27 at the Academy of Medicine Building, New York, under the auspices of the Audio-Visual Committee of the Association of American Medical Colleges. Dr. Walter A. Bloedorn, dean of the George Washington University School of Medicine, Washington, D. C., is chairman of the committee. Dr. David S. Ruhe will be director. The institute is now selecting for the State Department a group of medical films for showing abroad. It is also serving as a supervisory agency in cooperation with the National Department of Health and Welfare of Canada in making a film showing medical research's attack on cancer. In addition to Dr. Bloedorn the committee includes Francis Keppel, dean of Harvard's Graduate School of Education; Captain Robert V. Schultz, M.C., U.S.N., Washington, D. C., chief of the Bureau of Medicine's Audio-Visual Training Section and chairman of the Inter-Departmental Committee on Medical Training Aids; Orville Goldner, former head of Navy Training Films, Washington, D. C., and Dr. William L. Benedict, Rochester, Minn., chairman of the American Medical Association's Committee on Medical Motion Pictures.

International Society for Internal Medicine.—This society will hold its second meeting in Paris in the spring of 1950. The organization was founded as a result of the efforts of a group of Swedish and Swiss physicians with the approval and assistance of UNESCO. An organization meeting held in Basel, Switzerland, in September 1948 was attended by physicians from sixteen countries. Many of the founders' group, nearly all of whom are teachers of medicine in their respective countries, have traveled or studied in the United States. The organization is a member of the Association of International Medical Congresses, which met under the auspices of the World Health Organization and UNESCO in Brussels in April. The purpose of the society is "to contribute to the development of scientific knowledge and education in internal medicine and to promote personal relationship between internists in all countries."

Membership is restricted to qualified internists who have been accepted as members of the national associations of internal medicine in their several countries. Dues are nominal (10 Swiss francs per annum). Plans for the Paris congress are proceeding under the direction of Prof. A. Gigon of Basel, president of the society, Dr. Nanna Svartz of Stockholm and Dr. L. Justin-Besancon of Paris. American, Canadian and Latin-American physicians who may be interested in membership may direct their inquiries to Dr. Albert M. Snell, 102-110 Second Avenue Southwest, Rochester, Minn.

Committee on Abstracting.—The Interim Co-ordinating Committee on Medical and Biological Abstracting Services met at Unesco House June 1-4. The committee, created last year under the auspices of UNESCO, is organizing a system of cooperation among existing services to assure that medical and biologic abstracts cover the whole of the literature in this field. Certain agencies have been requested to give up medical fields already covered by others; a comprehensive system of exchanges has made it possible for each agency to profit from work done elsewhere. Agencies now represented in the committee are: *The British Medical Journal* (London); the Medical Library Association (United States); The Abstracts of World Medicine (London); the Biological Abstracts (Philadelphia); The British Abstracts (London), and the *Excerpta Medica* (Amsterdam). Other agencies have been invited to join the committee, such as the Bureau of Hygiene and Tropical Diseases, the Commonwealth Bureau of Animal Nutrition, the American Medical Association, the International Abstracts of Surgery, Chemical Abstracts, French Medical Abstracting Services and French Biological Abstracting Services. The World Health Organization and Food and Agriculture Organization were to be represented at the conference, along with the International Federation of Documentation and the International Federation of Library Associations. Among the observers were Dr. Lépine, Institut Pasteur, and Dr. Talice, professor of the Faculty of Medicine at Montevideo, for the Latin American countries.

Nutrition Awards.—At the annual dinner of the American Institute of Nutrition held in the Book-Cadillac Hotel, Detroit, April 20, the following awards were made:

The Mead Johnson and Company Award for work in the field of the B-complex vitamins was divided equally between two recipients, Karl A. Folkers, Ph.D., Research Development Division, Merck and Company, Inc., Rahway, N. J., and Mary S. Shorb, department of poultry husbandry, University of Maryland, Baltimore. The award was granted to Dr. Folkers for "isolating in crystalline form a new chemical substance, designated as vitamin B₁₂, that is active in the treatment of pernicious anemia and of importance in other phases of nutrition," and to Dr. Shorb for "pointing out the possible connection between the antianemia factor and a growth factor for bacteria and for developing a bacteriological assay procedure that materially assisted in the isolation of the compound designated as vitamin B₁₂."

The Borden Award in Nutrition was presented to Harry J. Deuel Jr., Ph.D.; University of Southern California School of Medicine, Los Angeles, for "research emphasizing the nutritive importance of components of dairy products."

The Osborne and Mendel Award, conferred in recognition of outstanding achievement in the general field of exploratory research in the science of nutrition, was presented to William C. Rose, Ph.D., professor of biochemistry, University of Illinois, Urbana, for "his contributions to our knowledge of nitrogen metabolism and the amino acid requirements of experimental animals and man."

The institute elected the following officers for the year beginning July 1: Charles G. King, Ph.D., New York, president; Joseph H. Roe, Ph.D., Washington, D. C., secretary, and Ned R. Ellis, M.S., Washington, D. C., treasurer.

Marriages

ROBERT BRYANT WALKER, Gunnison, Colo., to Miss Ruth M. Dunbar of Perrysburg, Ohio, in Toledo, Ohio, April 22.

MOSES EDWARD RICE JR., Aulander, N. C., to Miss Matilde A. McLaughlin of Medford, Mass., Sept. 5, 1948.

LAWRENCE THOMAS SMYTH, Allentown, Pa., to Miss Kathryn Elizabeth McKeown of Narberth, May 7.

JACK WILLIAMS SHIELDS, San Francisco, to Miss Patricia Elizabeth Gaw of Berkeley, Calif., in May.

WILLIAM HUGH GREY, Charlotte, N. C., to Miss Elizabeth Gooch Seay in Richmond, Va., May 14.

JOHN LAURENCE FELDMAN, Quincy, Ill., to Miss Mary Alice Harrington at Palmyra, Mo., April 16.

ALAN LOUIS ABRAMS, San Francisco, to Miss Barbara Zelinsky of Hanford, March 27.

JOHN L. SHIVELY to Miss Virginia Lee Carroll, both of Knightstown, Ind., March 6.

LEONARD M. LASSER, Gary, Ind., to Miss Anne Johnson of Wesleyville, Pa., May 1.

EDGAR A. KAHN, Ann Arbor, Mich., to Dr. Rose Parker of Los Angeles, April 24.

Deaths

William Washington Graves * St. Louis; born in La Grange, Ky., Nov. 13, 1865; St. Louis College of Physicians and Surgeons, 1888; professor emeritus of neurology and psychiatry since 1948 at St. Louis University School of Medicine, where he had joined the faculty in 1905, becoming professor of nervous and mental diseases in 1914 and director of the department in 1925, positions which he held until 1948; member of the American Neurological Association, American Psychiatric Association, Central Neuropsychiatric Association and the American Association of Anatomists; chairman, Section on Nervous and Mental Diseases of the American Medical Association, 1913-1914; past president of St. Louis Society for Mental Hygiene and St. Louis Medical Society, which in 1939 awarded the Certificate of Merit and gold medal for scientific accomplishment based on his classification of scapulae and other inherited characters; fellow of the American College of Physicians; at one time associated with the U. S. Public Health Service; at various times affiliated with the Frisco Hospital, St. Louis Maternity Hospital, St. Mary's Infirmary, St. Louis City Hospital, Alexian Brothers Hospital, St. John's Hospital, St. Anthony's Hospital and St. Mary's Group of Hospitals; died in St. John's Hospital April 19, aged 83.

Randolph West * New York; born in Princeton, N. J., Aug. 7, 1890; Columbia University College of Physicians and Surgeons, New York, 1917; professor of medicine at his alma mater; specialist certified by the American Board of Internal Medicine; member of the Association of American Physicians, American Society for Clinical Investigation, New York Academy of Medicine, Interurban Clinical Club, Society of Biological Chemists, the Society for Experimental Biology and Medicine, Harvey Society and the American College of Physicians; served during World War I; affiliated with Presbyterian Hospital of the Columbia-Presbyterian Medical Center; presented posthumously on June 6 the American Medical Association's first Joseph Goldberger Award in Clinical Nutrition for his research on the clinical use of vitamin B₁₂ (THE JOURNAL, February 12, p. 459); formerly editor of the *Journal of Clinical Investigation*; chairman of the U. S. Pharmacopoeia Anti-Anemia Preparations Advisory Board; died May 20, aged 58.

James Richard Tillotson * Lima, Ohio; born in Dunbarton, Ohio, Nov. 26, 1877; Medical College of Ohio, Cincinnati, 1904; specialist certified by the American Board of Orthopaedic Surgery; member of the Clinical Orthopaedic Society and the American Academy of Orthopaedic Surgeons; fellow of the American College of Surgeons; past president of the Allen County Academy of Medicine; served during World War I; affiliated with the Wilson Memorial Hospital in Sidney; on the staffs of St. Rita's Hospital and the Lima Memorial Hospital, where he died April 20, aged 71, of coronary thrombosis.

Anson Holden Bingham * New York; New York Homeopathic Medical College and Hospital, New York, 1900; professor and director of the department of orthopedic surgery at his alma mater, now known as the New York Medical College, Flower and Fifth Avenue Hospitals; specialist certified by the American Board of Orthopaedic Surgery; fellow of the American College of Surgeons; affiliated with Goshen (N. Y.) Hospital, Yonkers (N. Y.) Hospital, Prospect Heights Hospital in Brooklyn, Flower and Fifth Avenue, Metropolitan and Park East hospitals; died April 22, aged 70, of coronary thrombosis.

Augustus Clyde Shipp * Little Rock, Ark.; born in Edenburg, Ind., in 1879; Indiana University School of Medicine, Indianapolis, 1912; an Affiliate Fellow of the American Medical Association; member of the American Trudeau Society; formerly professor of medicine at the University of Arkansas School of Medicine; served as president of the Southern Tuberculosis Conference and honorary president and chairman of the executive board of the Arkansas Tuberculosis Association; a director of the National Tuberculosis Association; died March 22, aged 69, of arteriosclerotic heart disease.

Thomas Pennie Abernathy, Moundville, Ala.; Memphis (Tenn.) Hospital Medical College, 1899; member of the American Medical Association; died March 14, aged 73, of cerebral hemorrhage and hypertension.

Newton Samuel Bacon * Cambridge, Mass.; Harvard Medical School, Boston, 1899; resident physician at the Long Island Hospital in Boston; affiliated with Mount Auburn Hospital; died March 1, aged 76, of heart failure, following an operation.

David E. Bagshaw * Saginaw, Mich.; Saginaw (Mich.) Valley Medical College, 1902; Jefferson Medical College, Phila-

delphia, 1908; on the staffs of Saginaw General and St. Luke's hospitals; died in Los Angeles March 17, aged 72, of heart disease.

Jay Baird, Coffeyville, Kan.; Eclectic Medical Institute, Cincinnati, 1900; member of the American Medical Association; died March 19, aged 78, of heart disease.

William Halsey Barker * Baltimore; Johns Hopkins University School of Medicine, Baltimore, 1932; assistant professor of medicine at his alma mater, where he was assistant dean; member of the American Clinical and Climatological Association; certified by the National Board of Medical Examiners; member of the staff of Union Memorial Hospital; died in Johns Hopkins Hospital March 26, aged 42, of seminoma of the left testis.

Milton Bodenheimer * New York; Columbia University College of Physicians and Surgeons, New York, 1903; member of the founders group of the American Board of Surgery; fellow of the International College of Surgeons and the American College of Surgeons; served overseas during World War I; for many years affiliated with the Hospital for Joint Diseases and Mount Sinai Hospital; died March 25, aged 69, of coronary thrombosis.

Ramon Haddock Burrell * Creighton, Neb.; University of Michigan Medical School, Ann Arbor, 1900; died March 19, aged 75, of cerebral embolism.

Wesley Paul Damerow * Cincinnati; Rush Medical College, Chicago, 1928; served during World War II; affiliated with Bethesda Hospital; died March 20, aged 48, of coronary occlusion.

Charles William Decker * Pomona, Calif.; University of Southern California College of Medicine, Los Angeles, 1906; an Associate Fellow of the American Medical Association; formerly health officer of Los Angeles; served in France during World War I; died in March, aged 72.

Harry Harding Everett * Lincoln, Neb.; Northwestern University Medical School, Chicago, 1900; fellow of the International College of Surgeons and the American College of Surgeons; medical director and vice president of the Woodmen Central Life Insurance Company; on the staff of Lincoln General Hospital and Bryan Memorial Hospital, where he died March 30, aged 73, of bronchiectasis, emphysema and cor pulmonale.

Walter Sherman Garrison * Cedarville, N. J.; Jefferson Medical College of Philadelphia, 1913; on the staff of the Bridgeton (N. J.) Hospital; died March 5, aged 60, of hypertensive vascular disease with coronary occlusion.

Julien Auguste Gehrung, New York; Washington University School of Medicine, St. Louis, 1901; formerly on the faculty of New York Polyclinic Medical School and Hospital; for his services during World War I with the French army was named a chevalier of the Legion of Honor; served on the staffs of the New York Eye and Ear Infirmary, St. Vincent's Hospital and the New York Foundling Hospital; died in Metropolitan Hospital March 25, aged 70.

James Rieser Gerhard, Reading, Pa.; University of Pennsylvania Department of Medicine, Philadelphia, 1901; member of the American Medical Association; served on the staff of Reading Hospital, where he died March 30, aged 75, of cerebral hemorrhage and arteriosclerosis.

Glenn Ira Goodrich, Dover, Ohio; Ohio Medical University, Columbus, 1903; member of the American Medical Association; past president of the Tuscarawas County Medical Society; affiliated with Union Hospital, where he died March 20, aged 70, of a broken hip received in a fall.

Oscar Edwin Hanscom, Greene, Me.; Medical School of Maine, Portland, 1899; member of the American Medical Association; served on the school board; died March 22, aged 77, of carcinoma of the prostate.

Robert Lee Hardy, Louisville, Ky.; University of Louisville Medical Department, 1904; died March 18, aged 79, of chronic myocarditis.

Clarence Orfield Harned, Tishomingo, Okla.; Hospital College of Medicine, Louisville, Ky., 1897; died in Wesley Hospital, Oklahoma City, March 11, aged 76, of uremia.

Lester Friedrich Harris, Washington, D. C.; George Washington University School of Medicine, Washington, D. C., 1945; served during World War II; certified by the National Board of Medical Examiners; affiliated with the Veterans Administration; died March 23, aged 27, of coronary occlusion.

William Ernest Holland, Chicago; Illinois Medical College, Chicago, 1897; died March 29, aged 82, of intestinal obstruction and pyloric stenosis.

Edward Joseph Horodko, Chicago; Loyola University School of Medicine, Chicago, 1941; member of the American Medical Association; served during World War II and was awarded the Bronze Star Medal for meritorious achievement in connection with military operations against the enemy at New Georgia, Solomon Islands, from July 22 to Sept. 8, 1943; on the staff of St. Elizabeth Hospital, where he died March 27, aged 33, of acute myelogenous leukemia.

Peter Helms Jamison, Nescopeck, Pa.; Medico-Chirurgical College of Philadelphia, 1898; member of the American Medical Association; died in Geisinger Memorial Hospital, Danville, March 22, aged 73, of injuries received in an automobile accident.

Martin Kerpel • Brooklyn; Friedrich-Wilhelms-Universität Medizinische Fakultät, Berlin, Prussia, Germany, 1922; on the staff of the Lutheran Hospital; died March 15, aged 53, of coronary occlusion.

Shiam Lall, Holdenville, Okla.; University of Oklahoma School of Medicine, Oklahoma City, 1923; member of the American Medical Association and the State Medical Association of Texas; died March 7, aged 57.

George Bagnell Landers, Rochester, N. Y.; Tufts College Medical School, Boston, 1905; member of the American College of Hospital Administrators; for many years medical director of the Highland Hospital, where he was hospital consultant and member of the board of directors; formerly superintendent of the Memorial Hospital in Morristown, N. J., and assistant superintendent of the Presbyterian Hospital in New York; died in Jacksonville, Fla., March 23, aged 66, of gastric ulcer.

Arthur Ray Lannon • Denver; University of Colorado School of Medicine, Denver, 1916; member of the American Urological Association; on the honorary staffs of Presbyterian, St. Anthony's and Denver General hospitals; died March 24, aged 59, of coronary occlusion.

Israel Levine, Paterson, N. J.; Baylor University College of Medicine, Dallas, 1904; member of the American Medical Association; affiliated with the Nathan and Miriam Barnert Memorial Hospital; died March 27, aged 70, of embolism.

James Lang Lewis, Danville, Ill.; Northwestern University Medical School, Chicago, 1901; served during World War I; formerly affiliated with Veterans Administration hospitals in Alexandria, La., and Hines, Ill., where he was chief of the tuberculosis service for many years; served on the staff of the Indiana State Sanatorium, Rockville; died March 29, aged 75, of cerebral thrombosis.

Lily Dale Lighter, Montevideo, Minn.; Chicago Physio-Medical Institute, 1886; died recently, aged 90, of uremia and cardiac failure.

Anna Willard Locke-Henry, New York; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1897; for many years physician for the board of education; died in Nashua, N. H., February 14, aged 80, of carcinoma.

David L. McCarrell • Hickory, Pa.; Western Pennsylvania Medical College, Pittsburgh, 1899; for many years member of the local school board; on the staff of the Washington (Pa.) Hospital; died March 31, aged 76, of cerebral hemorrhage.

James Herbert McKee, Philadelphia; University of Pennsylvania Department of Medicine, Philadelphia, 1892; member of the American Medical Association and the American Academy of Pediatrics; served during World War I; formerly professor of pediatrics at the Woman's Medical College of Pennsylvania, Philadelphia Polyclinic and the Temple University School of Medicine; affiliated with Philadelphia General Hospital and Chestnut Hill Hospital, where he died March 24, aged 77, of coronary thrombosis.

John Drummond Maguire, Lexington, Ky.; Louisville (Ky.) Medical College, 1903; member of the American Medical Association; served during World War I; formerly county health officer; died in Nichols Hospital, Louisville, March 31, aged 72.

Charles Jacob Mark, New York; Long Island College Hospital, Brooklyn, 1906; died March 23, aged 68, of heart disease.

Perry French Marks, Walton, W. Va.; University of Louisville (Ky.) Medical Department, 1907; formerly county commissioner; health officer for Roane County; died in Spencer April 1, aged 69, of carcinoma.

James Frank Mayne, Ashland, Ohio; University of Wooster Medical Department, Cleveland, 1889; Western Pennsylvania Medical College, Pittsburgh, 1897; died in Samaritan Hospital March 26, aged 88, of cerebral hemorrhage and hypertensive heart disease.

Roger Depew Mead • Endicott, N. Y.; Syracuse University College of Medicine, 1908; member of the American Association of Industrial Physicians and Surgeons; for many years a member of the board of education; affiliated with Ideal Hospital; died in St. Petersburg, Fla., March 31, aged 65, of diabetes mellitus.

Carl Henry Metzger, Altoona, Pa.; Jefferson Medical College of Philadelphia, 1908; member of the American Medical Association; served during World War I; formerly police surgeon; city physician; member of the health department and civil service examining board; died March 31, aged 70, of angina pectoris.

James B. Miner Sr., Charles City, Iowa; the Hahnemann Medical College and Hospital, Chicago, 1894; member of the American Medical Association; formerly member and president of the school board; affiliated with Cedar Valley Hospital, where he died March 22, aged 80, of myocardial failure.

Morey David Miro, Detroit; Detroit College of Medicine and Surgery, 1932; member of the American Medical Association; served during World War II; affiliated with Deaconess and Grace hospitals; died in Rochester, Minn., March 30, aged 41, of ulcerative colitis.

Claude Edward Morrison, Bay City, Ore.; Washington University School of Medicine, St. Louis, 1910; died March 3, aged 69, of coronary occlusion.

Frank Wellington Murphy, Los Angeles; Pulte Medical College, Homeopathic, Cincinnati, 1894; served as health officer in Dayton, Ohio; died March 7, aged 78, of adenocarcinoma of the prostate.

Thomas Hayden Nelson, Park Hills, Ky.; Kentucky School of Medicine, Louisville, 1894; served during World War I; on the staff of Booth Memorial Hospital, Covington; died March 11, aged 81, of arteriosclerosis.

Alfred Benjamin Nesler • Dubuque, Iowa; University of Michigan Medical School, Ann Arbor, 1920; fellow of the American College of Surgeons; certified by the National Board of Medical Examiners; on the staffs of Finley, St. Joseph's and Mercy hospitals; died in Laurel Oaks March 25, aged 53, of coronary occlusion.

Harry Sidney Newman • Yonkers, N. Y.; Medical College of Virginia, Richmond, 1925; member of the American College of Chest Physicians and the American Trudeau Society; on the staff of Montefiore Hospital for Chronic Diseases in New York; died in St. James Hospital in Hornell, March 13, aged 50, of coronary occlusion and hiatus hernia.

Edward White Perkins • New York; College of Physicians and Surgeons, medical department of Columbia College, New York, 1889; served on the staffs of the Presbyterian and Sloane hospitals; died in the Eastern Long Island Hospital in Greenport, March 26, aged 83, of arteriosclerosis.

Anna Elizabeth Martin Ralston, Brooklyn; Eclectic Medical College of the City of New York, 1896; member of the American Medical Association; died March 10, aged 73.

Benjamin Franklin Randolph • Arrington, Va.; University College of Medicine, Richmond, 1912; died March 30, aged 72, of coronary thrombosis.

Edwin Thomas Redmond Jr., Farmingdale, N. Y.; New York Medical College, Flower and Fifth Avenue Hospitals, New York, 1943; resident physician at the Nassau County Sanatorium; died in Oyster Bay, March 28, aged 31, of cor pulmonale and pulmonary fibrosis.

Cecil Rigby • Spartanburg, S. C.; University of Maryland School of Medicine and College of Physicians and Surgeons, Baltimore, 1916; instructor in surgery at Johns Hopkins University School of Medicine, Baltimore, from 1916 to 1920; fellow of the American College of Surgeons; served during World War I; on the staff of Spartanburg General Hospital; died March 26, aged 58, of coronary thrombosis.

Mary Bennett Ritter, Berkeley, Calif.; Cooper Medical College, San Francisco, 1886; formerly dean of women and physician at the University of California; in 1935 received the honorary degree of doctor of laws from the University of California; died March 17, aged 89, of chronic myocarditis and arteriosclerosis.

Homer Dudley Roads • Cincinnati; University of Cincinnati College of Medicine, 1923; fellow of the American College of Surgeons; formerly practiced in Cleveland, where he was for many years on the staff of St. John's Hospital; died in Cincinnati General Hospital, March 21, aged 51, of periarteritis nodosa.

John Cornelius Roe • Pittsfield, Mass.; Georgetown University School of Medicine, Washington, D. C., 1915; fellow

of the American College of Surgeons; served during World War I; affiliated with St. Luke's, Hillcrest and House of Mercy hospitals; consulting surgeon, W. B. Plunkett Memorial Hospital in Adams and the Fairview Hospital in Great Barrington; died March 13, aged 59, of coronary thrombosis.

Eva C. Roloson, Delaware, Ohio; Eclectic Medical Institute, Cincinnati, 1890; died March 18, aged 87, of cerebral hemorrhage.

Eugene Rush • Philadelphia; Jefferson Medical College of Philadelphia, 1914; a graduate in pharmacy; member of the American Academy of Pediatrics; served overseas during World War I; on the staff of Mount Sinai Hospital; died in Jewish Hospital February 19, aged 60, of coronary thrombosis.

Martin Joseph D. Ruzicka, Lincoln, Neb.; Marquette University School of Medicine, Milwaukee, 1934; served on the staff of Lincoln (Neb.) State Hospital and the Lincoln (Ill.) State School and Colony; died in March, aged 41.

Reverdy Sasscer, Upper Marlboro, Md.; University of Maryland School of Medicine, Baltimore, 1897; died March 28, aged 74.

Joseph Henry Sayer • Seattle; University of Nebraska College of Medicine, Omaha, 1909; an Associate Fellow of the American Medical Association; served overseas during World War I; member of the board of trustees of Doctors Hospital; for many years affiliated with Columbus Hospital; died March 17, aged 70, of carcinoma of the stomach.

Joseph Scattergood • West Chester, Pa.; University of Pennsylvania Department of Medicine, Philadelphia, 1894; for many years secretary of the Chester County Medical Society; formerly county medical director; for many years secretary of the Pennsylvania Railroad Surgeons Association; affiliated with Chester County Hospital and Darlington Sanitarium; died March 18, aged 79, of cerebral hemorrhage.

Rene George Schirber • New Brunswick, N. J.; Long Island College of Medicine, Brooklyn, 1935; served during World War I; served in the medical corps, Army of the United States, during World War II and was twice awarded the Bronze Star for bravery in action in the New Guinea and Philippine campaigns; on the staffs of St. Peter's and Middlesex General hospitals; died in New York March 19, aged 49.

Henry Junius Schireson, Philadelphia; notorious as an advertising plastic surgeon; Maryland Medical College, Baltimore, 1906; died March 27, aged 68, of chronic myocarditis.

Frederick William Schultz, Sarasota, Fla.; Milwaukee Medical College, 1903; served during World War I; died March 18, aged 78, of hypertension and cardiac failure.

Edgar Floyd Sewall • Somerville, Mass.; Tufts College Medical School, Boston, 1913; affiliated with the Somerville (Mass.) Hospital, Winchester (Mass.) Hospital and the Symmes Arlington Hospital in Arlington; died March 22, aged 63, of coronary artery disease.

Grace Edgar Spiegle, Philadelphia; Woman's Medical College of Pennsylvania, Philadelphia, 1898; for many years taught at the Philadelphia Normal School; died March 16, aged 95, of pneumonia.

John M. Stevenson, Moscow, Tenn. (licensed in Tennessee in 1913); died March 7, aged 72, of intestinal obstruction due to carcinoma.

Ralph Lincoln Sweet • Seattle; University of Pennsylvania School of Medicine, Philadelphia, 1913; served during World War I; on the staff of Columbus Hospital; died March 27; aged 62, of rupture of the heart.

David Taylor • Yellow Springs, Ohio; Rush Medical College, Chicago, 1934; past president of the Green County Medical Society; served during World War II; died March 26, aged 50, of brain tumor.

Mark Marcus Temkin, Beaver Dam, Wis.; University of Wisconsin Medical School, Madison, 1933; member of the American Medical Association; served during World War II; died in Wisconsin General Hospital, Madison, March 25, aged 39, of coronary occlusion with infarction.

Alphonse Aloisius Thibadeau, Buffalo; University of Toronto Faculty of Medicine, Toronto, Canada, 1906; formerly on the faculty of the University of Buffalo School of Medicine; on the staff of the Roswell Park Memorial Institute; formerly on the staffs of Emergency, Mercy, Millard Fillmore, Children's, and Buffalo General hospitals; died April 6, aged 64, of coronary thrombosis and diabetes mellitus.

Alvin Stewart Thurston • Council, Idaho; University of Illinois College of Medicine, Chicago, 1925; served during World War I; county health officer; founded Community Hospital; died April 8, aged 50, of heart failure and hypertension.

Oscar Byron Tiller, Chipley, Fla.; University of the South Medical Department, Sewanee, Tenn., 1908; died April 7, aged 70.

John Michael Toomey, Lancaster, Pa.; Hahnemann Medical College and Hospital of Philadelphia, 1923; served during World War I; died March 15, aged 52, of carcinoma of the jaw and mouth.

Hugh O. Turrentine, North Little Rock, Ark.; Kansas City (Mo.) College of Medicine and Surgery, 1920; affiliated with Baptist State Hospital and St. Vincent Infirmary in Little Rock; died April 10, aged 51, of acute coronary occlusion.

Emanuel Theodore Urban, St. Louis; Washington University School of Medicine, St. Louis, 1902; member of the American Medical Association; died in Barnes Hospital April 11, aged 71, of arteriosclerosis.

Harry Warren Vinson • Ottumwa, Iowa; Rush Medical College, Chicago, 1902; fellow of the American College of Surgeons; past president and for many years secretary of the Wapello County Medical Society; affiliated with St. Joseph Hospital and Ottumwa Hospital, where he died April 8, aged 73, of coronary thrombosis.

Heber H. Ward, Brooklyn; Kentucky University Medical Department, Louisville, 1905; on the staff of Samaritan Hospital; died March 31, aged 67.

Hobart Endicott Warren • Palm Beach, Fla.; Harvard Medical School, Boston, 1894; at one time on the staff of the Beverly (Mass.) Hospital; served on the staffs of the Good Samaritan Hospital and St. Mary's Hospital, where he died March 17, aged 80, of cerebral hemorrhage.

Charles M. Watson • Pittsburgh; Western Pennsylvania Medical College, Pittsburgh, 1900; on the staff of Presbyterian Hospital; died in Tucson, Ariz., March 11, aged 73, of cerebral hemorrhage.

Flora M. Watson-Reeves, Los Angeles; Hering Medical College, Chicago, 1893; died March 8, aged 93, of coronary occlusion and arteriosclerosis.

Caroline Weis, Los Angeles (licensed in California in 1918); died recently, aged 77, of a heart attack.

Walter Weller • Clearwater, Fla.; Cornell University Medical College, New York, 1918; member of the Medical Society of the State of New York; affiliated with the University of Florida Infirmary in Gainesville; died March 11, aged 57, of injuries received when the automobile which he was driving was struck by a train.

Frank Fay Williams • Canton, N. Y.; New York Homeopathic Medical College, 1883; for many years health officer and jail physician; on the staff of the Potsdam (N. Y.) Hospital, where he died March 13, aged 91, of injuries received when his automobile was struck by a train.

Arthur Carl Woggon • Rochester, N. Y.; University of Buffalo School of Medicine, 1920; specialist certified by the American Board of Obstetrics and Gynecology; chief of obstetrics and member of the board of directors of the Park Avenue Hospital; on the staffs of Monroe County Hospital, Strong Memorial Hospital and the Rochester General Hospital, where he died March 16, aged 52, of coronary occlusion.

Emil Edward Wolf, Orlando, Fla.; Western Reserve University Medical Department, Cleveland, 1916; served in France during World War I; died April 21, aged 57, of uremia.

Samuel Wolf • Philadelphia; Medico-Chirurgical College of Philadelphia, 1909; on the staff of Mount Sinai Hospital, where he died March 22, aged 77, of carcinoma of the colon.

Emil Rudolf Zak • New York; Medizinische Fakultät der Universität, Wien, Austria, 1901; on the staff of the Beth David Hospital; member of the New York Academy of Sciences; died in Montefiore Hospital March 22, aged 72, of cerebral hemorrhage.

Samuel Lutz Zurmehly, Rushsylvania, Ohio; Miami Medical College, Cincinnati, 1890; served during World War I; died April 7, aged 88, of heart disease.

DIED WHILE IN MILITARY SERVICE

William Calaway • Major, M. C., U. S. Army, San Bernardino, Calif.; Baylor University College of Medicine, Dallas, 1933; entered the medical corps of the U. S. Army in March 1939; surgeon at the Muroc Air Force Base; died Dec. 3, 1948, aged 40, of injuries received in an aircraft accident.

Foreign Letters

MADRID

(From Our Regular Correspondent)

May 1, 1949.

Innervation of the Digestive Tract

The second meeting of the Sociedad Española de Patología Digestiva y de la Nutrición on Dec. 17-18, 1948, in Madrid was attended by a large and very important audience. Drs. Vara Lopez, Lozano Blesa and Soler Roig spoke on "Surgical Methods to Improve Results in Treatment of Gastroduodenal Ulcers." Many took part in the discussion which followed this presentation.

Drs. Fernando de Castro, Pablo de Sala and J. M. Blanco spoke on "Peripheral Sensorial Routes of the Digestive Tract." The speaker with his collaborators stated that the afferent innervation of the gastrointestinal tract is identifiable. By using Irving's technic (stimulation of the inhibitory pupillary reflex through route of the third cranial nerve) and their own method of crossed anastomoses of the nerves, they confirmed the conclusions of other researchers that the sensorial endings of the stomach and of the intestines are stimulated by distension, whereas section and burning of the wall do not produce pain. They also found that during gastric digestion nerve endings are spontaneously stimulated and the impulse progresses through the afferent route of the vagus nerve and elicits reflex responses, whereas when the stomach is empty and its walls at rest, either reflexes do not occur or if they occur they are but few and of a limited transmission. The vagal innervation is very scanty in the duodenum, and even more scanty in the jejunum and in the ileum.

The speaker said that these experiments are not sufficient to determine whether or not the receptors of the vagus nerve which are physiologically stimuable by distension are the ones which in certain circumstances transmit pain. It is also difficult to find out whether the sensorial receptors of the splanchnic, which when stimulated provoke the inhibitory pupillary reflex, are predominantly pain receptors.

The results of these studies confirm the statements of Irving, McSwiney and Suffolk; namely, that all the segments of the gastrointestinal tract receive nerve supply from the vagus and the splanchnic nerves, with the exception of the jejunum and the ileum, which have only splanchnic innervation. However, the vagus and the splanchnic nerves do not contribute equally in the innervation of the duodenum and the stomach. These investigations showed that afferent fibers of the vagus supply the cardia, the fundus and the anterior portion of the body of the stomach. On the other hand, the innervation of all the remaining portion of the stomach, the antrum and the pyloric sphincter is constituted by a proportional number of afferent fibers of the vagus and of the splanchnic nerves. The innervation of the duodenum is predominantly splanchnic.

These studies also confirm those of McSwiney and Suffolk; namely, that the different segments of the digestive tract from the body of the stomach to the ileum are supplied by a rich afferent splanchnic innervation which is constituted by sensorial neurons corresponding to many spinal pairs. The areas receiving the largest innervation are the body of the stomach and the pyloric sphincter, which are supplied by fibers corresponding to no less than ten segments of the spinal cord.

The work carried on by de Castro, de Sala and Blanco is an important contribution to the histophysiology of the nervous system.

SWITZERLAND

(From a Special Correspondent)

GENEVA, May 4, 1949.

Conference of the Red Cross

The opening session of the Diplomatic Conference of Geneva to revise the Conventions of the Red Cross was marked by a decision to humanize war. This effort has to be made in peace time, as it is impossible to realize such agreements once a conflict has broken out. Mr. Petitpierre, president of the conference, said that one often hears that "the Conventions of Geneva did not hinder the atrocities of the last war, so what good is it to prepare new texts which will not be respected?" Against this decidedly negative opinion, he advances the idea that humanizing war should not be abandoned, just because it cannot be realized as completely as is desired.

The continued efforts of the International Committee of Military Medicine, which the International Committee of the Red Cross supported and developed, resulted in a reunion of governmental experts at Geneva in 1937 and 1938. This reunion, which was resumed in 1947 and 1948, terminated in the present efforts.

Object of the Conference.—These debates will last several weeks and all the great moral principles of medicine will be discussed. It is necessary that the physician be concerned with the spiritual forces which must govern his profession. The humanitarian conventions constitute the veritable charter of medicine in times of war.

I. The Status of Captured Medical Personnel: This is one of the most controversial questions. The British want to consider him as a prisoner of war, but a majority of the delegates approve the position taken by the International Committee of Military Medicine, which holds that the physician, not being a combatant, cannot be treated as a prisoner of war; he must, on the contrary, continue his activity in full professional liberty to the benefit of his prisoner comrades.

II. Medical Service in Prisoner of War Camps: This service must offer absolute guarantees to avoid in both civil and military camps actions comparable to those during the past war. Moreover, it is necessary to augment the immunity conferred on the medical personnel which assures this service. One could even arrive at the concept that a physician of neutral nationality should have the medical direction of the camp.

III. Efficient Guaranties of the Convention: Until now the texts gave to protective powers the charge of the interests of the belligerents and especially those of the prisoners. Now there has been evoked anew the creation of an international organization which would have this mission. Without prejudging the decision which will be taken, it is evident that there will be considerable improvement; whatever the organization, the International Committee of the Red Cross, the Red Cross leagues, or an organization created only for this purpose in times of peace, the one or the other situation would be superior to the present situation.

IV. Charter of the Physician in Times of War: Many other points have been raised by the discussions: the guaranties of the medical profession in occupied territory, the immunities to be accorded to civilian victims or war and civil hospital establishments, the application to maritime wars and the regulations of aviation medicine. These problems constitute a veritable charter of the physician in times of war, and the physician, who is the principal beneficiary, is duty bound to interest himself in the evolution of this great historic document, which constitutes the Convention of the Red Cross. It is regretted that not all national delegations assembled at present in Geneva have a representative of our profession, because medical technics play a great part in the studies undertaken.

OSLO

(From Our Regular Correspondent)

May 7, 1949.

A Three Year Tuberculosis Survey in Oslo

On Monday, April 25, the tuberculosis department of the Oslo Public Health Service began a tuberculosis survey which will be uninterrupted, and organized in a way that everyone will be examined every third year. Dr. Eyolf Dahl, who is in charge of the tuberculosis department, is giving publicity to the survey, pointing out the many compensations for the few inconveniences imposed on the community. Persons under the age of 15 do not come within the scope of this survey, as school children under this age are already systematically examined for tuberculosis. The survey is compulsory, and all who wish to escape it must produce satisfactory evidence, such as a medical certificate, conferring exemption from medical examination. This is carried out in two stages. On the first occasion a tuberculin test is supplemented by a roentgenologic examination, and on the second occasion, three days later, the tuberculin reaction is read off. If it is negative, BCG vaccination is recommended. But it is not compulsory on this occasion, although recent legislation has provided for compulsory BCG vaccination under certain conditions. Had the new BCG law been invoked in connection with the present survey, it was feared that the medical examination would be shirked by some timid souls. The costs of this survey are borne in their entirety by the authorities, and the examinations are being carried out with such smooth efficiency that the loss of time and the minor discomforts they entail are negligible in comparison with the benefits conferred. At no cost to himself, every inhabitant of Oslo now has the chance to be reassured every third year with regard to his health from the tuberculosis point of view.

More and More Specialists

Professor Axel Ström has lately undertaken a statistical study of the conditions under which Norwegian doctors become specialists. His first point is that the proportion of doctors who become specialists has grown considerably during the past two decades. At the beginning of 1930, only 20 per cent of the members of the Norwegian Medical Association had qualified as specialists in one subject or more. In January 1949, as many as 31 per cent could claim to be specialists. Several of these doctors had taken the trouble to qualify as specialists in two or more subjects.

Professor Ström's account of the gauntlet doctors have to run in order to become specialists shows how well earned this title is. He shows that the average age of the doctors when they first qualified as specialists was 40 years, and the average length of the interval between qualifying as a doctor and qualifying as a specialist was thirteen years. These specialists had spent on the average eighty-five months in hospital studying medicine in general and certain specialties in particular. The would-be specialist who has fulfilled all that is required of him has to send in his application to rank as a specialist to a body representing the Norwegian Medical Association. This long via dolorosa does, however, lead the specialist into pleasant pastures, with the right among other things to charge a higher scale of fees than he did as a general practitioner working under the national insurance scheme. Besides, a specialty usually implies town life and all its advantages over the strenuous life of a relatively underpaid country doctor.

How and Where May a Doctor Advertise?

To some foreigners it may seem strange that the lay daily press contains the advertisements of doctors, many of whom are of high standing and holders of important academic appointments. But the advertising of doctors is kept within strict

limits by the Norwegian Medical Association. A doctor may, to be sure, advertise in the newspaper every day, but he must do so with discretion, preferably in a small space in the company of other doctors. An advertisement may state what the specialty is, but if it is surgery, for example, one does not announce the fact that one is particularly interested in some strictly limited field in surgery. If one wishes to supplement a special subject with general practice, one may advertise in both these fields, but there is at present a movement in favor of prohibiting such a blunderbuss policy. One may put a door plate over the office or surgery, but not in other houses, and one must not exhibit advertisements in hotels, railway stations or other public buildings. Advertising at cinemas and by the wireless as well as by postal circulars is also forbidden. If one has not qualified as a specialist, the services offered in the advertisement must be only those of general practice. It is the Norwegian Medical Association, to which about 90 per cent of all Norwegian doctors belong, which alone determines who is and who is not a specialist. It is also this association which decides what is ethical and what is unethical advertising. And the ethical prestige it enjoys helps it to prevent straying far from the narrow path of moral rectitude.

The Rarity of Cancer of the Stomach After Ulcer of the Duodenum

At the Drammen Hospital, Dr. O. Römcke and Dr. G. Sponland have lately given statistical proof of a hitherto rather vague impression that the subjects of duodenal ulcer do not die of cancer of the stomach. They examined 556 cases of cancer of the stomach with special reference to a history of roentgenologically demonstrated gastric and duodenal ulcer. They found 20 cases with such a history, but in 18 of them the ulcer was situated in the stomach. In 1 of the 2 cases of duodenal ulcer there was an interval of twenty years between the ulceration of the duodenum and the development of cancer of the stomach. Now the investigations of Knutsen and Selvaag in Drammen have shown what the incidence of gastric and duodenal ulcer is among persons over the age of 30 in this town, and the relative frequency of these two forms of ulcer. On the strength of these and certain other observations, Dr. Römcke and Dr. Sponland calculate that when one suffers from gastric ulcer, the chance of subsequently having cancer of the stomach is three times greater than the average, whereas when one suffers from duodenal ulcer, the chance of having cancer of the stomach is only one fifth of the average chance. They do not, however, indulge in any attempts to explain why duodenal ulcer seems to confer a certain immunity to cancer of the stomach. Incidentally, they draw attention to the considerable number (9) of cases of pernicious anaemia among their 556 cases of cancer of the stomach.

BRAZIL

(From Our Regular Correspondent)

SÃO PAULO, May 2, 1949.

Spinal Fluid and Gastric or Duodenal Ulcer

Prof. Dr. Loforte Gonçalves, of the Medical School of Porto Alegre, in Southern Brazil, performed a study on 23 patients with gastric or duodenal ulcer in connection with their spinal fluid. All the patients with a roentgenologically and/or surgically proved gastric or duodenal ulcer had an albumin content in the spinal fluid above 0.29 Gm. per thousand cubic centimeters (excepting 1 patient with a "suspected" gastric ulcer), and the cellular elements were within normal limits except in 1 patient with gastric ulcer, who had 3.8 per cubic millimeter, and another with a duodenal ulcer, who had 4.7 per cubic millimeter. They were then on the threshold of a tendency toward albumin-cytologic dissociation.

Patients with uncomplicated, nonulcerative bulboduodenitis, roentgenologically studied, presented an albumin-globulin ratio below 0.30 in the spinal fluid and cellular elements within normal limits.

With the exception of a patient who had epileptic seizures and another who was schizophrenic, all other patients presented a normal psychic status.

Prof. Loforte Gonçalves concluded that patients with gastroduodenal ulcers had spinal fluid reactions for albumin suggesting a condition of humoral reaction similar to that observed in the spinal fluid of a great number of patients with polyradiculoneuritis and encephalitis in the chronic or regression phase.

Correspondence

NEUROLOGIC COMPLICATIONS FOLLOWING ADMINISTRATION OF PERTUSSIS VACCINE

To the Editor:—Prompted by the disturbing report of Byers and Moll on the "Encephalopathies Following Prophylactic Pertussis Vaccine" which appeared in *Pediatrics* (1:437 [April] 1948), Toomey conducted a survey based on a questionnaire, the results of which were published in *THE JOURNAL*, February 12, page 448. He rejects the possibility that these reactions are due to an antigen antibody response because the children were not previously immunized. Although this is a plausible deduction based on the information Toomey had at his disposal, my reports on this problem which appeared in *The Brooklyn Hospital Journal* (2:107 [April] 1947), and with Sorley in the *New York State Journal of Medicine* (47:1016 [May 1] 1947) were apparently not available to him. In them is a description of a clinical experiment which offers conclusive evidence to the contrary. I take this opportunity to abstract the cases reported (for a detailed description, the reader is referred to the original papers) and to add a summary of a third.

CASE 1. R. T., a boy, was born at term April 12, 1943. There was a family history of allergic disturbances. At 4½ months an illness developed characterized by a persistent cough and vomiting at meal times. This probably was an undiagnosed attack of pertussis. In the second week of this illness he was given fluid pertussis vaccine (20 billion organisms). Two weeks later he became somnolent; weakness developed in the neck and sphincters, with gradual spread of the weakness and hypotonia to involve the entire body, with emphasis on the left side, in the period of a month. This was followed by a gradual improvement until the age of 8½ months, when he was considered normal. At nine months he received a second injection of pertussis vaccine (30 billion organisms). One week later a similar neurologic disorder appeared. The spread this time seemed more rapid, and, although this episode did not appear to be as severe as the first, there was little recovery. He received his third pertussis injection at ten months. Three days later another neurologic exacerbation developed with rapid spread. There was slow but steady improvement, although he remained spastic. He had a fourth exacerbation following an infection of the upper respiratory tract without any known exposure to pertussis or to the vaccine, and was never able to walk again. The parents were dissatisfied because of the child's lack of progress and consulted an immunologist, who gave the boy an intradermal injection of pertussis vaccine. The skin test was reported as negative, but twenty-five minutes later the child had sphincteric weakness, slept fitfully for twelve hours and awoke completely limp. He never recovered from the paralysis of the entire body, had difficulty in swallowing and aspirated. Death occurred from bronchopneumonia seven weeks later at the age of 43 months.

CASE 2.—In R. M., a male infant born Feb. 14, 1944, convulsions developed at the age of 7 months following a second injection with pertussis vaccine. The child received two more injections of the vaccine in quick succession, and his condition deteriorated after each injection. When studied at the age of 11 months, he presented mental deterioration, generalized convulsions and cortical atrophy. At the age of 34 months he could not walk or talk, but his convulsions had decreased somewhat. There was no note of epilepsy in the family. A maternal grandfather suffered from hay fever.

CASE 3.—In J. S., a female child, the third sibling, an encephalopathy (kernicterus) of erythroblastosis fetalis, due to sensitivity to agglutigen A, developed, and as a result she was left spastic and retarded. At seven months she received pertussis vaccine (20 billion organisms) in one arm, and 1 cc. of alum precipitate diphtheria toxoid in the other arm. Five

weeks later she was admitted to a contagious disease hospital listless, unable to cry, so rigid that meningitis was suspected and with a temperature of 106 F. The patient improved and returned to her norm. At the age of 13 months she was given a second injection of pertussis vaccine (30 billion organisms) and diphtheria toxoid. She became restless and cranky that day, had a "wheeze" the next day and could not sleep. She was readmitted to the hospital with a temperature of 104 F. and again was rigid and had difficulty in respirations. During both hospitalizations the attending physicians did not believe she had croup, could find no chest signs, and spinal fluid studies were normal. Following this episode her spasticity and weakness were much more marked. At 17 months the child was found dead in her crib. It is possible that she smothered as a result of her inability to turn the head. There was no autopsy. Because of the history of erythroblastosis one might suspect that the pertussis vaccine had been contaminated by blood; however, the vaccine used on this child was grown on sheep red cells rather than on human red cells.

I have since been informed of 4 other cases in which the administration of pertussis vaccine seemed to be followed by convulsions or some other neurologic complication.

It is questionable whether the first episode of case 1 could be ascribed to an encephalopathy complicating pertussis, or to pertussis vaccine or to both. The subsequent course of events in this case, with the last exacerbation following a minute amount of antigen, can be explained only on the basis of an antigen-antibody reaction. The other 2 cases offer confirmatory evidence. The neurologic complications described here, and by Byers and Moll, are as protean as the encephalopathies complicating whooping cough. These cases offer presumptive evidence for the supposition that the encephalopathy complicating whooping cough may be the result of an antigen-antibody reaction. Most disturbing is the fact that Byers and Moll observed 15 cases of encephalopathy complicating pertussis vaccine in a ten year period and 26 cases of encephalopathy complicating whooping cough in a like period. If these figures are generally applicable, it appears that a neurologic complication is as likely to develop following the vaccine as during the disease itself, since only 25 per cent of the children in that vicinity were immunized. Possibly, however, such a small series is not statistically significant, and Byers and Moll refrained from making such an observation.

How could such a response follow the first immunization? I can offer only partial explanations. Case 1 suggests the possibility that some of these patients may have had a previous undiagnosed attack of pertussis, but such a possibility could not be frequent. Also, Toomey selected his cases on the basis of a history of a convulsion following administration of pertussis vaccine. Such a series might be heavily loaded with epileptics and persons with low convulsive thresholds. Possibly a potentially epileptic child will convulse after an immunization as much from fright as from the antigen introduced. Significantly none of the cases seen in Cleveland and vicinity showed irreversible changes. To worry about patients with epileptic family histories would be futile, since this would include 17 per cent of the population, most of whom would not be epileptic. However, it must be admitted that Dr. Toomey's pertinent observation that such reactions may follow the first immunization will have to remain unexplained.

In view of the foregoing, it is of utmost importance to ascertain the frequency of neurologic complications following pertussis vaccine. I agree with Dr. Toomey that a report should be made of every important reaction, and complete data kept by the physician. Since an antigen-antibody reaction may be the cause of serious complications, a child should not be given a second injection of pertussis vaccine if a previous one was followed within five weeks by somnolence, irritability, convulsions or any other untoward neurologic complication. The size of the dose does not seem important. Case 1 suggests that skin testing is futile. The vaccine should not be administered in the presence of any undiagnosed disease of the nervous system, especially if such disease might possibly represent a complication of pertussis, which at times may not be recognized. The

question as to whether or not a child with a neurologic disturbance should receive pertussis vaccine will depend on the circumstances. It is better not to expose a child with an unstable nervous system to the danger of a convulsion, but a superintendent of a home for feeble-minded infants would be remiss in his duties if he did not protect his wards against the possibility of an epidemic of whooping cough. It might be wise to give an epileptic or potentially epileptic child some phenobarbital before and after the administration of pertussis vaccine. The vaccine should not be given in the presence of fever or lymphocytosis.

There are not enough reported aftermath reactions to discontinue the use of vaccine.

MATTHEW BRODY, M.D., Brooklyn.

[The letter of Dr. Brody was referred to Dr. Toomey who replies:]

To the Editor:—I have read Dr. Matthew Brody's manuscript. I was unfamiliar with the *Brooklyn Hospital Journal* report of April 1947.

As Brody states, his patient may have had undiagnosed pertussis, the patient producing his own antigen with the disease. This could institute an antigen-antibody reaction.

Patient 2 had a reaction following the second injection of pertussis vaccine, a clear-cut antigen-antibody phenomenon.

The third case is not clear—it was in a person with a neurologic disease who had a trigger type of response. There was a long incubation period of five weeks in a patient with kernicterus encephalopathy which followed the usual pattern. This might have been the etiologic factor.

I am glad to note that the author agrees that a second injection of pertussis vaccine should be cautiously given to anyone who has had a previous reaction, that injection should not be made in a person with a disease of the nervous system, except as circumstances warrant; that a patient should not be given the injection when acutely ill with something else and with fever.

Of course antigen-antibody reactions are generally accepted; possibly I did not make this clear. We only questioned how it could explain a primary reaction in children who had not received injections.

JOHN A. TOOMEY, M.D., Cleveland.

DIABETIC RETINITIS

To the Editor:—The statement has been made that in 80 to 100 per cent of diabetic persons retinitis develops within the first twenty-five years of the onset of the hyperglycemia. The thought should be expressed that these current statistics may have little validity from the point of view of future prognosis. It must be recalled that during this past twenty-five year period we have gone through three major changes in therapy. First, no insulin, then only the unmodified insulin, and, lastly, for the past approximately ten years the protamine zinc and other long-acting insulins were available. It must further be remembered that the general public distribution of these insulins postdates their availability.

The results of therapy with protamine zinc insulin cannot as yet be tabulated, as we must await a full twenty years after its introduction. Only patients whose hyperglycemia and glycosuria have precipitated after the introduction of protamine zinc insulin and who have been treated exclusively with this agent are valid subjects for statistical study of the rate of deterioration with this regimen. All patients whose diabetes antedate this era represent mixed therapy. It is to be expected that protamine zinc insulin, with its profound superior metabolic

influence, will alter the course of events. With the unmodified insulins it is to be remembered that for many hours of the day, particularly the overnight period, many of these patients were out of metabolic balance. It was common to see early morning ketonuria and decided hyperglycemia. Balance studies have shown that these patients were in negative nitrogen balance during this time. The plea must be made to avoid extreme pessimism as to the results of careful control of the diabetic person until sufficient time has elapsed to demonstrate the true validity of either the free glycosuria or the controlled glycosuria regimens with protamine zinc insulin. The burden of proof is on those who advocate free glycosuria. It is the type of study that should be made only in a large hospital center under adequate control and is not the therapeutic procedure of choice for the general practitioner.

There is still another concept in diabetic terminology which requires revision. The conventional indications for the degree of severity of diabetes must be reconsidered. The use of the total amount of insulin required to control one manifestation of this clinical syndrome should not be the index of the severity. A patient whose glycosuria is easily controlled by simple dietetic measurements but whose very existence is threatened by peripheral gangrene and retinitis cannot be considered to have mild diabetes. The extent and rapidity of deterioration should be the true index.

HERBERT POLLACK, M.D., New York.

THE DONORA DISASTER

To the Editor:—Not often is a relatively minor disaster so loaded with significance for the whole country as was that of October 30 at Donora. It deserved also more intelligent handling than it recently received in *THE JOURNAL's* Queries and Minor Notes columns (p. 1122, April 16, 1949). Highlighting as it did the growing problem of industrial air pollution, the Donora tragedy should be most closely studied in its public health aspects. Suddenly everyone realizes the prohibitive health costs to the community from industrial pollution of its atmosphere—which I have been pointing out since 1941.

Is the medical profession now to leave consideration of this serious health hazard to governmental health authorities and still further weaken its stand as the nation's health guardian? Is this profession to stand for health or for disease?

The Donora disaster offers a most pertinent case in point. The United States Public Health Service, now engaged in studying air pollution at Donora and elsewhere in the heavily industrialized Monongahela valley, had evinced no interest in this health problem previous to the October 30 disaster—it had in fact refused to grant requested financial support for our studies which have aided greatly in focusing the nation's attention on this major health hazard. Nongovernmental research opened up this problem and laid it before the public; why should medicine now stand quietly aside while governmental agencies take over the field?

Even the timely symposium on air pollution at the Atlantic City American Medical Association meeting gets off to a poor start when judged by the preliminary program printed in the April 23 issue of *THE JOURNAL* (p. 1172). With editorial emphasis (p. 1150 in the same issue of *THE JOURNAL*) on its public health bearing, the symposium program treats of this most important phase of the matter only as a tail end afterthought. Physicians and engineers in the field of industrial medicine have thus far evinced a major interest in the impact of industrial activities on the health of workers in the plant from the standpoint of economic hazards to management (in damage claims or lowered output). Only where industry's

liability showed signs of extending beyond the plant confines (as in the case of beryllium) had this group evinced much interest in the truly public health aspects of industrial air pollution. We need to make use of their skill and knowledge in curing the pollution evil but seemingly cannot rely on them in emphasizing its community dangers.

CLARENCE A. MILLS, M.D., Cincinnati.

Medical Examinations and Licensure

COMING EXAMINATIONS AND MEETINGS

NATIONAL BOARD OF MEDICAL EXAMINERS

NATIONAL BOARD OF MEDICAL EXAMINERS: *Parts I and II*. Various Centers. June 20-22, Sept. 12-14. *Part III*. June, various centers. Exec. Sec., Mr. E. S. Elwood, 225 S. 15th St., Philadelphia 2.

EXAMINING BOARDS IN SPECIALTIES

AMERICAN BOARD OF ANESTHESIOLOGY, INC. *Written*. Various Centers. July 15. *Oral*. Oct. 16-20. Sec., Dr. Curtiss B. Hickcox, 745 Fifth Ave., New York 27.

AMERICAN BOARD OF INTERNAL MEDICINE: *Written*. Oct. 17. Asst. Sec.-Treas. Dr. W. A. Werrell, 1 Main St., Madison 3, Wis.

AMERICAN BOARD OF NEUROLOGICAL SURGERY: *Oral*. Chicago, June 19-19. Sec., Dr. W. J. German, 310 Cedar Street, New Haven, Conn.

AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY, INC. *Part I*. Various Centers. Feb. 3. Final date for filing application is Nov. 5. Sec., Dr. Paul Titus, 1015 Highland Bldg., Pittsburgh.

AMERICAN BOARD OF OPHTHALMOLOGY: St. Louis, Oct. 15-19; Boston, December. Sec., Dr. S. J. Beach, 56 Ivie Rd., Cape Cottage, Maine.

AMERICAN BOARD OF ORTHOPAEDIC SURGERY. *Part II*, New York City, Jan. 1950. Final date for filing application for Part II is Aug. 15. Address: Sec.-Treas., Dr. Harold A. Sohfeld, Room 1856, 122 S. Michigan Ave., Chicago.

AMERICAN BOARD OF OTOLARYNGOLOGY: Chicago, Oct. 4-7. Sec., Dr. D. M. Lierle, University Hospital, Iowa City.

AMERICAN BOARD OF PATHOLOGY: Chicago, Oct. 7-8. Final date for filing application is Sept. 1. Sec., Dr. Robert A. Moore, 507 Euclid Ave., St. Louis.

AMERICAN BOARD OF PEDIATRICS: *Written*. Under local monitors, June 24. *Oral*. Cleveland, Sept. 16-18; New York City, Oct. 21-23; Chicago, Dec. 9-11. Sec., Dr. John McK. Mitchell, 6 Cushman Road, Rosemont, Pa.

AMERICAN BOARD OF PLASTIC SURGERY: Examinations are given in June and November of each year in the home town of applicants. Sec. Treas., Dr. Louis T. Byars, 400 Metropolitan Bldg., St. Louis, Mo.

AMERICAN BOARD OF PREVENTIVE MEDICINE AND PUBLIC HEALTH: *Parts I and II*. New York, Oct. 22-24. Final date for filing application is July 22. Sec., Dr. Ernest L. Stebbins, 615 N. Wolfe St., Baltimore.

AMERICAN BOARD OF PSYCHIATRY AND NEUROLOGY, INC. *Special Examination*. October. Place to be announced. Final date for filing application is July 15. December, New York City. Sec. Dr. F. J. Braceland, 102-110 Second Ave., S.W., Rochester, Minn.

AMERICAN BOARD OF SURGERY: *Written*. Various Centers, October 26. Final date for filing application is July 1. Sec., Dr. J. Stewart Rodman, 225 S. 15th St., Philadelphia.

AMERICAN BOARD OF UROLOGY: *Written*, December. *Oral and Clinical*. Chicago, Feb. 11-15. Final date for receipt of case histories is Sept. 1, 1949. Sec., Dr. Harry Culver, 7935 Sunnyside Road, Minneapolis 18, Minn.

BOARDS OF MEDICAL EXAMINERS

ALABAMA: *Examination*. Montgomery, June 28-30. Sec., Dr. D. G. Gill, 519 Dexter Ave., Montgomery.

ALASKA: * Juneau, Sept. 6. Sec., Dr. W. M. Whitehead, Box 140, Juneau.

CALIFORNIA: *Examination*. San Francisco, June 21-23. Sec., Dr. Frederick N. Scatena, 1020 N St., Sacramento.

COLORADO: * *Endorsement*. Denver, July 5. Sec., Dr. W. W. King, 831 Republic Bldg., Denver.

CONNECTICUT: * *Examination*. Hartford, July 1. Secretary to the Board, Dr. Creighton Barker, 258 Church Street, New Haven.

DELAWARE: Dover, July 12-14. Sec., Dr. J. S. McDaniel, 229 South State St., Dover.

DISTRICT OF COLUMBIA: * *Examination*. Washington, Nov. 14-15. Sec., Dr. G. C. Ruhland, 4130 E. Municipal Bldg., Washington.

FLORIDA: * *Examination*. Jacksonville, June 26-28. Sec., Dr. Frank D. Gray, 12 N. Rosalind Ave., Orlando.

GUAM: *Endorsement*. Agana, Last Friday of each month. Sec., Capt. C. K. Youngkin, Dept. of Public Health, Guam. % F.P.O., San Francisco, Calif.

HAWAII: * *Examination*. Honolulu, July 11-14. Sec., Dr. S. E. Doolittle, 881 S. Hotel St., Honolulu.

IDAHO: Boise, July 11-13. Sec., Miss Estella S. Mulliner, Bureau of Occupational Licenses, 355 State House, Boise.

ILLINOIS: Chicago, June 28-30. Superintendent of Registration, Mr. Fred W. Ruegg, Capitol Building, Springfield.

INDIANA: Indianapolis, June 21-23. Sec. Board of Medicine, Dr. Paul R. Tindall, 416 K. of P. Bldg.

MAINE: Augusta, July 5-6. Sec., Dr. Adam P. Leighton, 192 State St., Portland.

MARYLAND: *Examination*. Baltimore, June 21-24. Sec., Dr. Lewis P. Gundry, 1215 Cathedral St., Baltimore. *Homopathic*. Baltimore, June 14-15. Sec., Dr. John A. Evans, 612 West 40th St., Baltimore.

MASSACHUSETTS: *Written*. Boston, July 12-15. Sec., Dr. George L. Schadt, 413 E. State House, Boston.

MINNESOTA: * Minneapolis, June 21-23. Sec., Dr. Julian F. DuBois, 230 Lowry Medical Arts Bldg., St. Paul 2.

MISSISSIPPI: Jackson, June 21-22. Asst. Sec., Dr. R. N. Whitfield, State Board of Health, Jackson.

MONTANA: Helena, Oct. 3-5. Sec., Dr. Otto G. Klein, First National Bank Bldg., Helena.

NEVADA: Carson City, Nov. 7. Sec., Dr. George H. Ross, 112 N. Curry St., Carson City.

NEW HAMPSHIRE: Concord, Sept. 8-9. Sec., Dr. J. S. Wheeler, 107 State House, Concord.

NEW JERSEY: *Examination*. Trenton, June 21-24. Sec., Dr. E. H. Hallinger, 28 West State Street, Trenton 8.

NEW MEXICO: * Santa Fe, Oct. 10-11. Sec., Dr. Charles J. McGoe, Coronado Bldg., Santa Fe.

NEW YORK: Albany, Buffalo, New York and Syracuse, June 28-July 1. Sec., Dr. Jacob L. Lochner, 23 South Pearl St., Albany.

NORTH CAROLINA: *Examination*. Raleigh, June 23-25. *Endorsement*. Morehead City, July 23. Sec., Dr. Ivan Proctor, 226 Hillsboro St., Raleigh.

NORTH DAKOTA: * *Written*. Grand Forks, July 5-7. *Reciprocity*. Grand Forks, July 8. Sec., Dr. C. J. Glaspel, Grafton.

OREGON: * *Examination*. Portland, July 7-9. *Reciprocity*. Portland, July 22. Exec. Sec., Mr. Howard I. Bobbitt, 609 Failing Building, Portland.

PENNSYLVANIA: *Examination*. Philadelphia and Pittsburgh, July. Acting Sec., Mrs. B. G. Steiner, 351 Education Bldg., Harrisburg.

PUERTO RICO: San Juan, Sept. 6-10. Sec., Dr. Luis Cueto Coll, Box 3717, Santurce.

RHODE ISLAND: * *Examination*. Providence, July 7-8. Chief, Mr. Thomas B. Casey, 366 State Office Bldg., Providence.

SOUTH CAROLINA: *Examination*. Columbia, June 27-29. *Endorsement*. Columbia, June 27-28; Aug. 1, Sept. 5 and Oct. 3. Sec., Dr. N. B. Heyward, 1329 Blanding St., Columbia.

SOUTH DAKOTA: * *Examination*. Pierre, July 19. Sec., Dr. G. J. Van Heuvelen, Capitol Bldg., Pierre.

UTAH: *Examination*. Salt Lake City, July 13-15. Sec., Dept. of Registration, Miss Rena B. Loomis, 324 State Capitol Bldg., Salt Lake City.

VERMONT: Burlington, June 21-23. Sec., Dr. F. J. Lawliss, Richford.

WASHINGTON: * Seattle, July 18-20. Sec., Mr. Edward C. Dohm, Department of Licenses, Olympia.

WEST VIRGINIA: Charleston, July 7-9. Commissioner, Public Health Council, Dr. N. H. Dyer, State Capitol, Charleston 5.

WISCONSIN: * *Examination*. Milwaukee, June 28-30. Sec., Dr. C. A. Dawson, Tremont Bldg., River Falls.

WYOMING: Cheyenne, June 20. Sec., Dr. Franklin D. Yoder, Capitol Bldg., Cheyenne.

* Basic Science Certificate required.

BOARDS OF EXAMINERS IN THE BASIC SCIENCES

ALASKA: Juneau, Aug. 28. Sec., Dr. C. Earl Albrecht, Box 1931, Juneau.

ARIZONA: Tucson, June 21. Sec., Mr. Francis A. Roy, Science Hall, University of Arizona, Tucson.

DISTRICT OF COLUMBIA: Washington, Oct. 24-25. Sec., Dr. G. C. Ruhland, 4130 E. Municipal Bldg., Washington.

IOWA: Des Moines, July 12. Sec., Dr. Ben H. Peterson, Coe College, Cedar Rapids.

MICHIGAN: *Examination*. Detroit and Ann Arbor, Oct. 14-15. Sec., Miss Eloise LeBeau, 101 N. Walnut St., Lansing 15.

NEBRASKA: Omaha, Oct. 4-5. Director, Bureau of Examining Boards, Mr. Oscar F. Humble, Room 1009, State Capitol Bldg., Lincoln 9.

OREGON: Portland, Sept. 3 and Dec. 3. Sec., Mr. Charles D. Byrne, State Board of Higher Education, Eugene.

RHODE ISLAND: *Examination*. Providence, Aug. 10. Administrator of Professional Regulation, Mr. Thomas B. Casey, 366 State Office Bldg., Providence.

TENNESSEE: Memphis, July 8-9. Sec., Dr. O. W. Hyman, 874 Union Ave., Memphis 3.

WASHINGTON: Seattle, July 13-14. Sec., Department of Licenses, Mr. Edward C. Dohm, Olympia.

WISCONSIN: Milwaukee, Sept. 24 and Dec. 3. Sec., Prof. W. H. Barber, Ripon College, Ripon.

Bureau of Legal Medicine and Legislation

MEDICOLEGAL ABSTRACTS

Annual Registration Fee: Validity of Requirements for Reinstatement after Cancellation for Failure to Pay.—The plaintiff filed a complaint against the defendant, State Board of Medical Examiners, in which he asked to have his license to practice medicine reinstated. The trial court sustained the defendant's motion to dismiss the action and entered judgment in favor of the Board, so the plaintiff physician appealed to the Supreme Court of Colorado.

The court made the following material findings of fact: 1. The doctor was duly licensed and admitted to practice medicine in the state of Colorado Jan. 6, 1925. 2. March 1, 1933, the said license of the doctor was cancelled by the board, without hearing or notice to the doctor, under the asserted authority conferred on the board by section 11, chapter 109, 1935 C.S.A., which provides for the payment by all medical licentiates of an annual registration fee. The said statute contains the following language:

If any licentiate fails for three consecutive years to pay the annual registration fee it shall be the duty of the board without hearing or notice to cancel his license subject to reinstatement. If application for reinstatement is made the board shall reconsider the moral character and professional qualifications of the applicant upon notice and hearing before ordering reinstatement, and unless such showing shall thereupon be made to the board as would entitle the applicant to the issuance of an original license reinstatement shall be denied.

3. There was no requirement for the payment of an annual registration fee in 1925 when the doctor was licensed. The aforementioned statute was adopted in 1929. 4. The doctor paid no annual registration fee at any time prior to March 1, 1933, when the board cancelled his license. The doctor had no actual knowledge of the annual registration fee requirement provided by the 1929 statute. 5. The doctor became a nonresident when, from 1932 to 1934, he was engaged in the study of medicine at the University of Berne, School of Medicine, Berne, Switzerland, and on his return he was employed by the United States Government as a medical officer in its Industrial Medical Branch at the Port of Embarkation, Brooklyn, in which service he has continued ever since. 6. The doctor had no knowledge or notice of the cancellation action taken by the board until November 1944, when the Character Investigating Committee of the United States called that fact to his attention. 7. Jan. 15, 1945, the doctor by letter addressed to the board requested reinstatement of his license to practice medicine in Colorado and offered to pay any unpaid annual registration fees. 8. The request was denied by the board secretary who informed the doctor that he could only be reinstated pursuant to the statute of 1929; that under said statute he must possess qualifications entitling him to the issuance of an original license; that the medical school issuing the diploma on which the doctor was admitted to practice in 1925 was no longer on the accepted list; that to secure an original license he would be required to meet all the provisions of the basic science law adopted in 1937. 9. On Feb. 27, 1946, the doctor submitted a number of exhibits which, it is contended, established his further qualifications to practice. These were rejected by the board and returned to the doctor. 10. The doctor cannot meet the requirements of the basic science law and cannot meet the present requirements of the board for issuance of an original license. The plaintiff challenges the constitutionality of the annual registration law on the ground that it violates the Fourteenth Amendment of the Constitution of the United States, in that it denies to him the guarantee of due process of law; and that it is an arbitrary, discriminatory and oppressive exercise of the police powers of the state.

We consider, said the Supreme Court, only the question as to whether the statute authorizing a cancellation of the doctor's license for three years' consecutive nonpayment of registration fee, and requiring, as a condition precedent to reinstatement, that the doctor shall make such showing to the board as would

entitle him to the issuance of an original license, is a proper exercise of the police power of the state. It is a well established principle that the practice of medicine, affecting as it does the public health and safety of the people, is subject to reasonable regulation by the state in the exercise of its police power for the promotion of the general welfare and the only limit to this regulatory legislative power in prescribing conditions as to the right to practice a profession, the Supreme Court continued, is that the regulations shall be reasonable.

The statutory ground for cancellation of this plaintiff's license, said the Supreme Court, is the nonpayment for three consecutive years of an annual registration fee. Under the terms of the statute the doctor is permitted to apply for "reinstatement," but on such application he must possess qualifications, educational and otherwise, of an entirely different character from those required when he was admitted, licensed and accepted as qualified to practice medicine in 1925. The sole shortcoming on the part of the doctor, by reason of which he forfeited all his former standing as one fully qualified to practice medicine and subjected himself to tests not required when his license was granted, is that for three years he failed to pay the registration fee of \$10. Thus he is deposed as a practicing doctor, since the school of his medical training is not now on the "accredited" list, although it satisfied all requirements as of the date of his admission. The failure of the doctor to pay a small annual registration fee, concluded the court, has a very remote and disconnected relation to the promotion of morals, safety, general welfare or the public health. When, as here, a complete forfeiture is predicated on such nonpayment, and new conditions of eligibility for reinstatement, far above and beyond the payment of the delinquent fees, are attempted to be imposed, we believe that the limitations on a proper exercise of the police power have been exceeded, and that the "regulation," if such it can be called, is harsh, unwarranted and unreasonable. If this alleged "regulation" were held to be reasonable, many excellent physicians and surgeons might suffer the loss of their "valuable right" to practice their profession if, during an extended absence, or for whatever reason, they neglected for three years to pay a registration fee. They might find themselves unable, notwithstanding actual ability and experience, to meet the new qualifications for an original license. If, in fact, good and sufficient cause exists to deprive the doctor of the right to practice his profession, and if that cause or disqualification bears a fair relation to the public health, safety, morals or welfare, there is ample authority in other provisions of the medical practice act to accomplish the result of a revocation of his license.

Accordingly the judgment in favor of the board was reversed and the case remanded with directions to reinstate the plaintiff's license on payment of delinquent registration fees. *Lipset v. Davis*, 203 P. (2d) 730 (Colo., 1949).

Medical Motion Pictures

FILM REVIEW

Get Rid of Rats. 16 mm., black and white, sound, 374 feet, showing time ten minutes. Produced in 1948 by the National Film Board for the Department of National Health and Welfare, Ottawa. Procurable on rental or purchase from the National Film Board of Canada, 620 Fifth Ave., New York 20 and 400 West Madison Street, Chicago 6.

This film depicts why rats, known to be dangerous disease carriers, should be controlled. The breeding and feeding grounds of rats are dramatically featured. Control measures such as ratproofing of cellars and storage buildings and methods of depriving rodents of food and shelter so as to eliminate rat-spread epidemics are portrayed. The degree of destruction might have been more effective by presenting the damage in actual dollars and cents. More emphasis should have been placed on methods used to control rats in order to tie in more accurately with the film title. Although the scenes are taken in Canada, similar conditions are prevalent in many parts of the United States. Technically the film is well done; it can be recommended for showing to community groups to stimulate interest in connection with rat control campaigns.

Current Medical Literature

AMERICAN

The Association library lends periodicals to members of the Association and to individual subscribers in continental United States and Canada for a period of three days. Three journals may be borrowed at a time. Periodicals are available from 1938 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 18 cents if three periodicals are requested). Periodicals published by the American Medical Association are not available for lending but can be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

American Journal of Medical Sciences, Philadelphia 217:1-120 (Jan.) 1949

- *Clinical Intoxication with Potassium: Its Occurrence in Severe Renal Insufficiency. N. M. Keith and H. B. Burchell.—p. 1.
- Effect of Para-Aminobenzoic Acid on Murine Typhus: Clinical Study of 60 Cases. R. S. Diaz-Rivera, C. Guzman Acosta, P. J. Collazo and A. P. Lebron.—p. 13.
- Kala-Azar: 3 Cases Developing in Veterans. J. P. Duffy and L. E. Davison.—p. 21.
- *Streptomycin in Treatment of Tuberculous Enteritis: Report of Thirty-Three Cases. E. F. Mason, W. W. Kridelbaugh, W. H. Crouch and Melgie Ward.—p. 28.
- Improved Method for Detection of Osmotic Abnormalities of Erythrocytes. M. H. Jacobs, Dorothy R. Steward, W. J. Brown and L. J. Kimmelman.—p. 47.
- Osmotic Resistance of Human Erythrocytes in Normal, Carrier and Anemic States: with Special Reference to Changes Due to Age, Race, Sickle-Cell Anemia, Mediterranean (Cooley's) Anemia and Congenital Hemolytic Icterus. B. Dickstein, W. E. Landmesser Jr., W. E. Love and others.—p. 53.
- Carinamide as Adjuvant to Penicillin in Treatment of Subacute Bacterial Endocarditis. S. H. Eisman, C. F. Kay, R. F. Norris and W. P. Boger.—p. 62.
- Functional Systolic Murmurs in Children. C. R. Messeloff.—p. 71.
- Electrocardiogram of Hyperthyroid Patients without Evidence of Heart Disease: The Ventricular Gradient. A. L. Hyman and R. B. Failey Jr.—p. 79.
- Treatment of Pneumonia with Intramuscular Aqueous Penicillin Once a Day. W. Weiss and I. Steinberg.—p. 86.
- Isolation of Herpes Virus from Case of Atypical Pneumonia and Erythema Multiforme Exudativum with Studies of Four Additional Cases. H. R. Morgan and M. Finland.—p. 92.
- Mercurial Diuretics. C. T. Ray and G. E. Burch.—p. 96.
- Religion and Psychiatry. F. R. Drake.—p. 111.

Clinical Intoxication with Potassium.—Keith and Burchell report 13 cases of potassium toxemia in 13 patients between the ages of 17 and 61 years with acute, subacute and chronic forms of bilateral diffuse nephritis. All patients died, and the clinical diagnosis was confirmed at necropsy in 10 cases. Potassium salts were administered as diuretic agents to 3 of the patients, 2 of whom had edema, and toxic effects resulted. Certain clinical symptoms such as paresthesias of the hands and feet after the ingestion of the potassium salts suggested the possible presence of potassium intoxication. The actual proof of the potassium intoxication rests on the demonstration of a coexisting hyperpotassemia and a characteristic electrocardiographic sequence in the following order of appearance: increased height of the T wave; a QRS of increased width; loss of P waves; gross intraventricular conduction defects, the electrocardiogram superficially simulating bundle branch block; cardiac arrest with irregular undulating potentials of low voltage. The serum potassium in the authors' cases varied from 7.7 to 10.5 milliequivalents per liter. Potassium toxemia produces a serious condition in the myocardium, which may be reversible but also can lead to fatal cardiac standstill. Beneficial therapeutic procedures such as the use of calcium and sodium salts and solutions of dextrose and blood can be applied and are particularly indicated in patients with early potassium intoxication. The administration of potassium salts to patients with severe renal insufficiency may be a dangerous procedure.

Streptomycin in Tuberculous Enteritis.—Mason and his co-workers treated 33 male patients between the ages of 20 and 58 years with active pulmonary tuberculosis and a complicating tuberculous enteritis with streptomycin. The daily dose of the drug varied between 1 and 2 Gm. Within this

range no difference in response was observed when the intramuscular route was used. This method may be preferable to the administration by mouth. Treatment was continued for sixty to one hundred and twenty days. Improvement was noticed by the patients practically from the time streptomycin was started. Relief of diffuse and localized abdominal tenderness, rigidity and distention came within a few days after relief of symptoms. The liquid stools became progressively soft and then formed and were reduced in number from an average of six per day to an average of two per day by the end of the first week. The presence of occult or gross blood, mucus and pus disappeared as the stools became normal. There was an average gain of 4.7 pounds (21.3 Kg.) in weight per month. Roentgen reports of 17 patients chosen because of adequate examinations before and after treatment revealed decided irregularities in the ileocecal area after ingestion of barium meal or on barium enema before streptomycin was started, and a normal cecum, terminal ileum and ascending colon fifty to three hundred days after streptomycin was started. The beneficial effect of streptomycin on ulcerating tuberculous enterocolitis secondary to pulmonary tuberculosis has thus been demonstrated clinically and roentgenologically.

American J. Obstetrics and Gynecology, St. Louis 57:1-210 (Jan.) 1949

- Present-Day Status of Noninvasive Cervical Carcinoma. G. A. Galvin and R. W. TeLinde.—p. 15.
- Adenocarcinoma of Cervix and of Cervical Stump. B. Carter, W. L. Thomas and R. T. Parker.—p. 37.
- Adenocarcinoma of Uterus: Observation on Treatment and Histologic Findings Following Intracavitary Radiation. J. M. Hundley Jr., E. S. Diggs and T. Kardash.—p. 52.
- Facts Pertinent to Rational Concept of Abruptio Placentae. R. A. Bartholomew, E. D. Colvin, W. H. Grimes Jr. and J. S. Fish.—p. 69.
- Gynandroblastoma of Ovary. J. E. Hobbs.—p. 85.
- Physiopathology of Eclampsia. W. F. Mengert, R. J. Jennett and W. W. Brown Jr.—p. 97.
- Second Stage of Labor: III. Number of Pains. L. A. Calkins.—p. 106.
- Fetal Mortality in Breech Deliveries. W. F. Seely.—p. 113.
- Use of Methionine in Obstetrics. N. W. Philpott, M. Hendelman and T. Primrose.—p. 125.
- Bacteriology of Gynecologic and Involuting Puerperal Uterus. H. C. Hesseltine and K. Eileen Ilite.—p. 143.
- Morphology of Human Fallopian Tube in Early Puerperium. L. M. Hellman.—p. 154.
- Ovarian Pregnancy with Report of 3 Cases. K. M. Wilson and W. L. Ekas.—p. 166.
- *Observations on Rooming-In Program of Baby with Mother in Ward and Private Service. T. L. Montgomery, R. E. Steward and E. Pauline Shenk.—p. 176.
- Wide Conization of Cervix: Follow-Up of One Thousand Cases, Six Hundred from Two to Fourteen Years. R. J. Crossen.—p. 187.

Rooming-In of Baby with Mother.—Montgomery and his associates say that in July 1947 the policy of rooming the normal, full term, newborn baby with its mother was inaugurated in the Jefferson Medical College Hospital. Until April 12, 1948, 1,018 newborn babies were cared for in this fashion. Babies are kept in cribs at the mother's bedside unless one or the other is ill or unless at night baby is unusually noisy. A small crib wardrobe is hung on the end of each baby's crib. The top shelf contains covered jars for alcohol sponges, water sponges, dry cotton balls and used sponges. The larger lower shelf contains a supply of diapers, pads and blankets. With this arrangement, the mother can reach her baby and the materials for its care, and no one touches these materials except herself. If the baby has considerable mucus in its pharynx, it is kept in the central nursery until this had cleared and respiration is normal, but in not a few instances the baby is at the mother's bedside within two to three hours after delivery. The principal reasons for undertaking this project were (1) fear of contagious disease in the central nursery—infectious diarrhea, impetigo and respiratory infection—and (2) the impossibility of maintaining an adequate staff of trained nurses. Another consideration was the thought that the separation of baby from mother prevailing in the modern hospital might be destructive of a natural and normal relationship. This system has satisfied the requirements for which it was set up. There have been no ill babies. The care of the baby has been simplified. The babies seemed contented and happy; they have gained rapidly in weight, and the percentage

of breast feeding has increased. The mothers have learned to take care of the baby from the first postpartum day on and have left the hospital capable of managing the ordinary problems of infant care. The plan seems to work particularly well in small wards where mothers can watch and teach one another and can be under the frequent observation of the nursing personnel.

American Journal of Ophthalmology, Chicago

32:1-173 (Jan.) 1949

- Retrolental Fibroplasia in Premature Infants. W. Councilman and Ella U. Owens.—p. 1.
 Practical Problems Pertaining to Presbyopia. J. E. Lebensohn.—p. 22.
 Evaluation of Antihistaminic Drug in Experimental Uveitis. I. H. Leopold, W. Dean and H. Blazar.—p. 31.
 Ocular Manifestations of Pemphigus Foliaceus. F. Amendola.—p. 35.
 *Use of Sterile Refrigerated Pooled Human Vitreous in Living Eyes. M. H. Fritz.—p. 45.
 Myokymia of Eyelids: A Suggestion as to Therapy: Preliminary Report. I. Givner and N. S. Jaffe.—p. 51.
 Surgical Treatment of Retinal Detachment Without Retinal Tear: Prolonged Subretinal Drainage. A. de Roeth Sr.—p. 55.
 Surgical Treatment of Retinal Detachment. J. P. Verdager.—p. 63.
 Keratoplasty: I. Preliminary Report on Development of Instruments. O. S. Lee Jr. and L. Allen.—p. 71.
 New Ocular Implants. D. G. Durham.—p. 79.
 Pigmentary Glaucoma: A Rare Clinical Entity. H. S. Sugar and F. A. Barbour.—p. 90.
 New Classification of Nonparalytic Strabismus. S. V. Abraham.—p. 93.
 Binasal Hemianopsia: Report of 2 Cases. M. B. Raiford.—p. 99.
 *Anthrax of Eye. H. D. Barnshaw and J. C. Lovett.—p. 106.
 Refractive Treatment of Asthenopia. P. W. Miles.—p. 111.

Use of Pooled Human Vitreous.—Fritz deals with the injection into the living human eye of pooled vitreous withdrawn from human eyes and sent to the laboratory of the Eye-Bank for Sight Restoration, Inc., as material for use in the operation of corneal grafting. He describes the technique of the collection of vitreous and the determination of its sterility. He also presents the histories of 5 patients in whom pooled vitreous was employed. He stresses that the aspirable portion of the vitreous of enucleated human eyes may be pooled and kept indefinitely under sterile conditions with no gross change in its physical properties. If withdrawn under aseptic conditions from donor eyes, the surfaces of which may be contaminated with bacteria, it remains sterile. This pooled material may be injected into the human eye without fear of bacterial contamination. The indications for this operation are loss of tone following retinal detachment, cataract extraction, injury or other reasons, and as a substitute for the aspirable portion of cloudy vitreous in a patient's eye when more conservative means fail to bring about clearing after a reasonable period of time. The further use of eye banks for the collection and storage and for the distribution of pooled vitreous to qualified ophthalmologists in addition to the original function of processing usable corneal material is apparent.

Anthrax of the Eye.—Barnshaw and Lovett say that owing to the fact that there are many leather industries in Southern New Jersey anthrax is occasionally observed. Lovett has seen 90 cases of anthrax at the Camden Municipal Hospital since 1924. There were 7 cases involving the eyes among these 90 cases; 2 of them were associated with malignant edema and 5 with malignant pustule. None of the patients with eye involvement died. The authors present the history of a patient who had worked on goat skins. The lower lid of the left eye started to swell on February 11. The swelling had increased greatly by the next morning, extending down over the cheek. The patient was hospitalized on February 12, and treatment with penicillin was ordered at once. The patient was given 30,000 units of penicillin every four hours. He received a total of 2,500,000 units. Local treatment consisted of ice compresses, boric acid ointment to the lower lid and penicillin drops. On March 1, 1947, vision was practically normal in each eye. There was a large eschar of the lower left lid which extended along the entire lid margin. The eschar slowly loosened, leaving a raw area. Ectropion developed and a tarsorrhaphy was performed. Later, Snellen sutures were placed, but proved unsuccessful to relieve the ectropion. A skin graft took successfully, but even after this there was a moderate ectropion. In July the ectropion had completely disappeared. There was only a slight amount of sagging of the lower lid.

American Journal of Physiology, Baltimore

155:1-140 (Oct.) 1948, Partial Index

- Electrophrenic Respiration. S. J. Sarnoff, Esther Hardenbergh and J. L. Whittenberger.—p. 1.
 Blood Sugar Response to Anoxia During Acclimatization. E. J. Van Liere, J. C. Stickney and D. W. Northup.—p. 10.
 Effects of Pituitary Growth and Adrenocorticotrophic Hormones on Urinary Glucose and Nitrogen of Hypophysectomized Diabetic Rats. L. L. Bennett.—p. 24.
 Effect of Parenteral Administration of Glucose and Protein Hydrolysate of Food Intake in Rat. H. Janowitz and M. I. Grossman.—p. 28.
 Effect of Parathyroid on Renal Tubular Reabsorption of Phosphate and Calcium. I. Jahan and R. F. Pitts.—p. 42.
 Effect of Ether and Pentobarbital Anesthesia on Cervical Lymph Flow and Protein Content in Cat. Marie-Louise Flinker and Jane D. McCarrell.—p. 50.
 Distribution of Two Fractions of Cholinesterase in Homogenates of Portions of Dog Brain. J. M. Little.—p. 60.
 Carbamate Conduction Block in Frog Nerve Fibers. F. Crescitelli.—p. 82.
 Pulmonary Capillary Pressure in Animals Estimated by Venous and Arterial Catheterization. H. K. Helles, Florence W. Haynes, L. Dexter and T. D. Kinney.—p. 98.
 Effects of Repeated Oral Doses of Quinine and Quinidine on Blood Pressure and Renal Circulation of Dogs with Experimental Neurogenic Hypertension. E. P. Hiatt.—p. 114.
 Blood Pressures of Rats Subjected to Auditory Stimulation. Eleanor H. Yeakel, H. A. Shenkin, A. B. Rothbaler and S. McD. McCann.—p. 118.
 Asystolic Arterial Pressure Gradient as Measure of Local Peripheral Resistance. A. H. Williams and H. A. Schroeder.—p. 132.

Am. J. Roentgenol. & Rad. Therapy, Springfield, Ill.

60:723-878 (Dec.) 1948

- Fifty Years of Radium. Edith H. Quimby.—p. 723.
 Achievement of Radium in Fight Against Cancer. S. Cade.—p. 731.
 Concept of Clinical Use of Radium. A. N. Arneson.—p. 741.
 Effective Dosage Levels in Interstitial Radium Therapy. B. Jolles.—p. 745.
 Treatment of Advanced Cancer Involving Ear. C. L. Martin and J. A. Martin.—p. 750.
 *Malignant Tumors of Cheek in Children: Report of 2 Cases. G. E. Ward and E. R. Shipley.—p. 758.
 Cancer of Lower Lip: Survey of End Results of Treatment; All Cases Treated at Brooklyn Cancer Institute 1930 Through 1944. W. E. Howes and J. Rosenstein.—p. 763.
 Surgical and Radiation Treatment of Cancer of Breast. R. B. Engelstad.—p. 776.
 *Complications Following Use of Low Intensity, Long Radium Element Needles in Treatment of Cancer of Cervix Uteri. G. W. Waterman and E. M. Tracy.—p. 788.
 Postirradiation Ulcerations of Uterine Cervix. H. W. Jacox.—p. 795.
 Treatment of Cancer of Penis at Norwegian Radium Hospital. R. B. Engelstad.—p. 801.
 Carcinoma of Anal Canal: Statistics of Fondation Curie, Paris. J. L. Roux-Berger and A. Ennuver.—p. 807.
 Applications of Artificially Radioactive Isotopes in Therapy. I. Cobalt.—p. 816.
 Cancer Detection Centers: Their Role in Cancer Control. J. R. Andrews.—p. 824.
 Criteria for Reporting End Results. Eleanor J. MacDonald.—p. 832.
 Preparation of Radon Vaseline Ointment. E. L. Harrington.—p. 836.

Malignant Tumors of Cheek in Children.—Ward and Shipley report 1 case of a malignant anaplastic tumor of the right antrum in a Negro girl aged 4, and 1 case of a low grade malignant tumor arising from aberrant salivary tissue in a white female infant aged 8 months. The older child received a large and early course of radium therapy. Nineteen platinum iridium needles, each containing 2 mg. of radium element, were implanted into the tumor and left in place for 157 hours, giving a total dose of 2,993 milligram-hours, or 7 threshold erythema doses. The dose was a necrotizing one and has caused considerable deformity of the eyelid and upper lip, but with one or more plastic procedures a good cosmetic result is to be expected. The patient has had no recurrence and is living a normal life and is doing well in school five years later. The second patient received a relatively small dose of radiation (200 r per day for a total of 1,800 r), but the process continued and caused the death of the child. The favorable result obtained in the first case was due to the localized nature of the tumor, the early use of a large dose of radium and the sensitivity of the tumor to radium. Although salivary tumors of the cheek are rare, the possibility of their occurrence should be recognized and early therapy instituted.

Treatment of Cancer of Cervix Uteri.—Waterman and Tracy treated 489 of 621 patients with carcinoma of the cervix uteri, seen and examined at the tumor clinic of the Rhode Island Hospital during the period 1926 to 1941, with long,

radium element needles. The gross mortality for the 621 patients was 12 (2 per cent) and for the cases treated with radium needles it was 11 (2.2 per cent). All of these deaths were of patients with advanced disease and in anemic, debilitated and often septic states. All occurred before 1938. The fact that there was no immediate mortality from 1937 through 1946 except 1 death from embolism, which occurred on the ninth day, suggests that needles were not responsible for immediate mortality. When radium needles alone were used as the primary treatment in 258 cases, no fistulas occurred in stages I and II, and for all stages the incidence was 3.1 per cent. In 8 (10.4 per cent) of the 77 retreated patients, fistulas developed, showing the increased liability to such damage following retreatment. There seems to be a decided increase in incidence of fistulas when a combination of interstitial needles and external irradiation is used, as in the remaining 231 cases, the incidence rising from 3.1 per cent to 6.1 per cent in the primary group and from 10.4 to 18.5 per cent in the retreated group. Urinary complications other than fistulas occurred in 19 patients (3.8 per cent). Intestinal complications, fistulas not included, occurred in 16 patients (3.3 per cent). Severe inflammatory pelvic reactions occurred in 6 patients (1.2 per cent). The incidence of these complications has not exceeded that reported by other clinics using other methods. In the authors' experience, interstitial irradiation by the long radium element needles has been relatively a safe method because of the wide distribution of these weak sources, by which a more uniform irradiation of high total dosage has been attained.

Am J. Syphilis, Gonorrhea and Ven. Dis., St. Louis
33:1-100 (Jan.) 1949

- *Penicillin Syphilotherapy Administered Prior to Pregnancy: Study of 111 Pregnancies During Which Additional Antisyphilitic Treatment was Withheld. H. A. Tucker.—p. 1.
Therapeutic Efficacy of Penicillin G in Experimental Syphilis Produced by Five Different Strains of *Treponema pallidum*. Ruth A. Boak and C. M. Carpenter.—p. 8.
Results of Nationwide Study of Penicillin in Early Syphilis. (Report of Central Statistical Unit): I. Amorphous Penicillin in Aqueous Solution. Margaret Merrell.—p. 12.
Id.: II. Amorphous Penicillin Versus Crystalline Penicillin G, and Aqueous Penicillin Versus Penicillin-Oil-Beeswax. R. V. Rider.—p. 19.
Observations on Patients with Early Syphilis Treated with Penicillin in Various Vehicles and by Oral Method. A. Cohn, T. Rosenthal and I. Grunstein.—p. 27.
Osteomyelitis of Skull in Early Syphilis: Report of 2 Cases Probably Influenced by Trauma. R. G. Thompson, C. L. Leedham and H. Hailey.—p. 34.
Cardiovascular Syphilis: Summary of Recent Information with Special Reference to Treatment with Penicillin. J. E. Moore.—p. 43.
Extradural Hemorrhage Following Lumbar Puncture: Report of Case. S. Olansky.—p. 56.
Streptomycin Therapy in Case of Sulfonamide-Resistant *Hemophilus ducreyi* (Chancroid) Infection. W. D. Weber, J. H. Williams and T. R. Huffines.—p. 58.
Skin Reaction of Patients to Donovanian Granulomata. C. H. Chen, R. B. Dienst and R. B. Greenblatt.—p. 60.
Streptomycin Therapy of Granuloma Inguinale. J. J. Stewart and W. E. Laur.—p. 65.
Diagnostic Tests in Granuloma Inguinale. H. Packer and A. D. Dulaney.—p. 68.
*Ambulatory Treatment of Granuloma Inguinale with Streptomycin. A. Jacoby, T. Rosenthal and N. Sobel.—p. 76.
Is Gonorrhea Control a Public Health Function? M. R. Kiesselbach.—p. 80.
So-Called Penicillin-Resistant Gonococcal Infections, A Clinical and Laboratory Study. A. Cohn, I. Grunstein, Ruth Goldberg and Jean Crane.—p. 86.

Penicillin Syphilotherapy Prior to Pregnancy.—Tucker feels that it is important to know whether penicillin is required during each pregnancy in women who have received penicillin syphilotherapy. He reports 111 pregnancies during which syphilotherapy was withheld in 88 women treated with penicillin prior to these pregnancies. The original diagnosis in 72 of these patients had been primary and/or secondary syphilis and, in the remainder, early latent or early asymptomatic neurosyphilis. With one exception, all were given aqueous penicillin solution intramuscularly every two or three hours for 7.5 to 15 days and the majority received 3,000,000 units or more. Monthly clinical and serologic examinations were carried out throughout each pregnancy. Thirty mothers of healthy children were seropositive in low and constant titer at the time of

delivery. The only congenitally syphilitic child was one born of an uncooperative, seropositive mother who was not seen during this pregnancy and who was delivered at home. It is concluded that amounts of penicillin in excess of 2,400,000 units, to which the syphilitic pregnant or nonpregnant woman has responded satisfactorily, are sufficient to guarantee healthy offspring in subsequent pregnancies, provided that relapse and/or reinfection do not occur.

Streptomycin in Ambulatory Treatment of Venereal Granuloma.—Jacoby and his associates review observations on 37 patients with venereal granuloma, who were treated in the outpatient clinic with intramuscular injections of streptomycin in either an oil-beeswax mixture or an aqueous solution on each of seven to twelve consecutive days, omitting Sundays. Adequate blood levels were obtained for at least twenty-four hours. The majority of patients showed prompt symptomatic improvement. Two of this group failed to return for final evaluation, and one is still under treatment. Thirty-two of the remaining 34 were eventually cured, 28 of these after primary treatment and 4 after retreatment following relapse. Two are still not cured. Although this number is not sufficient for final conclusions as to value of this therapy, the high percentage of primary cures and retreatment cures after relapse shows a sufficiently favorable trend to indicate that this is a valuable therapeutic measure in granuloma inguinale. Equally favorable results in hospitalized patients reported by other investigators support this conclusion. A daily dose of 3 Gm. of streptomycin for seven to twelve consecutive days injected intramuscularly in ambulatory patients is a satisfactory method of treatment for granuloma inguinale.

American Review of Tuberculosis, New York
58:583-709 (Dec.) 1948

- Pathogenesis of Minimal Pulmonary Tuberculosis: Study of 1,225 Necropsies in Cases of Sudden and Unexpected Death. E. M. Medlar.—p. 583.
Minimal Pulmonary Tuberculosis: Its Significance in Relation to Age of Patient. R. Chang.—p. 612.
Phrenic Nerve Interruption in Treatment of Pulmonary Tuberculosis: Statistical Analysis of Results in 398 Patients at Trudeau Sanatorium from 1925 through November 1947. R. S. Mitchell.—p. 619.
Percentage of Permanent Diaphragmatic Paralysis Following Phrenicotomy. J. T. Hardy Jr., W. H. Bergstrom and R. H. Browning.—p. 646.
Psychologic Concomitants of Pulmonary Tuberculosis. G. W. Albee.—p. 650.
Relationship Between Phagocytic Cells and Human Tubercle Bacilli. H. Bloch.—p. 662.
Effect of Iron on Experimental Tuberculosis. R. G. Bloch, G. Gomori and Marjorie Sperry-Braude.—p. 671.
*Prevention of Primary Tuberculous Infections in Medical Students: Autopsy as Source of Primary Infection. G. M. Meade.—p. 675.
*Tuberculosis Among Philadelphia Foodhandlers. Katharine R. Boucot and M. J. Sokoloff.—p. 684.
"Mycobacterium Tuberculosis No. 607" and Similar Doubtful Tubercle Bacilli: Review. W. C. Tobie.—p. 693.

Tuberculosis in Medical Students.—Meade says that the occurrence of several cases of clinical pulmonary tuberculosis in the student body of the University of Rochester School of Medicine prompted a study to determine the sources of infection. An intensive tuberculin testing program revealed that the majority of primary infections (as evidenced by tuberculin reaction conversions to positive) were occurring during the second academic year. Because contact with tuberculous tissues during the course in pathology seemed to be the most likely source of infection during the second year, all participation in tuberculosis autopsies and handling of tuberculous tissues by second year students were eliminated. Prior to this change of policy the average percentage of positive reactors in each class at the end of the first year was 54.2, and by the end of the second year it was 92. Following this change of policy the average percentage of positive reactors in each class at the end of the first year was 36.4; by the end of the second year it was 38.8, and by the end of the fourth year it was only 51.9. It may be argued that tuberculous infection in physicians is inevitable, that primary infections in young adults are innocuous and self limited and therefore preventive efforts are pointless. While it is true that some of the students who succeed in graduating with negative tuberculin reactions may acquire

infections later on in hospital residency or practice, it seems possible that the chances of this late infection, particularly after the hospital residency period, are less than during the undergraduate period. Studies are now in progress on the students who were tuberculin negative at graduation and who have remained for resident training. In 14 such persons followed for periods up to three years there has been only one conversion. This occurred in a pathology intern. Treatment with BCG might be advisable in exposed persons. Primary infections in young adults are not always innocuous and self limiting. The view is becoming more prevalent that the majority of cases of pulmonary tuberculosis are a direct consequence of late primary infection. If it is possible to avert the occurrence of even a very few such progressive, destructive lesions in young physicians, efforts to prevent primary infection are worth while.

Tuberculosis Among Food Handlers.—According to Boucot and Sokoloff annual physical examination is a requirement for licensure of about 43,000 food handlers in Philadelphia. In January 1947 the Division of Tuberculosis of the Department of Health inaugurated a program of annual chest roentgenograms on all food handlers. All physicians registered to examine food handlers were notified that, after completion of their examination it would be their duty to instruct the food handlers to present themselves to the food handlers' roentgenographic station, where a photofluorogram would be taken without charge. No food handler's certificate is valid unless the date of the chest roentgenogram is officially marked thereon. The authors stress that of 771 food handlers whose survey films were interpreted as tuberculous, subsequent clinical reports were available on 81 per cent after a period of follow-up varying from one to ten months. These reports confirmed the presence of tuberculosis in 76 per cent. Annual roentgenographic chest examinations in Philadelphia food handlers has proved practicable. It has resulted in the recommendation for hospitalization of 66 persons with active tuberculosis. This represents 0.25 per cent of the food handlers examined roentgenographically. Mass radiography is not merely a case-finding technic, but is a powerful method of education for both lay and professional groups.

Archives of Internal Medicine, Chicago

81:605-792 (May) 1948

- Periarteritis Nodosa: Case of Fatal Exfoliative Dermatitis Resulting from "Dilantin Sodium" Sensitization. J. J. Van Wyk and C. R. Hoffmann.—p. 605.
- *Food Protein Consumption in Glomerulonephritis: Effect on Proteinuria and Concentration of Serum Protein. E. C. Persike and T. Addis.—p. 612.
- Complement Fixation Reactions in Psittacosis. D. J. Davis.—p. 623.
- Paroxysmal Cold Hemoglobinurias. R. M. Becker.—p. 630.
- Impairment of Pulmonary Function in Poliomyelitis: Oximetric Studies in Patients with Spinal and Bulbar Types. J. O. Elam, A. Hemingway, G. Gullickson and M. B. Visscher.—p. 649.
- Cirrhosis Following Infectious Hepatitis: Report of Five Cases, in Two of Which There Was Superimposed Primary Liver Cell Carcinoma. W. H. Sheldon and D. F. James.—p. 666.
- *Massive Picrotoxin Therapy in Treatment of Acute Barbiturate Poisoning. E. A. Newman and M. Feldman Jr.—p. 690.
- Allergy: Review of Literature of 1946 and 1947. F. M. Rackemann.—p. 696.
- Gastroenterology: Review of Literature from July 1946 to July 1947 (Concluded). J. B. Kirsner, W. L. Palmer, W. E. Ricketts and others.—p. 746.

Glomerular Nephritis.—Persike and Addis placed 2 male patients, aged 63 and 25, who were in the degenerative stage of glomerular nephritis, excreted large quantities of protein in their urine, had low concentration of serum protein and were edematous, on a diet containing adequate calories and vitamins and a carefully calculated amount of protein for four and three weeks respectively. The protein content of the diets was varied at weekly intervals and ranged from 0.2 Gm. to 2.5 Gm. of protein per kilogram of body weight. When the dietary protein was increased the proteinuria was augmented in both patients. Decreasing the amount of dietary protein resulted in a diminished proteinuria. Raising the protein intake above 0.5 Gm. of protein per kilogram of body weight did not increase the concentration of serum protein. During the week when the food protein consumed by patient 2 was reduced to 0.2 Gm. per kilogram of body weight, an inadequate amount, the con-

centration of serum protein diminished. It appears that the changes in proteinuria which occur when the dietary protein is altered are dependent not only on glomerular permeability and the rate of glomerular filtration, but also on the rate of tubular reabsorption of protein. The increased proteinuria may further tax the protein-reabsorptive ability of the tubule cells; this capacity already having been exceeded. The loss of protein in the urine may place an added burden on the mechanism by which plasma proteins are produced. Patients who have lost renal tissue should eat a minimum but adequate amount of protein, which as a rule should consist of 0.5 Gm. of protein per kilogram of body weight per day, plus an increment equal to that amount of protein lost in the urine.

Barbiturate Poisoning.—Eleven patients with severe barbiturate poisoning Newman and Feldman treated with massive doses of picrotoxin. Amounts ranging from 9 to 45 mg. per dose were given intravenously at fifteen-minute intervals. The total dose of the drug administered was 5,139 mg. in one case and 14,196 mg. in another case, much larger doses than those usually recommended. The amount of picrotoxin given must be varied according to the depth of coma, which can be judged not only by the amount of intoxicant ingested and the time elapsed before treatment is instituted, but also by the patient's response to the previous dose of picrotoxin. Pentamethylene-tetrazol is a valuable aid in the estimation of the depth of coma. There is no toxic dose of picrotoxin until a preconvulsive state is reached. After the patient begins to respond to smaller and smaller doses of picrotoxin with preconvulsive twittings, indicating an awakening of lower brain centers, therapeutic stimulation of the cortex by amphetamine is indicated, since picrotoxin is not primarily a cortical stimulant. Maintenance of fluid balance, constant vigilance in keeping the air passages clear and immediate administration of antibiotic substances to help prevent pulmonary infection are necessary if the analeptic agents are to have a chance to reverse the intoxication. Bronchopneumonia developed in 4 of the patients while they received penicillin; 1 patient had a complicating encapsulated empyema, which responded to local instillations of penicillin into the thoracic cavity. Ten patients recovered and 1 patient died. Treatment should in all cases be continued by placing the patient in the hands of a psychiatrist.

Archives of Pathology, Chicago

46:87-190 (Aug.) 1948

- *Diffuse Angiectasis of Cerebral Meninges of Newborn Infant: Report of Three Cases. Edith L. Potter.—p. 87.
- Specific Gravity of Blood Corpuscle: Its Possible Significance in Atherosclerosis. I. Gordon.—p. 97.
- *Influence of Local Acidification of Tissue Bordering Cancerous Growths with Special Reference to Eosinophil, Paneth Cell and Acidophilic Plasma Cell. C. E. Black and R. S. Ogle.—p. 107.
- Postmortem Examination of Teeth and Supporting Structures to Aid in Personal Identification. M. J. Van Leeuwen.—p. 119.
- Control of Hepatic Coccidiosis of Rabbits with Succinylsulfathiazole U.S.P.: Study of Mode of Action of Sulfonamides. M. Gerunde.—p. 128.
- Significance of Agonal Changes in Human Liver. H. Popper.—p. 132.
- Mechanisms of Leukopenia with Inflammation: Additional Leukopenic Factor Found in Alkaline Exudates. V. Menkin.—p. 145.
- Significance of Beta Granules in Islets of Langerhans of Pancreas. S. S. Barron.—p. 159.
- Nucleic Acids and Cytologic Changes in Regenerating Rat Liver. R. E. Stowell.—p. 164.
- Mitotic Activity in Aortic Lesions of Experimental Cholesterol Atherosclerosis of Rabbits. G. C. McMillan and G. L. Duff.—p. 179.

Meningeal Angiectasis of Newborn.—Potter reports 3 newborn infants with an abnormality of development in the meningeal vessels over the entire surface of the brain. The vessels were similar to those found in localized lesions in older persons which have been described under the name of meningeal angioma. The infants had a generalized involvement of all meningeal vessels, producing a diffuse angiectasis in the cranial meninges. It seems more than coincidence to the author that this abnormality of cerebral vessels has been observed on three occasions in infants who also had abnormalities of cardiac development. Could it be that the heart hypertrophied in order to supply the increased vascular bed in the meninges, or could the hypertrophy of the heart have caused a sufficient increase,

in cardiac output and pressure to be responsible for hyperdevelopment of the meningeal vessels? In either instance one would expect the arterial system to be as involved as the venous, but in all 3 infants the arteries appeared normal. It is interesting to speculate on the symptoms that would have been produced by this great increase in meningeal vessels had the infants survived. The fact that it is not a condition recognized in later life suggests that it may be incompatible with continued existence and that all those affected die in early infancy.

Acidification of Tissue Bordering Cancers.—Black and Ogle present photomicrographs showing eosinophilic cell, Paneth cell and acidophilic plasma cell reactions about carcinoma of the gastrointestinal tract. Local acidification of the tissue was found where these three groups of cells were increased, as indicated by the eosinophilic reaction of the tissue. Carcinoma cells were shown to be fragmenting and disintegrating in these acidophilic areas. It is concluded that local acidification of the tissue is a defensive response of the host. It seems plausible that the eosinophils, the Paneth cells and the acidophilic plasma cells commonly occurring in the small intestine and the appendix could be an important factor in explaining why cancer is so uncommon and tends to grow so slowly and metastasize so late in this region of the gastrointestinal tract. The large numbers of acidophilic cells occurring in the region of the pyloric fold may explain why carcinoma of the pylorus of the stomach seldom extends beyond the pyloric fold into the duodenum.

Bulletin of Johns Hopkins Hospital, Baltimore

84:1-100 (Jan.) 1949

Occurrence of Pleuropneumonia-Like Organisms in Material from Postpartum Uterus; Simplified Methods for Isolation and Staining. Isabelle G. Schaub and J. A. Guilbeau.—p. 1.

*Subungual Hemorrhages and Hyperkeratoses Due to Everon. M. Sullivan.—p. 11.

Recollections of William Stewart Halsted: A Great Surgeon. S. J. Crowe.—p. 15.

Penicillin in Treatment of Early Syphilis Complicating Hemophilia: Report of Case Treated with 48 Million Units of Oral Penicillin G. Minerva S. Buerk and H. A. Tucker.—p. 24.

Studies on Proteolytic Enzyme in Human Plasma: IV. Rate of Lysis of Plasma Clots in Normal and Diseased Individuals, with Particular Reference to Hepatic Disease. O. D. Ratnoff.—p. 29.

*Some Manifestations of Reflex Activity in Spinal Man with Particular Reference to Occurrence of Extensor Spasm. R. A. Kuhn and M. B. Macht.—p. 43.

Physiologic Studies in Congenital Heart Disease: VII. Pulmonary Arterial Hypertension in Congenital Heart Disease. H. E. Griswold, R. J. Bing, J. C. Handelsman and others.—p. 76.

Subungual Hemorrhages and Hyperkeratoses.—Sullivan says that at the 1948 meeting of the American Dermatological Association several members from different sections of the United States reported a new entity affecting the finger nails. It is caused by the application of cosmetic preparations which are applied to the surface of the nail prior to the application of the lacquer to insure the adherence of the lacquer. Sullivan reports the case of a woman, aged 42, who, after the first application of a base coat under the regular polish, experienced a painful sensation under one finger nail. A week later another application of the base coat and nail polish was made, and that night and for several days thereafter she experienced increasing pain. When she removed the nail polish she noted a purple-brown discoloration under all of the nails. A lighter brown material had accumulated above the discolored area, beneath the nail. This material grew upward and pushed itself above the edge of the nail. Several physicians regarded the disorder as onychomycosis. Many scrapings of the material beneath the nails and cultures on Sabouraud's medium failed to support the diagnosis, and treatment for fungus infection of the nails was ineffective. She consulted the author nine weeks after the onset. He obtained no reaction to patch tests from the nail polish, but there were positive reactions to the used base coat, as well as to three other brands of base coats and to the rubber solution that is one of the ingredients of the base coats. The patient was advised to avoid further application of the base coat. Application of compresses of boric acid solutions under finger cots for one hour resulted in softening and maceration of the hyperkeratotic material, making it possible to cut away a small

amount of the protruding hyperkeratosis and to trim the nails. With this simple treatment there was symptomatic relief, and in five weeks the brown bands had grown upward and the hyperkeratotic material had been appreciably reduced. It is probable that the nail bases, when applied, are not confined precisely to the outside of the nail and that small quantities of the liquid spill behind the nail and gain access to the under surface. The author believes that if the condition remains unrecognized the patient is likely to continue the use of the nail base in an effort to cover up the unsightly appearance of the nails and thus further aggravate the condition. When the condition is severe, there is often excruciating pain, and surgical removal of the nails may become necessary.

Reflex Activity in Spinal Man.—Kuhn and Macht say that long survival when there has been complete severance of the cord has been rare until the recent world conflict with its large number of casualties from high velocity missiles. They studied the involuntary activity patterns of skeletal muscles innervated below the level of lesion in 27 verified cases of complete spinal cord transection. Observations were made on men who had survived for twenty-four to forty-two months. The levels of transection ranged from the second through the twelfth dorsal vertebra. During the periods of observation 2 patients exhibited flexor spasms alone; 2 showed approximately equal flexor and extensor spasms, and 18 displayed predominant extensor spasms. Five patients were completely flaccid below the level of the lesion. The most typical progression of reflex activity following spinal cord transection in this series of patients was: spinal shock, minimal reflex activity, flexor spasms, alternating flexor and extensor spasms and predominant extensor spasms. The length of time that different subjects remain in a given stage varies considerably. In general, stage 1 lasts for one to six weeks; stages 2 and 3, six weeks to one year; stage 4 rarely begins prior to four months after injury, and usually is terminated within one year, and stage 5 may appear as early as six months after the injury and may continue indefinitely. Extensor thrust is not common, but can be elicited occasionally in spinal man. "Spinal standing," similar to that seen in animals with transected cords, can occur in spinal man. Sustained patellar and ankle clonus frequently occurs in chronic spinal man. Primary extensor manifestations in chronic spinal man probably represent the reappearance of primitive and poorly integrated postural activity mediated by the isolated cord, the functional capacity of which seems greater than has been assumed. Although spinal man passes through a period in which flexion reflexes alone are active, he may frequently progress to a stage of activity characterized by predominantly extensor reflexes, amounting in many cases to extensor spasm. It is probable that many of the discrepancies between these observations and those of earlier investigators can be explained by the increased duration of life and, secondarily, by the better physical conditions of present day spinal men.

Canadian Medical Association Journal, Montreal

59:505-608 (Dec.) 1948. Partial Index

Old Age from Psychiatric Viewpoint. A. B. Stokes.—p. 518.

Lupus Vulgaris and Vitamin D₂. E. Gaumond.—p. 522.

*Treatment of Pneumococcal Meningitis. J. Kershman and E. Peterson.—p. 527.

*Prevention and Treatment of Postoperative Pulmonary Complications by Bronchial Aspiration. R. Orange.—p. 531.

Intravenous Procain—Clinical Applications. R. A. Gordon.—p. 534.

Changing Status of Industrial Medicine. W. H. Cruickshank.—p. 536.

Significance and Management of Fibromyomata Complicating Pregnancy. A. E. Trites.—p. 539.

Medical Problems in Fitting Modern Hearing Aids. W. J. Pothoven.—p. 544.

Community Psychiatric Developments in Saskatchewan. D. G. McKerracher.—p. 546.

Pancreatic Pseudocyst. L. P. Mousseau and S. Kling.—p. 550.

Polystotic Fibrous Dysplasia of Bone. H. Brook.—p. 555.

Anesthesia for Obstetrics. A. MacMillan.—p. 557.

Standardization of Lewis Method of Venous Pressure Determination. P. Allen.—p. 560.

Treatment of Pneumococcal Meningitis.—Kershman and Peterson report 12 cases of pneumococcal meningitis treated during the last eighteen months at two Montreal hospitals. The ages of the patients ranged from 2 months to 73 years. Sulfonamide drugs and penicillin were employed in all patients.

In 9 patients sulfadiazine was given in a dosage of 2 Gm. initially and 1 Gm. thereafter every four hours. In 4 instances, soluble sulfadiazine or sulfathiazole was given intravenously or intramuscularly because the patients were not able to take oral therapy. The intramuscular dosage of penicillin varied from 5,000 to 100,000 units every three hours, the average dose being 30,000 units. In 9 of the 12 patients penicillin was also given intrathecally, and in 1 instance intraventricularly. The 1 death that occurred in this series was in a 73 year old man, who was improving clinically from his meningitis but died of bronchial obstruction caused by the aspiration of mucus and sanguineous discharge which accumulated immediately after a simple mastoidectomy and endonasal antrotomy. In 1 patient transverse myelitis developed after the intrathecal injection of penicillin. This patient also suffered intellectual deterioration, presumably the result of cerebral damage arising from his infection. The authors feel that a successful outcome in the treatment of his condition depends on the intrathecal as well as intramuscular use of penicillin and especially on early and radical treatment of the underlying focus of infection. The latter is usually found in the sinuses and mastoids.

Bronchial Aspiration.—According to Orange the most common postoperative pulmonary complication is atelectasis. This may occur as a massive lobar or lobular collapse, the latter resembling bronchopneumonia in the roentgenogram. The cause of postoperative atelectasis is usually some mechanical obstruction, such as the plugging of one or more bronchi by inflammatory exudate, thick tenacious purulent material, foreign bodies, blood, mucus, tumor or vomitus. The most critical time for the development of atelectasis is the first twelve hours postoperatively. Hypoventilation from intercostal paralysis, change in diaphragmatic action and postoperative muscle splinting due to pain, and respiratory depression due to excessive sedation are factors in its development. Chronic atelectasis may lead to lung abscess, bronchiectasis or suppurative pneumonitis. The anesthetist-bronchoscopist can prevent postoperative pulmonary complications by establishing adequate pulmonary ventilation and endobronchial drainage. Aspirated foreign material in the tracheobronchial tree should be removed bronchoscopically while the patient is still anesthetized and oxygen used liberally postoperatively. Early bronchoscopic aspiration of the postoperative atelectatic lung will usually be rewarded by a dramatic result. Posteroanterior and lateral roentgenograms, taken in suspected cases in which there may be only a slight rise in temperature, may show small areas of atelectasis which, without spontaneous cure in a few hours, should be subject to aspiration bronchoscopy. Temperature, pulse and respiration drop rapidly to normal levels soon after the bronchial tree is clear of secretions and the lung properly aerated.

Cincinnati Journal of Medicine

30:1-58 (Jan.) 1949

Treatment of Diabetes Mellitus: The Controversy of the Past Decade. E. Tolstoi.—p. 1.

Acute Nephritis in Childhood. Katharine Dodd.—p. 8.

*Simulation of Multiple Sclerosis and Other Degenerative Diseases of Spinal Cord by Herniation of Cervical Intervertebral Disks. P. C. Bucy.—p. 16.

Simulation of Multiple Sclerosis by Herniation of Cervical Disks.—Bucy points out that the degenerative diseases of the spinal cord, such as multiple sclerosis, primary lateral sclerosis and amyotrophic lateral sclerosis, are progressively disabling diseases for which there is no known treatment. It is of the greatest importance, therefore, to recognize other conditions with similar symptoms which can be relieved by appropriate treatment. Median herniation of a cervical intervertebral disk is such a condition. It is not a common occurrence and presumably it is generally due to injury of the cervical portion of the spine. In some cases there have been well authenticated injuries such as striking the head on the bottom or side of a swimming pool in diving, automobile accidents; falls on the head, neck and shoulder, etc. In many cases no specific injury or accident can be determined. The median herniations are usually found between the fifth and sixth or the sixth and seventh cervical vertebrae. They are of two types: those which lie in the midline and give rise to a

symmetric disturbance which is largely confined to the lower extremities and those lying a short distance lateral to the midline and compressing one side of the spinal cord. The second, less common, type gives rise to the neurologic picture known as the Brown-Sequard syndrome. The outstanding symptoms of a central herniation of a cervical intervertebral disk are muscular spasticity in the lower extremities and disturbance of equilibrium. The spasticity is out of all proportion to the muscular weakness. Patients presenting a typical picture of multiple sclerosis with relapses and remissions, multiple areas of involvement in the central nervous system, attacks of retrobulbar neuritis, diplopia and scanning speech present no diagnostic problem, but in patients with a spastic paraplegia and a disturbance of gait, with little or no involvement of the upper extremities and no abnormalities in the domain of the cranial nerves, median herniation of a cervical intervertebral disk should be considered. With these herniations conservative treatment is worse than useless. Only prompt removal is effective. Delay only aggravates the condition and may so damage the spinal cord that removal at a later date is ineffective.

Delaware State Medical Journal, Wilmington

21:1-23 (Jan.) 1949

Blood Transfusions and Transfusion Reactions. W. W. Moore and J. W. Howard.—p. 1.

Needle Biopsy of Liver: A Preliminary Report. A. J. Morris Jr. and J. K. Harvey.—p. 6.

*Problem of Squint in Children. D. G. Durham.—p. 12.

Post-Anesthesia Room. R. D. Sanders, J. J. Graff, J. P. Aikins and Jean B. Cooling.—p. 14.

Squint in Children.—Durham points out that frequently a mother consulting the ophthalmologist for the treatment of a squint in an older child will remark that the visit was delayed because the family physician assured her that the child would outgrow the deformity. Such advice is not compatible with present day teachings. From the psychologic standpoint alone, early correction of a squint is indicated, if possible, before the age of 4 to 5 years. Correct refraction with cycloplegia is the first requisite. Retinoscopy will often reveal a high hyperopia, or farsightedness, and the wearing of glasses will often reduce the deviation or relieve it. If there is subnormal vision in the squinting eye, glasses alone will not restore it, but occluding the better eye and thus forcing the use of the poorer eye, will be helpful. Occlusion, to be effective, must be total and continuous for weeks at a time. When vision of better than 20/70 is obtained in the squinting eye, orthoptic treatment may be commenced. Orthoptics is the functional part of the cure for squint, aimed at teaching fusion or the binocular use of the eyes. If the squint is of low degree, it is possible that with the adequate development of fusion, surgery can be avoided. However, even if fusion is obtainable in a squint of high degree, surgery will still be necessary to approximate ocular parallelism. Surgery is only used to obtain parallel visual axes. The surgical procedure has no effect on the visual acuity or the binocular coordination of the eyes.

Diseases of Chest, Chicago

15:1-124 (Jan.) 1949. Partial Index

Postmortem Pneumothorax. D. Salkin.—p. 1.

Pathogenesis of Primary Atypical Pneumonia. R. L. Fruin.—p. 24.

Significance of Pleural Effusions as Indicating Presence of Abdominal Disease. A. H. Aaron and L. J. Leahy.—p. 30.

Pneumoperitoneum and Phrenicgia in Treatment of Pulmonary Tuberculosis: Therapeutic Observations in 550 White and Negro Cases. R. E. Moyer.—p. 43.

Differential Diagnosis and Treatment of Congenital Cystic Malformation of Lung. W. E. Adams.—p. 60.

*Pulmonary Embolism: Precipitating Factor of Acute Coronary Insufficiency. S. Dack, J. Stone, D. H. Paley and A. M. Master.—p. 72.

Diagnosis and Treatment of Acute Laryngotracheobronchitis. G. B. Logan.—p. 85.

Bronchography. D. Carr, E. F. Skinner, W. E. Denman and C. R. Kessler.—p. 92.

Cavity Closure Following Discontinuation of Ineffective Pneumothorax. W. J. Habeeb.—p. 97.

Pulmonary Embolism and Coronary Insufficiency.—According to Dack and his co-workers cardiac involvement following pulmonary embolism has been so commonly attributed to acute cor pulmonale that the fact that the left ventricle

may be affected as often as the right ventricle has been overlooked. They describe clinical and pathologic studies on 40 fatal cases of massive pulmonary embolism in which electrocardiograms were recorded following the embolism. They believe that acute coronary insufficiency plays as large a part as does *cor pulmonale* in the cardiac sequelae of embolism. Electrocardiographic changes attributable to coronary insufficiency occurred more often than the classical *cor pulmonale* pattern. They were more common in older patients with antecedent coronary sclerosis and cardiac enlargement, whereas the classical *cor pulmonale* pattern occurred most often in patients with normal coronary arteries and heart size. Focal subendocardial infarction of the left ventricle, in the absence of acute coronary occlusion, was found post mortem in 9 cases. This resulted from coronary insufficiency precipitated by the pulmonary embolism in patients with antecedent coronary disease and cardiac hypertrophy who had sustained recurrent emboli. The precipitating factors of coronary insufficiency following pulmonary embolism were anoxemia, shock, right ventricular strain and reflex coronary vasoconstriction. Of these, shock associated with diminished cardiac output and coronary blood flow was considered the most important. The authors conclude that acute coronary insufficiency may be the predominant factor underlying the electrocardiographic changes and myocardial involvement in pulmonary embolism, even when right ventricular strain exists.

Georgia Medical Association Journal, Atlanta

38:1-44 (Jan.) 1949

*Brachial Neuritis Due to Cervical Intervertebral Disk Lesions. E. Walker.—p. 1.

*Head Enlargement in Infants. C. E. Dowman.—p. 4.

Facial Palsies. W. A. Smith.—p. 8.

Maternity Services in Rural Areas. G. V. Rice.—p. 15.

Hematologic Problems and Their Management. J. C. Norris.—p. 17.

Cancer News. J. C. Norris.—p. 29.

Brachial Neuritis.—According to Walker rupture or herniation of a cervical intervertebral disk is the usual cause of pain which extends from the lower cervical portion of the spine into the upper extremity. The clinical picture is that of so-called brachial neuritis with pain involving one of the lower cervical nerve roots. The patient usually complains of pain over the suprascapular region, often radiating into the shoulder region and distally down the arm. If the nerve root is sufficiently damaged, there may be reflex or sensory changes, and these neurologic findings will be of considerable importance in determining which nerve root is involved and which disk is ruptured. Roentgen studies of the cervical part of the spine will aid in the diagnosis. In most cases the pain subsides spontaneously within a few days of conservative treatment consisting of rest and immobilization. Symptomatic therapy is given for the relief of pain. In the more persistent cases a cervical brace or even head traction may be useful. When the pain is severe and persists, surgical decompression of the nerve root is the treatment of choice.

Head Enlargement in Infants.—Dowman reports 1 case of internal hydrocephalus in a girl first seen at 19 days of age and followed up to 2 years of age; 1 case of communicating hydrocephalus in a boy seen first at 5 months of age and followed up to 26 months of age; 1 case of papilloma of the choroid plexus in an infant 1 month old who died three months after the removal of the tumor at the age of 4 months, and 1 case of meningomyelocele and bilateral subdural hematoma in a girl aged 2 days, with hematoma membranes removed at the age of 43 and 60 days, respectively. Routine maximum head measurements by means of a steel tape measure and comparison with a chart showing normal figures for girls and boys in the first year are recommended so that cases of head enlargement may be recognized early. Choroid excision offers the only hope for hydrocephalic patients, but the results are not dramatic. Subdural hematomas should be suspected in children with head enlargement who look intelligent, while the usual hydrocephalic patient does not look bright. Results of removal of the hematoma are rather favorable. Fontanel puncture offers considerable aid in the diagnosis of the nature of the head enlargement.

Illinois Medical Journal, Chicago

95:1-64 (Jan.) 1949

- Vaginal Hysterectomy. R. A. Reis and E. J. DeCosta.—p. 15.
Surgical Treatment of Irradiation Injuries. M. L. Mason.—p. 20.
Treatment of Infection of Frontal Sinuses and Its Complications. M. F. Arbuckle.—p. 27.
Fluorine and Dental Caries. H. T. Dean.—p. 33.
Relation of Ascorbic Acid to Chronic Arthritis. E. F. Traut and F. L. Matousck.—p. 38.
Recent Advances in Surgical Treatment of Congenital Lesions of Heart and Great Vessels. W. E. Adams.—p. 40.
Frequency of Urination in Women. L. W. Riba.—p. 44.
*Fatal Menorrhagia in Thrombocytopenic Purpura: Report of 2 Cases and Brief Review of Literature. F. J. Walsh and J. J. Donlon.—p. 48.

Fatal Menorrhagia in Thrombopenic Purpura.—Walsh and Donlon report 2 cases of fatal menorrhagia, both in young women aged 18. In the first patient the postmortem anatomic diagnosis was primary thrombopenic purpura. In the second patient the anatomic diagnosis on postmortem examination was secondary thrombopenic purpura, septicopyemia with milary abscesses in the kidney, serous pericarditis, cloudy swelling of the myocardium, bilateral fibrocystic disease of the ovaries and hemorrhagic cystitis. The authors emphasize that it is erroneous to consider all cases of menorrhagia, especially in the younger age groups, as due to complications of pregnancy, endocrine disturbances and pathologic changes in the uterus. Thrombocyte counts in these conditions should be as routine as red and white blood cell counts. Menorrhagia associated with blood dyscrasias is not as rare as might be suspected and is to be included in the differential diagnosis of menorrhagia. The choice of therapy is determined by hematologic and laboratory findings. The use of vitamin P is worthy of consideration. Splenectomy is indicated if megakaryocytes are present.

Journal of Immunology, Baltimore

60:443-614 (Dec.) 1948

- Studies on Infection with *Brucella Abortus* Variants. W. Braun and S. Hauge.—p. 443.
Infection of Guinea Pigs with Massive Doses of Rickettsiae of Epidemic and Murine Typhus. F. Perez Gallardo and J. P. Fox.—p. 455.
Study of *Shigella* Isolated in India and Burma, with Special Reference to Two Previously Undescribed Sero-Types. C. D. Cox and G. I. Wallace.—p. 465.
Experimental Production of Antibodies to Staphylococagulase. M. Tager and H. B. Hales.—p. 475.
Effect of Incubation at 37°C on Neutralization Test with Various Encephalitis Viruses Including Lansing Strains of Poliomyelitis Virus. P. K. Olitsky and J. Casals.—p. 487.
Effect of Streptothricin on Systemic Infection with *Cryptococcus neoformans* in Mice. M. Solotorovsky and E. J. Bugie.—p. 497.
Comparison of Antigenicity and Certain Biologic Characteristics of 6 Substrains of Pasteur Fixed Rabies Virus. J. T. Wright and K. Habel.—p. 503.
Further Studies on Oncolysis and Tumor Immunity in Rats. M. R. Lewis, H. D. King, P. M. Aptekman and Florence B. Seibert.—p. 517.
Antigenic Studies of a Sucrose-Fermenting Bacterium. P. R. Edwards, A. B. Moran and D. W. Bruner.—p. 529.
Studies on Chick Embryo Adapted Rabies Virus. H. Koprowski and H. R. Cox.—p. 533.
Individual Specificity of Human Serum. H. P. Goldberg and P. F. de Gara.—p. 555.
Salmonella Atlanta, a New Member of Salmonella G Group. I. Saphra and E. Seligmann.—p. 557.
Purification, pH Stability and Culture of the Mumps Virus. M. L. Weil, D. Beard, D. G. Sharp and J. W. Beard.—p. 561.
Antibody Response in Monkeys Following Oral Administration of Poliomyelitis Virus. H. von Magnus and J. L. Melnick.—p. 583.
Blood Groups and Subgroups of Newborn. L. M. Engasser and E. Witebsky.—p. 597.

Journal of International College of Surgeons, Chicago

12:1-102 (Jan.-Feb.) 1949

- Neurinomas of Gastrointestinal Tract. J. Cedemark.—p. 5.
Diazene as an Adjunct in the Treatment of Tuberculosis of Bones and Joints in Children. L. M. Cattell Jr.—p. 12.
*Prevention of Amputation Neuroma. S. Teneff.—p. 16.
Arthrogyposis. A. Steindler.—p. 21.
Repair of Femoral Hernia: New Procedure. A. Kufdakis.—p. 26.
Surgical Principles in Treatment of Pilonidal Cysts and Sinuses. M. L. Parker, G. J. Menaker and D. M. Miller.—p. 30.
Tuberculosis of Bones and Joints. C. A. Ryan.—p. 36.
Total Necrosis of Ectopic Spleen Following Chronic Torsion of Spleenic Pedicle. A. Kronitris and P. C. Coulouris.—p. 45.
Surgical Lessons of World War II. M. Weintrob.—p. 50.
Painless Childbirth: Obstetric Spinal Anesthesia. Technique of Parmley-Adriani. R. Amador Fernández and S. Varela.—p. 78.

Prevention of Amputation Neuroma.—Teneff believes that the implantation of an amputated nerve into muscles has solved the problem of amputation neuroma. Proliferation of the neurofibrils of the severed nerves takes place in tissue which

is the same or similar to that in which the nerve endings of the amputated nerve were normally situated. It is of the greatest importance that the proliferating neurofibrils be able to proceed without interference or reactive proliferation of intermuscular connective tissue, which remains indifferent to their passage, from the sectioned surface of the nerve to the point where they take up solid connections with the muscle fibers. This method has been used in six amputations at the lower third of the thigh or the mid thigh. The sciatic nerve was implanted into an adjacent muscle, usually the biceps femoris. During the immediate postoperative period and in control examinations six to eight months after amputation, the stumps were painless and the sensation of the presence of the amputated limb was slight. In 1 case in which a thigh stump was painful the neuroma was resected and the severed nerve stump implanted into a nearby muscle, with complete recovery. Since according to most statistics painful stumps occur in more than one third of the amputations, it would seem reasonable to give this method a trial.

Journal of Lab. and Clinical Medicine, St. Louis

33:1503-1686 (Dec.) 1948

- Parenteral Nutrition: VII. Metabolic Studies on Puppies Infused with Fat Emulsions. G. V. Mann, R. P. Geyer, D. M. Watkin and others.—p. 1503.
- Electrophoretic Analysis of Serum Proteins of Blood Dyscrasias. R. K. Brown, J. T. Read, B. K. Wiseman and W. G. France.—p. 1523.
- Electrolyte Partition in Patients with Edema of Various Origins: Qualitative and Quantitative Definition of Cations and Anions in Cardiac Decompensation. Edith B. Farnsworth and J. S. Krakus.—p. 1534.
- Efficacy and Safety of Glycine Administered by Vein. G. E. Collentine Jr.—p. 1555.
- Determination of Antibody Content of Lymphoid Cell Extracts. Frances Spear.—p. 1563.
- Effect of Nitrogen Mustard and X Irradiation on Blood Coagulation. L. O. Jacobson, Edna K. Marks, Evelyn Gaston and others.—p. 1566.
- Use of Plasmodium Vivax Preserved by Freezing in Inducing Malaria. G. M. Saunders, D. W. Talmage and V. Scott.—p. 1579.
- *Sputum Cell Study for Pulmonary Carcinoma as Routine Laboratory Test. B. A. Shatz, M. Bergmann and S. H. Gray.—p. 1588.

Sputum Cell Study for Pulmonary Carcinoma.—Shatz and his co-workers feel that examination of the sputum for neoplastic cells should be a routine procedure. They analyzed a group of 40 consecutive cases of proved carcinoma of the lung in which sputum examination were done. In 29 of the 40 cases the sputum contained obviously malignant cells. The authors outline the technic of preparing sputum slides, describe and illustrate the cellular elements encountered and set forth the characteristics of the obviously malignant cells. Since hyperchromasia is an important characteristic of malignant cells, overstaining with hematoxylin must be avoided, for it would make it impossible to appreciate the hyperchromasia of malignant cells that might be present. Another possible source of error may be the presence of degenerating normal cells. In chronic infectious diseases the normal bronchial epithelium may undergo squamous metaplasia. Fragments of the metaplastic epithelium are frequently exfoliated into the sputum and may resemble bits of well differentiated squamous carcinoma. However, these cells are arranged in an orderly fashion, have a definite polarity and usually do not contain visible nucleoli. There may be a temptation to make a positive diagnosis on the basis of one or two single cells which have all the characteristics of malignancy. It is wise in such instances to withhold the diagnosis until further specimens can be examined. When positive diagnoses are restricted to comparatively obvious cells the danger of false positive diagnoses is reduced.

Journal of Nat. Cancer Institute, Washington, D. C.

9:129-260 (Dec.) 1948. Partial Index

- Mucolytic Enzyme Systems: III. Inhibition of Hyaluronidase by Serum in Human Cancer. E. Y. Hakanson and D. Glick.—p. 129.
- Quantitative Histologic Analysis of Effect of Chronic Whole-Body Irradiation with Gamma Rays on Spermatogenic Elements and Interstitial Tissue of Testes of Mice. A. B. Eschenbrenner, Eliza Miller and E. Lorenz.—p. 133.
- Distribution of N-Acetyl-2-Aminofluorene in Rat Following Single Feeding. H. P. Morris and B. B. Westfall.—p. 149.
- Carbonic Anhydrase Content of Normal and Neoplastic Tissues. B. Shacter and M. B. Shimkin.—p. 155.
- Infiltrating Adenomatous Lesion of Colon of Rats Ingesting Motor Lubricating Oil. C. C. Lushbaugh and Adeline Hackett.—p. 159.
- Tumors of Alimentary Tract in Mice Fed Carcinogenic Hydrocarbons in Mineral-Oil Emulsions. E. Lorenz and H. L. Stewart.—p. 173.

Journal Pharmacology & Exper. Therap., Baltimore

94:339-480 (Dec.) 1948. Partial Index

- Adrenergic Blocking Drugs: II. Antagonism of Histamine and Epinephrine with N-(2-Haloalkyl)-1-Naphthalene-Methylamine Derivatives. E. R. Loew and Audrey Micetich.—p. 339.
- Id.: III. Effects of Two Halogenated Ethylamines on Pressor Responses to Epinephrine, Nicotine and Adrenergic Nervous Reflexes. C. A. Stone and E. R. Loew.—p. 350.
- Fate of Procaine in Man Following Its Intravenous Administration and Methods for Estimation of Procaine and Diethylaminoethanol. B. B. Brodie, P. A. Lief and R. Poet.—p. 359.
- Antagonism of Rutin to Capillary Effects of Sodium Bisulfite and Procaine. R. K. Richards and K. E. Kueter.—p. 372.
- Bromal Hydrate and Chloral Hydrate: Pharmacologic Contrast and Its Chemical Basis. T. C. Butler.—p. 401.
- Comparative Actions of Certain Compounds Like Alpha-Fagarine. G. A. Alles and C. H. Ellis.—p. 416.
- Pharmacological Activity of 1-Phenyl-2-Butylamine. D. F. Marsh.—p. 426.
- Studies on Toxicity, Distribution and Excretion of Emetine. A. I. Gimble, C. Davison and P. K. Smith.—p. 431.
- Experimental Heart Failure Caused by Central Nervous System Depressants and Local Anesthetics. A. Wollenberger and O. Krayer.—p. 439.
- Action of Narcotics and Local Anesthetics on Respiration of Heart Muscle. A. Wollenberger.—p. 444.
- Investigation of Nature and Extent of Binding of Oxophenarsine (Mapharsen) by Red Blood Cell of Rabbit in Vitro. L. D. Fink and H. N. Wright.—p. 455.

Journal of Venereal Disease Information, Wash., D. C.

30:1-34 (Jan.) 1949

- Results of Therapy by Race, Sex, and Stage of Syphilis. T. J. Bauer and Eleanor V. Price.—p. 1.
- *Asexual Syphilis in Children. H. Eisenberg, F. Plotke and Amelia H. Baker.—p. 7.
- Comparative Studies on Mailed Spinal Fluid Specimens. G. R. Cannefax, G. E. Parkhurst and R. W. Bowman.—p. 11.
- Integration of Public Health Nursing into a Marine Hospital. J. A. Trautman and Rosalie Giacomo.—p. 15.
- Problems in Out-Patient Management of Syphilis in the South. J. A. Lewis Jr.—p. 19.

Asexual Syphilis in Children.—The Municipal Social Hygiene Clinic of the Venereal Disease Control Program, Chicago Health Department, reports 20 cases of asexually acquired syphilis in children under 10 years of age during 1947. In this group there were 16 female and 4 male children. The average age was below 5 years; 4 children were siblings from two different families. In all cases one member of the household or family in a close relationship with the child had been given a diagnosis of secondary syphilis. None of the 20 infected children showed a primary lesion on examination in the clinic; in 15 children the first dark field examination was positive in results, while all 20 had positive serologic reactions. Overcrowded home conditions and lack of education in hygienic matters appear to be conducive to acquiring syphilis asexually. Education of the patient by the clinician and the epidemiologist should reduce this type of infection.

Michigan State Medical Society Journal, Lansing

47:1337-1410 (Dec.) 1948

- Rheumatic Fever and the School Child. G. M. Wheatley.—p. 1337.
- Diagnostic Aids in Rheumatic Fever. C. A. R. Connor.—p. 1339.
- Report of Committee for Evaluation of Anticoagulants in Treatment of Coronary Thrombosis with Myocardial Infarction. American Heart Association. I. S. Wright, C. D. Marple and Dorothy Fahs Beck.—p. 1341.
- Medical Diagnosis of Congenital Anomalous Heart. S. Rosenzweig.—p. 1347.
- Large Pancreatic Cyst: Case Report, General Discussion and Review of Literature. S. B. Winslow.—p. 1351.
- *Cervical Sympathetic and Stellate Ganglion Block in Apoplexy: Preliminary Note on Indications and Techniques. A. Blain III.—p. 1356.
- Incidental Appendectomies. H. L. Tieche.—p. 1359.
- Chronic Urethritis in Women. D. K. Hibbs.—p. 1362.
- Emergency Eye Care in General Practice. F. B. Fralick.—p. 1365.
- Diagnosis of Early Uterine Cancer. H. M. Nelson.—p. 1369.
- Climacteric and Its Management. H. H. Cummings.—p. 1373.
- Problems of General Practitioner in Rural Areas. J. S. DeTar.—p. 1376.
- Practical Considerations About Endometriosis. R. L. Haas.—p. 1377.

Cervical Sympathetic Block in Apoplexy.—Blain discusses the rationale for interrupting sympathetic impulses to the region of the brain involved in a vascular accident. In patients with acute apoplexy, lumbar puncture is performed immediately after admission. If the spinal fluid is bloody and under increased pressure, the diagnosis is assumed to be cerebral hemorrhage. Sudden onset of symptoms, greatly elevated blood pressure, increased white cell count, stiff neck and deepening coma are further signs of hemorrhage. In this type of patient,

cervical sympathetic or stellate ganglion block has not yet been employed. If the spinal fluid is clear with elevated pressure, if the coma is not deep and not progressive and the hypertension moderate, the presumptive diagnosis is cerebral thrombosis and the patient is referred to the surgical department for cervical sympathetic block. The results of sympathetic block in cases of long duration are not as favorable as in acute cases of cerebral thrombosis. About half of the 10 patients with disease of long duration treated by the author derived no benefit from this treatment. The technic of cervical sympathetic block can be mastered by any physician, if certain precautions are kept in mind. It is safer and easier and just as effective in apoplexy as is block of the stellate ganglion. General measures in the treatment of acute apoplexy, such as administration of oxygen and catheterization of the urinary bladder, should not be neglected.

Military Surgeon, Washington, D. C.

104:1-78 (Jan.) 1949. Partial Index

- *Critical Analysis of Syndrome of Acute Total Body Radiation Illness, Its Role in Atomic Warfare and Its Influence on Future Practice of Military Medicine. E. P. Cronkite and W. H. Chapman.—p. 7.
Therapeutic Engineering in Military Medicine. A. E. MacNeill.—p. 30.
Preventive Medicine in Military and Civilian Practice. J. E. Gordon.—p. 38.

Acute Total Body Radiation Illness.—Cronkite and Chapman analyze the importance of total body radiation illness in relation to atomic bombing and describe the clinical aspects of this disease on the basis of the Japanese experiences at Hiroshima and Nagasaki and of experimental data. They discuss the pathogenesis primarily from the standpoint of the initial injury of sensitive cellular systems, and the possible presence and influence of circulating toxins from injured tissues and the bowel. The authors feel that the stockpiling of therapeutic agents other than the antibiotics cannot be advised at the present time, but plans should be formulated by each geographic area for the decentralized operation of blood banks and blood transfusion services. In order to improve our understanding of this illness, it is necessary to investigate various factors such as the influence of diet and environmental factors on survival after exposure to doses in the lethal range; the relationship of the adaptation syndrome and the pituitary-adrenocortical mechanism to radiation illness, and the role of autosensitization and anaphylactoid phenomena in radiation illness. The development of an easily read dosimeter is desirable.

Missouri State Medical Assn. Journal, St. Louis

46:1-72 (Jan.) 1949

Child Health Services in Missouri. Report of American Academy of Pediatrics' Study of Child Health Services in Missouri.—p. 17.

46:73-156 (Feb.) 1949

- Allergy Problems. H. J. Rinkel.—p. 91.
Coronary Heart Disease. A. M. Estes.—p. 99.
Pitressin Test: Usefulness in Differential Diagnosis of Chest Pains. M. Bernreiter.—p. 102.
Roentgen Therapy: Present Concept. D. S. Dann.—p. 108.

Nebraska State Medical Journal, Lincoln

34:1-40 (Jan.) 1949

- Management of Prolonged Labor. R. E. Campbell.—p. 5.
Hypertension and Unilateral Renal Disease. N. W. Barker.—p. 9.
Care of Newborn Baby of Diabetic Mother. J. E. Gonc Jr.—p. 12.
Value of Electrocardiograph in General Practice. F. W. Niehaus.—p. 15.
*Use of Aminophylline in Primary Dysmenorrhea. H. E. Anderson and A. R. McIntyre.—p. 17.
Amebiasis: Surgical Considerations in Cases Occurring Among Ex-Servicemen. W. P. Kleitsch and L. D. Cherry.—p. 20.
Therapeutic Utilization of Physiologic Reserves. D. P. Ward.—p. 27.
Vasomotor Syndromes and Arthritis in Upper Extremity. E. L. Persons.—p. 30.

Aminophylline in Primary Dysmenorrhea.—According to Anderson and McIntyre primary dysmenorrhea is characterized by pelvic pain of various degrees unassociated with any demonstrable pathologic changes in the pelvis. This periodic pain is frequently accompanied by nausea and vomiting as well as severe headache and usually backache. Although this symptom complex is not a true disease entity, the disability frequently results in economic loss, and during the adolescent years the young girl may lose time from school. The authors tried

aminophylline because of the effect of this drug on smooth muscle. Patients from the clientele of one of the authors and nurses were the subjects of this study. A total of 100 cases were observed. The tablets used contain a combination of aminophylline, caffeine, acetophenetidin, acetylsalicylic acid and sodium iron pyrophosphate. The patient was advised to take two tablets every two hours with a maximum of five tablets per day. Placebos given to exclude the psychic element did not produce the same effect. Aminophylline alone produced slightly less favorable results than did the combination of drugs. The tablets containing the combination of drugs produced satisfactory results in 70 per cent of the cases and partial relief in an additional 16 per cent; the remaining 14 per cent obtained no relief.

New England Journal of Medicine, Boston

240:1-44 (Jan. 6) 1949

- Practice and Teaching of Surgery in Veterans Administration Hospitals. J. E. Dunphy.—p. 1.
*Arachnidism: Effect of Calcium Gluconate in 6 Cases. W. E. R. Greer.—p. 5.
*Perforation of Infarcted Interventricular Septum, with Partial Heart Block. R. V. Ford.—p. 8.
Premedication in Anesthesia: Unusual Experience with Concurrent Administration of Barbiturate and Pantopon. J. C. McCann.—p. 11.
Observation of Antitoxin Titers after Booster Doses of Tetanus Toxoid. H. J. Banton and Pauline A. Miller.—p. 13.
Surgical Approach to Congenital Cardiovascular Defects. I. M. Essrig.—p. 15.
Nonosteogenic Fibroma of Bone (Fibula).—p. 30.
Acute Pancreatitis, with Perforation of Transverse Colon and Abscess Formation.—p. 32.

Effect of Calcium Gluconate on Arachnidism.—According to Greer the black widow spider (*Latrodectus mactans*), is prevalent throughout North, Central and South America and especially in the Southern United States. These spiders may be found in dark corners and in closets. The author presents observations on 6 patients who had been bitten by black widow spiders in the course of seven days in a tropical area. The syndrome usually followed a similar pattern: transient excruciating local pain at the site of the spider bite and rapid local edema and redness of the skin at the site; in ten to fifteen minutes a "burning sensation" that spread centrifugally from the site of the bite and soon involved the whole body, passing off in about twenty to thirty minutes; a sudden abdominal pain, often cramplike as in an acute surgical condition of the abdomen; cramplike pains in the legs, arms and back; a general feeling of utter weakness; restlessness and extreme fear reaction, often hysteria; headache, nausea and vomiting, and burning of the soles of the feet. The patients in this series were immediately given 10 cc. of 10 per cent calcium gluconate intravenously. Subsequently they were given a saline infusion containing 10 cc. of 10 per cent calcium gluconate. An ice bag was applied to the affected area. Relief was obtained in a short time in all cases and was followed by profound sleep. The patients were out of bed the next day and back to duty on the fourth day. Even the 2 patients in profound shock responded. The author says that about sixty preparations have been recommended for arachnidism. Alcohol seems to be contraindicated, since fatal results have been reported from it. Other preparations are antivenin (*Latrodectus mactans*), convalescent serum, and neostigmine methylsulfate. Gilbert and Stewart recommended the calcium salts. The author stresses that arachnidism is more frequent than reports would indicate. It may simulate appendicitis, perforated viscus, peritonitis or any other acute surgical emergency. The syndrome following the bite of *Latrodectus mactans* may give symptoms referable to many systems of the body. Nervous, cardiac, renal, pulmonary and cutaneous manifestations may be present. Burning of the feet may be pathognomonic in arachnidism.

Perforation of Interventricular Septum.—Ford presents the history of a woman, aged 72, in whom there developed an interventricular defect at the site of an infarct high in the septum. The rupture developed just beneath the membranous septum. Electrocardiographic examination shortly before death showed second degree heart block as well as the characteristic changes of posterior infarction. A loud systolic murmur was heard at the apex, but the patient was not observed for enough time for the time of development of the murmur to be established.

New Jersey Medical Society Journal, Trenton

46:1-54 (Jan.) 1949

- Office Diagnosis of Peripheral Vascular Insufficiency. W. Redisch.—p. 4.
Surgical Gall Bladder. V. B. Seidler.—p. 10.
Infant and Fetal Mortality at a Rural Hospital. R. A. Weinstein.—p. 14.
Management of Child with Hay Fever or Asthma. W. B. Nevius.—p. 17.
Mechanism of Congestive Failure. H. Rosenberg.—p. 23.
Dicumarol Poisoning: Report of Case. I. L. Applebaum and P. Shulman.—p. 28.
Mumps Encephalitis: Report of Case Presenting Some Unusual Features. W. Ripley.—p. 31.
Decrease in Attack Rate of Syphilis. A. J. Casselman.—p. 32.

Oklahoma State Medical Assn. Jour., Oklahoma City

41:489-532 (Dec.) 1948

- Repairing the Saddle Nose. O. A. Watson.—p. 491.
Burns in Children. P. Nagle.—p. 494.
Suprapubic Prostatectomy. E. M. Henry.—p. 496.
Evaluation of Prostatic Resection. H. S. Browne and J. O. Akins.—p. 499.

Puerto Rico J. Pub. Health & Trop. Med., San Juan

24:1-103 (Sept.) 1948

- Listerella Monocytogenes Strain Isolated from Human Source in Puerto Rico. O. Felsenfeld.—p. 1.
Studies on Salmonellosis in Puerto Rico: I. Salmorella Types Isolated from Man and Animals in Puerto Rico. O. Felsenfeld, L. M. González and Viola M. Young.—p. 9.
Id.: II. Agglutinins Form Salmonella H Antigens in Blood of Apparently Normal Adults. L. M. González, Viola M. Young and O. Felsenfeld.—p. 24.
Types of Salmonella Typhosa Isolated in Puerto Rico. O. Bonilla Soto and P. Morales Otero.—p. 31.
Chemical Study of Molinillo Plant (*Lenotis nepetaefolia*, L.), with Special Reference to Its Seed. C. F. Asenjo, A. R. Freire de Guzmán, A. G. Mayoral de Asenjo and J. González de López Candal.—p. 44.
Splenectomy in Schistosomiasis Mansoni. L. C. Tavares da Silva.—p. 69.

Rhode Island Medical Journal, Providence

31:705-756 (Dec.) 1948

- Berylliosis. S. A. Wilson.—p. 719.
Spinal Anesthesia in Vaginal Deliveries. W. J. Dufresne and H. W. Umstead.—p. 723.
Myxedema and Psychosis: Case Report. J. J. Scanlan.—p. 725.
What Good Are Health Museums? B. Gebhard.—p. 732.

Urologic & Cutaneous Review, West Palm Beach, Fla.

53:1-64 (Jan.) 1949. Partial Index

- Modified Technic in Suprapubic Prostatectomy. O. A. Nelson.—p. 1.
Transverse Abdominal Incision for Transperitoneal Nephrectomy. J. L. MacDonald and G. G. Reinle.—p. 5.
Case of Erythroblastosis Fetalis Associated with Congenital Malformations, Placental Changes and Renal Disease in Mother. L. H. Biskind and Anna M. Young.—p. 10.
*Channeled Urethral Stone. A. C. Drummond.—p. 12.
Calculus Disease of Kidney and Urinary Tract. R. Oppenheimer.—p. 15.
*Dietary and Occupational Considerations in Treatment of Urogenital Disorders. C. E. Burkland.—p. 25.
Color Reactions with Malignant Tumors. E. Weiss.—p. 30.
Stigmata of Degeneration in Fluorosis. L. Spira.—p. 34.

Channeled Urethral Stone.—Drummond presents the case of a woman, aged 77, who had a urethral calculus with a tunnel down its center, through which the bladder was emptied. According to the author it has never been determined definitely whether calculi of the urethra in the female occupy preexisting pouches (diverticula) or whether these sacculations are formed by the stone. In this case it would seem that calcific deposits were arrested at a narrowed external meatus, and that the distensibility of the urethra proximal to the external meatus allowed the continual formation of stone deposits over a period of years, which gradually filled in a central opening through which the patient voided, largely involuntarily.

Dietary and Occupational Considerations in Urogenital Disorders.—Burkland shows that attention to the proper diet, fluid intake and bowel habits with the avoidance of irritating foods and beverages such as condiments, spices, alcohol, coffee, tea, cocoa and the cola drinks and avoidance of certain occupations and sports can be beneficial adjuncts in the treatment of irritative, inflammatory and calculous disease of the urogenital tract. The author also presents suggestions for the treatment of patients with solitary and polycystic kidneys and for the prevention of recurrence of urinary tract calculi. Emphasis is placed on a nutritious, high vitamin, nonirritative diet with

copious drinking of water and the elimination of certain foods rich in stone-producing substances such as calcium, phosphorus, oxalic acid and the purine proteins in the diet of patients who have had renal stones. Seven illustrative cases are presented.

Virginia Medical Monthly, Richmond

76:1-54 (Jan.) 1949

- Cancer in General Practice. E. P. Lehman.—p. 3.
Benign Nonspecific Neoplasms of Gastro-Intestinal Tract. J. L. Smoot and D. W. Scott Jr.—p. 8.
Hemorrhagic Diseases: Classification, Diagnosis and Treatment. H. P. Holt and B. S. Leavell.—p. 13.
Successful Treatment of Gold Dermatitis with British Anti-Lewisite: Case Report. L. F. Moss and E. C. Toone Jr.—p. 23.
Small Bowel Tumors. R. E. Bower and G. D. Vermilya.—p. 27.
Unicameral Cyst of Calcaneus. R. G. Dunn Jr.—p. 30.
*Cyanosis in Infants from Polluted Well Water. E. A. Harper.—p. 32.
Case of Pregnancy Complicated by Uterus Didelphys. G. W. Jones.—p. 35.
What Are the Movies Doing to Our Young People? E. P. Tompkins.—p. 37.

Cyanosis in Infants Caused by Well Water.—Harper adds to the number of previously reported cases that of another infant in whom cyanosis developed apparently as the result of being fed with a formula that had been prepared with well water of an abnormally high nitrate content. The cyanosis disappeared after the formula was prepared with different water. The author points out that other investigators have demonstrated that the ingestion of nitrate will cause methemoglobinemia in only those infants who have a low acidity of the gastric juice (a pH higher than 4.0). The low acidity permits the growth of several organisms which are capable of reducing nitrate to nitrite in the upper gastrointestinal tract. The absorption of this nitrite by the blood stream produces the methemoglobinemia and cyanosis. The normally high values of gastric acidity in adults explain why they never exhibit cyanosis from drinking water with a high nitrate content.

Western J. Surg., Obst. & Gynecology, Portland, Ore.

57:1-44 (Jan.) 1949

- Acute Hypotension. W. W. Brown.—p. 1.
Notched Rotation Osteotomy: Method Employed in Correction of Tibia and Other Conditions. L. S. Lucas and G. W. Cottrell.—p. 5.
Vaginal Hysterectomy: Its Advantages. E. Hyman.—p. 9.
Gynecologic Problems of the Los Angeles County Hospital: Uterine Adenocarcinomas; Ovarian Mixed Tumors; Nonmalignant Reactions of Fallopian Tube; Granulomas. E. G. Jones.—p. 11.
*Endometrial Carcinoma. A. W. Diddle.—p. 20.
Surgical Considerations in Diverticulitis of Colon. S. H. Babington.—p. 23.
Lateral Aberrant Thyroid—A Misnomer. M. A. Howard.—p. 26.
Pellet Implantation with Alpha Estradiol for Relief of Menopausal Syndrome. H. M. Immerman.—p. 29.
Simultaneous Repair of Cystocele and High Rectal Prolapse During Total Hysterectomy. M. Weinstein and M. Roberts.—p. 34.

Endometrial Carcinoma.—Diddle feels that the importance of endometrial carcinoma is underestimated because of two incorrect assumptions: that it is of infrequent occurrence and that the prognosis is generally good. This report is concerned with 221 women with a histologic diagnosis of endometrial carcinoma treated in Dallas, Texas, between 1935 and 1946, inclusive. The disease was often unsuspected and its true pathologic nature was not understood. Inappropriate surgical procedures were frequently used. Laparotomy was often done without an antecedent diagnostic curettage, indicating that cancer was not suspected. This mistake frequently precluded the proper use of irradiation and of suitable surgical measures. Endometrial carcinoma is predominantly a disease of the menopausal and postmenopausal periods of life. The early signs of the disease are usually scant vaginal spotting of blood or leukorrhea. Diagnosis is dependent on the microscopic study of tissue obtained by curettage. Since cervical, tubal and ovarian metastases may occur, the necessity of total hysterectomy and bilateral salpingo-oophorectomy is obvious. Five year survival rates of 65 to 75 per cent have been obtained with this radical surgical treatment. There is evidence that irradiation given a few weeks before operation produces a beneficial effect. It damages the neoplastic cells so that they apparently are less likely to survive if spilled into the surgical field. The optimum time for operation is four or five weeks after irradiation.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted. Single case reports and trials of new drugs are usually omitted.

Archives of Disease in Childhood, London

23:213-304 (Dec.) 1948

- Antecedents of Infantile Cerebral Palsy. P. R. Evans.—p. 213.
*Folic Acid in Celiac Disease: Study of Its Administration in 22 Cases. J. D. Hay.—p. 220.
Nitrogen Partition in Newborn Infants' Urine. A. Barlow and R. A. McCance.—p. 225.
Perinatal Deaths in Czechoslovakia. H. Sikl.—p. 231.
Relationship Between Maternal Conditions During Pregnancy and Congenital Malformations. B. Landtman.—p. 237.
Radiology of Intestinal Obstruction in Children and Infants. J. H. Middlemiss.—p. 247.
*Pneumonia in the Newborn Resulting from Inhalation of Gastric Contents. K. Rhaney and Agnes R. Macgregor.—p. 254.
Juvenile Thyrotoxicosis Treated with Thiouracil. J. W. Farquhar.—p. 259.
Acute Neurotic Breakdown in Children with Refusal to go to School. W. Warren.—p. 266.
*Erythema Nodosum in Children Following Administration of Sulfathiazole. S. A. Doxiadis and D. McLean.—p. 273.
Historical Background of Convulsions in Childhood. R. A. Shanks.—p. 281.

Folic Acid in Celiac Disease.—Hay reports on 22 infants and children who had celiac disease and were treated for a period with a low fat and high protein diet, liver extract and vitamins. Folic acid was then added to the treatment for a comparable period. The clinical condition of the children during these periods was compared by observations on rate of gain in weight and on the character of the feces as seen with the naked eye. No conclusive evidence was obtained of any beneficial effect of the folic acid.

Pneumonia in the Newborn from Inhalation of Gastric Contents.—Rhaney and Macgregor, in the course of performing postmortem examinations in cases of neonatal death, noted occurrence of pneumonia with certain special features, which they believe to be caused by the aspiration of stomach contents. An extensive survey of the available literature revealed that little attention had been devoted to this condition. The authors analyze clinical and necropsy data from 41 cases observed between 1939 and 1946. The main pathologic features were extensive consolidation with hemorrhage and a tendency to supuration. Microscopically, digestion of tissues and lysis of blood in relation to aspirated material were characteristic. Attention is drawn to predisposing factors with particular reference to prematurity. There seems to have been an increase in the condition during the last two years under review, and it is assumed that this may be related to a shortage of the nursing staff.

Erythema Nodosum After Administration of Sulfathiazole.—According to Doxiadis and McLean the occurrence after the administration of sulfathiazole of a rash similar to erythema nodosum (sulfathiazole erythema nodosum) has been reported frequently. Lofgren has investigated this problem most thoroughly in adults and has concluded that the eruption is not an ordinary drug rash, but is similar in nature to erythema nodosum, the sulfathiazole being a provocative factor only. The present investigation confirms Lofgren's general conclusions. The material for this investigation consists of (a) 17 children in whom a course of sulfathiazole preceded the first appearance of a skin rash similar to erythema nodosum and (b) 32 children to whom sulfathiazole was given for therapeutic or experimental purposes at varying intervals after an eruption of erythema nodosum. Twelve responded with an eruption of lesions similar to erythema nodosum and 20 did not. In addition the case histories of another 18 children with one or more courses of sulfathiazole for various infections were studied. On the basis of clinical biologic and histologic data the authors conclude that this manifestation is not a "drug rash" due to allergic sensitivity to sulfonamide compound, but is fundamentally the same as erythema nodosum. In order to elicit an eruption of erythema nodosum, sulfathiazole must be given to subjects who are in the active stage of one of the infections commonly associated with spontaneous erythema nodosum. It is, therefore, a provocative and not an etiologic factor.

British Heart Journal, London

10:213-308 (Oct.) 1948

- Auscultation of Heart. S. A. Levine.—p. 213.
Heart-Vector and Leads. Part III: Geometrical Representation. H. C. Burger and J. B. Van Milaan.—p. 229.
Ventricular Escape in Acute Rheumatism. A. C. Kirby.—p. 234.
Dissecting Aneurysm of Interventricular Septum. A. A. F. Peel.—p. 239.
Long Survival with Cardiac Aneurysm. A. Codounis.—p. 244.
*U Wave Inversion. J. H. Palmer.—p. 247.
Cardiac Lesions in Thiamin Deficiency. J. F. Pantridge.—p. 252.
Cardiac Pain with Recovery of T Wave. T. East and S. Oram.—p. 263.
*Heart in Pneumoconiosis of Coalminers. A. J. Thomas.—p. 282.

U Wave Inversion.—Palmer says that the U wave when first recognized in 1906 by Einthoven was regarded as pathologic. Since then the normality of upright U waves, except perhaps in cases in which they are unusually high, has been generally conceded. Various hypotheses have been advanced to explain the U wave, of which the most satisfactory is that of Hoff and Nahum (1938), who concluded that it undoubtedly forms part of the ventricular complex, and is coincident in time with the supernormal phase. Palmer's interest in negative U waves was stimulated by noticing their appearance in the after-exercise tracing of a patient with angina pectoris. Subsequently 6 further such patients were found. All were males, and in all of them pain was easily induced by effort. None gave a history of a previous clinical attack of coronary occlusion. Six of the 7 had hypertension. Temporary U wave inversion appeared during anginal attacks that were induced by exercise. The pattern of U wave inversion seen most frequently was made up of negativity in lead I and in the left chest leads, and positivity in lead III. The association in individual chest leads of sharply pointed, symmetric, positive T waves with inverted U waves occurs in patients with angina pectoris during exercise. Discordancy in direction of development of T and U may occur in the chest leads during exercise. Four cases are described of inversion of U in one or more leads as an isolated electrocardiographic abnormality. Inversion of U when seen in tracings showing bundle branch lesions is probably the result of associated myocardial damage rather than of the conduction defect as such. The R-U time interval may decrease as the heart rate increases. Inversion of U in one or more leads is pathologic.

The Heart in Pneumoconiosis.—According to Thomas, pneumoconiosis can cause pulmonary heart disease, a condition also called cor pulmonale. He presents the results of clinical studies on the cardiovascular system of 96 coal miners with pneumoconiosis. Patients with cardiovascular disease other than that resulting from the pulmonary disorder were excluded. Eleven of the patients had failure of the right side of the heart and another 24 had evidence of enlargement of the right ventricular outflow tract. Roentgenologic examination was of the greatest value in the early detection of involvement of the right side of the heart. Electrocardiographic examination has been helpful in some cases.

British Medical Journal, London

1:43-82 (Jan. 8) 1949

- Clinical and Social Problems of Epilepsy. F. J. Nattrass.—p. 43.
Diabetic Fertility, Maternal Mortality and Fetal Loss Rate. J. A. L. Gilbert and D. M. Dunlop.—p. 48.
*Pregnancy Complicated by Diabetes Mellitus. H. H. F. Barns and M. E. Morgans.—p. 51.
Relation of Staph. Pyogenes to Dental Caries. E. Matthews, H. F. Atkinson, P. Saunbury and H. W. Clegg.—p. 54.
Senile Deterioration of Central Nervous System: Clinical Study. T. H. Howell.—p. 56.

Pregnancy Complicated by Diabetes Mellitus.—Barns and Morgans observed during the past twenty years 45 patients with definite diabetes mellitus in fifty-eight pregnancies. The high incidence (1 in 580 deliveries) is due to the fact that a number of the patients were referred to the obstetric unit from the diabetic clinic of the hospital. Pregnancy in the diabetic patient is infrequent because of the decreased fertility of the diabetic patient and because diabetes is more common in women during the latter portion of the child-bearing period, when pregnancy is less frequent. In the majority of patients the carbohydrate tolerance was found to diminish as pregnancy

New Jersey Medical Society Journal, Trenton

46:1-54 (Jan.) 1949

- Office Diagnosis of Peripheral Vascular Insufficiency. W. Redisch.—p. 4.
Surgical Gall Bladder. V. B. Seidler.—p. 10.
Infant and Fetal Mortality at a Rural Hospital. R. A. Weinstein.—p. 14.
Management of Child with Hay Fever or Asthma. W. B. Nevius.—p. 17.
Mechanism of Congestive Failure. H. Rosenberg.—p. 23.
Dicumarol Poisoning: Report of Case. I. L. Applebaum and P. Shulman.—p. 28.
Mumps Encephalitis: Report of Case Presenting Some Unusual Features. W. Ripley.—p. 31.
Decrease in Attack Rate of Syphilis. A. J. Casselman.—p. 32.

Oklahoma State Medical Assn. Jour., Oklahoma City

41:489-532 (Dec.) 1948

- Repairing the Saddle Nose. O. A. Watson.—p. 491.
Burns in Children. P. Nagle.—p. 494.
Suprapubic Prostatectomy. E. M. Henry.—p. 496.
Evaluation of Prostatic Resection. H. S. Browne and J. O. Akins.—p. 499.

Puerto Rico J. Pub. Health & Trop. Med., San Juan

24:1-103 (Sept.) 1948

- Listerella Monocytogenes Strain Isolated from Human Source in Puerto Rico. O. Felsenfeld.—p. 1.
Studies on Salmonellosis in Puerto Rico: I. Salmorella Types Isolated from Man and Animals in Puerto Rico. O. Felsenfeld, L. M. González and Viola M. Young.—p. 9.
Id.: II. Agglutinins Form Salmonella H Antigens in Blood of Apparently Normal Adults. L. M. González, Viola M. Young and O. Felsenfeld.—p. 24.
Types of Salmonella Typhosa Isolated in Puerto Rico. O. Bonilla Soto and P. Morales Otero.—p. 31.
Chemical Study of Molinillo Plant (*Lenotis nepetacifolia*, L.), with Special Reference to Its Seed. C. F. Asenjo, A. R. Freire de Guzmán, A. G. Mayoral de Asenjo and J. González de López Candal.—p. 44.
Splenectomy in Schistosomiasis Mansoni. L. C. Tavares da Silva.—p. 69.

Rhode Island Medical Journal, Providence

31:705-756 (Dec.) 1948

- Berylliosis. S. A. Wilson.—p. 719.
Spinal Anesthesia in Vaginal Deliveries. W. J. Dufresne and H. W. Umstead.—p. 723.
Myxedema and Psychosis: Case Report. J. J. Scanlan.—p. 725.
What Good Are Health Museums? B. Gebhard.—p. 732.

Urologic & Cutaneous Review, West Palm Beach, Fla.

53:1-64 (Jan.) 1949. Partial Index

- Modified Technic in Suprapubic Prostatectomy. O. A. Nelson.—p. 1.
Transverse Abdominal Incision for Transperitoneal Nephrectomy. J. L. MacDonald and G. G. Reinfle.—p. 5.
Case of Erythroblastosis Fetalis Associated with Congenital Malformations, Placental Changes and Renal Disease in Mother. L. H. Biskind and Anna M. Young.—p. 10.
*Channeled Urethral Stone. A. C. Drummond.—p. 12.
Calculus Disease of Kidney and Urinary Tract. R. Oppenheimer.—p. 15.
*Dietary and Occupational Considerations in Treatment of Urogenital Disorders. C. E. Burkland.—p. 25.
Color Reactions with Malignant Tumors. E. Weiss.—p. 30.
Stigmata of Degeneration in Fluorosis. L. Spira.—p. 34.

Channeled Urethral Stone.—Drummond presents the case of a woman, aged 77, who had a urethral calculus with a tunnel down its center, through which the bladder was emptied. According to the author it has never been determined definitely whether calculi of the urethra in the female occupy preexisting pouches (diverticula) or whether these sacculations are formed by the stone. In this case it would seem that calcific deposits were arrested at a narrowed external meatus, and that the distensibility of the urethra proximal to the external meatus allowed the continual formation of stone deposits over a period of years, which gradually filled in a central opening through which the patient voided, largely involuntarily.

Dietary and Occupational Considerations in Urogenital Disorders.—Burkland shows that attention to the proper diet, fluid intake and bowel habits with the avoidance of irritating foods and beverages such as condiments, spices, alcohol, coffee, tea, cocoa and the cola drinks and avoidance of certain occupations and sports can be beneficial adjuncts in the treatment of irritative, inflammatory and calculous disease of the urogenital tract. The author also presents suggestions for the treatment of patients with solitary and polycystic kidneys and for the prevention of recurrence of urinary tract calculi. Emphasis is placed on a nutritious, high vitamin, nonirritative diet with

copious drinking of water and the elimination of certain foods rich in stone-producing substances such as calcium, phosphorus, oxalic acid and the purine proteins in the diet of patients who have had renal stones. Seven illustrative cases are presented.

Virginia Medical Monthly, Richmond

76:1-54 (Jan.) 1949

- Cancer in General Practice. E. P. Lehman.—p. 3.
Benign Nonspecific Neoplasms of Gastro-Intestinal Tract. J. L. Smoot and D. W. Scott Jr.—p. 8.
Hemorrhagic Diseases: Classification, Diagnosis and Treatment. H. P. Holt and B. S. Leavell.—p. 13.
Successful Treatment of Gold Dermatitis with British Anti-Lewisite: Case Report. L. F. Moss and E. C. Toone Jr.—p. 23.
Small Bowel Tumors. R. E. Bower and G. D. Vermilya.—p. 27.
Unicameral Cyst of Calcaneus. R. G. Dunn Jr.—p. 30.
*Cyanosis in Infants from Polluted Well Water. E. A. Harper.—p. 32.
Case of Pregnancy Complicated by Uterus Didelphys. G. W. Jones.—p. 35.
What Are the Movies Doing to Our Young People? E. P. Tompkins.—p. 37.

Cyanosis in Infants Caused by Well Water.—Harper adds to the number of previously reported cases that of another infant in whom cyanosis developed apparently as the result of being fed with a formula that had been prepared with well water of an abnormally high nitrate content. The cyanosis disappeared after the formula was prepared with different water. The author points out that other investigators have demonstrated that the ingestion of nitrate will cause methemoglobinemia in only those infants who have a low acidity of the gastric juice (a pH higher than 4.0). The low acidity permits the growth of several organisms which are capable of reducing nitrate to nitrite in the upper gastrointestinal tract. The absorption of this nitrite by the blood stream produces the methemoglobinemia and cyanosis. The normally high values of gastric acidity in adults explain why they never exhibit cyanosis from drinking water with a high nitrate content.

Western J. Surg., Obst. & Gynecology, Portland, Ore.

57:1-44 (Jan.) 1949

- Acute Hypotension. W. W. Brown.—p. 1.
Notched Rotation Osteotomy: Method Employed in Correction of Tibia and Other Conditions. L. S. Lucas and G. W. Cottrell.—p. 5.
Vaginal Hysterectomy: Its Advantages. E. Hyman.—p. 9.
Gynecologic Problems of the Los Angeles County Hospital: Uterine Adenocarcinomas; Ovarian Mixed Tumors: Nonmalignant Reactions of Fallopian Tube; Granulomas. E. G. Jones.—p. 11.
*Endometrial Carcinoma. A. W. Diddle.—p. 20.
Surgical Considerations in Diverticulitis of Colon. S. H. Babington.—p. 23.
Lateral Aberrant Thyroid—A Misnomer. M. A. Howard.—p. 26.
Pellet Implantation with Alpha Estradiol for Relief of Menopausal Syndrome. H. M. Immerman.—p. 29.
Simultaneous Repair of Cystocele and High Rectal Prolapse During Total Hysterectomy. M. Weinstein and M. Roberts.—p. 34.

Endometrial Carcinoma.—Diddle feels that the importance of endometrial carcinoma is underestimated because of two incorrect assumptions; that it is of infrequent occurrence and that the prognosis is generally good. This report is concerned with 221 women with a histologic diagnosis of endometrial carcinoma treated in Dallas, Texas, between 1935 and 1946, inclusive. The disease was often unsuspected and its true pathologic nature was not understood. Inappropriate surgical procedures were frequently used. Laparotomy was often done without an antecedent diagnostic curettage, indicating that cancer was not suspected. This mistake frequently precluded the proper use of irradiation and of suitable surgical measures. Endometrial carcinoma is predominantly a disease of the menopausal and postmenopausal periods of life. The early signs of the disease are usually scant vaginal spotting of blood or leukorrhea. Diagnosis is dependent on the microscopic study of tissue obtained by curettage. Since cervical, tubal and ovarian metastases may occur, the necessity of total hysterectomy and bilateral salpingo-oophorectomy is obvious. Five year survival rates of 65 to 75 per cent have been obtained with this radical surgical treatment. There is evidence that irradiation given a few weeks before operation produces a beneficial effect. It damages the neoplastic cells so that they apparently are less likely to survive if spilled into the surgical field. The optimum time for operation is four or five weeks after irradiation.

Acta Medica Orientalia, Jerusalem**7:123-161 (July-Aug.) 1948. Partial Index**

- *Treatment of Pruritus Vulvae by Local Inunctions with Pyribenzamine. B. Zondek and Y. M. Bromberg.—p. 123.
Clinical Experience and Immediate Results of Vagotomy in Intestinal Ulcers. F. Mandl.—p. 131.
Singultus. J. Kleberg.—p. 131.
*Oligospermia Associated with Impaired Dark Adaptation. J. Landau and Z. Polishuk.—p. 153.

Inunctions with Pyribenzamine® for Pruritus Vulvae.—

Zondek and Bromberg failed to effect improvement in vulval pruritus caused by allergy to endogenous hormones, by the oral administration of antihistaminic substances. They therefore resorted to local administration of the antihistaminic pyribenzamine hydrochloride®-(tripeleppamine hydrochloride). Glycerin seemed to be the most suitable vehicle for local administration, because it readily penetrates the skin. The 14 patients who were selected for this therapeutic trial had had vulval pruritus for six months to twelve years. Allergy to endogenous hormones was the etiologic factor in 3 of these cases, vitamin deficiency in 4 cases, diabetes mellitus in 2 cases, menopause in 1 case, vaginitis due to *Trichomonas* in 2 cases, vulvo-vaginal mycosis in 1 case and psychoneurosis in 1 case. In order to eliminate errors in the interpretation of the effects of tripeleppamine, each patient was first treated by local an-

between delayed union and pseudarthrosis (nonunion) is made from the roentgenogram. If a sclerotic plug of bone fills the medullary cavity pseudarthrosis is established and surgery is the only solution. The author reviews observations on 69 cases of uninfected pseudarthrosis of the long bones treated at his clinic from 1935 to 1946. Surgical procedures for the treatment of pseudarthrosis aim to break down the sclerotic barrier. By removing the pseudarthrosis tissue, including the sclerotic bone, conditions are made favorable for the development of granulation tissue with new vessels and osteoblasts from the surrounding tissue. If there is good contact between the bone fragments and little movement between them, some form of bone perforation—e. g., Beck's drilling—is sufficient, but usually a bone graft is preferable. In 70 per cent of the cases union was effected after one operation and in 13 after a second operation. The average consolidation time was 5.4 months for Beck's drilling, 7.2 months for inlay grafts and 15 months for Küntscher nailing.

Chinese Medical Journal, Shanghai**66:467-526 (Sept.) 1948. Partial Index**

- Endometriosis of Inguinal Region: Case Report. A. Wong.—p. 483.
Disgerminoma of Ovary: Case Report. Helen Chang.—p. 485.
Complications of Whooping Cough in Children. S. C. Lin.—p. 494.
*Glucose Tolerance Test in Infectious Diseases. Yoh Tse-Fei.—p. 498.
Acute Pancreatitis. T. Y. Hsu and G. L. Wu.—p. 505.

advanced. In some, however, it increased prior to delivery, and it is possible that estrogens given therapeutically may have been a factor in this improvement. The tendency for hydramnios to develop in the pregnant diabetic was confirmed. It was found that hypoglycemic symptoms and coma tend to occur in early pregnancy, and ketosis and diabetic coma in the latter part of pregnancy. There is a greater tendency for late pregnancy toxemia to develop in the diabetic than in the non-diabetic. The maternal prognosis is good, and pregnancy does not make the diabetes worse provided that it is well treated. The late fetal mortality was 55 per cent in a first series of 43 pregnancies. In a second series, of 15 pregnancies, in which estrogens were given there were only 3 deaths. It is suggested that the factor affecting the viability of the fetus probably arises in the maternal anterior pituitary lobe. The incidence of abortion does not appear to differ from that for nondiabetic pregnancies and suggests, first, that diabetes mellitus is not a cause of abortion, and, secondly, that the factor which reduces fetal viability exerts its strongest influence toward the end of pregnancy. It is suggested that the tendency to gigantism is due to an excess of the growth hormone from the maternal pituitary gland.

Indian Medical Gazette, Calcutta

83:445-490 (Oct.) 1948. Partial Index

- Lipomas, Big and Small. M. G. Kini.—p. 447.
Experience of "Air Embolism-Pleural Shock During Artificial Pneumothorax in Pulmonary Tuberculosis Cases." S. K. Ganguli and N. B. Mukherji.
*Effect of Penicillin on Vaccine Virus and Its Value in Purification of Vaccine Lymph. T. B. Patel.—p. 452.
Further Observations on Parenteral Paludrine Hydrochloride in Malarial Fevers. K. L. Basu Mullick and J. C. Gupta.—p. 458.

Effect of Penicillin on Vaccine Virus.—Patel says that at his institute a chloroform process has been used to reduce the bacterial count of calf lymph. On some batches of lymph a repetition of the chloroform process was required, and since it was feared that this might reduce the potency of the vaccine, sulfonamide compounds were tried to reduce the bacterial count without success. Recently, as the supply of penicillin became freely available, experiments were carried out to test its effect. These experiments were confirmed by trials in the field with penicillin-treated lymphs. Penicillin can be safely used for the rapid purification of vaccine lymph and the dose required is usually not more than 150 units per cubic centimeter of lymph. In this dose it has not affected the potency of the vaccine virus even when the lymph has been used after being stored for more than six to twelve months at a temperature of minus 12 C. This was proved by results on the children vaccinated by this lymph. Treatment with penicillin in a dose of 5,000 units per cubic centimeter of lymph had no deleterious effect on vaccine lymph even after preservation in a refrigerator at 2 C. for four weeks and more. Penicillin used in a dose of 25,000 units per cubic centimeter of lymph exerts some destructive effect on the vaccine virus when kept at room temperature for seven days or more, but this is not observed when the lymph is kept in a refrigerator at 2 C.

Journal of Laryngology and Otology, London

62:715-784 (Dec.) 1948

- Pins in Periphery of Lung. G. Glass.—p. 715.
Practical Application of Clinical Audiometry. B. Warsaw.—p. 721.
Effects of Streptomycin on Eighth Nerve System. R. Dix.—p. 735.
*Head Noises of Muscular Origin: Audible or Objective Tinnitus. H. W. Schwartz.—p. 746.

Audible or Objective Tinnitus.—Schwartz reports the case of a man, aged 32, who complained of headaches and a sound like "the tick of an alarm clock" in both ears. Although the patient had noticed the "tick" on and off for three years, lasting for days or weeks, it had not caused him actual annoyance until three months before admittance. The observations made at this time were that a bilateral clicking-grating noise was easily audible at a distance of 2 or more feet from either ear. Up and down movements of the tongue and soft palate were noted as well as rhythmic contractions of the masseter and temporalis muscles on clenching the jaws; all were in time with the clicking noise. At a later examination it was

found that the rate of the click was about 100; the intensity varied, but at one time it could be heard at a distance of 8 feet. Schwartz points out that the number of reported cases of audible or objective tinnitus not associated with the circulation appear to be few. Those authors cited by Bredlau in bringing the subject up to date in 1934, when he himself reported a case of his own in a child aged 9, made no mention of any other muscle involvement than that of the soft palate and eustachian tube. The muscular type of tinnitus always produces a noise characteristically regular and rhythmic, either clicking or ticking, at the rate of about 100 per minute. The origin of the sounds heard in the muscular type of objective tinnitus had been explained in a number of ways. The only explanation of the origin of these sounds for which definite evidence has been offered ascribes it to the clonic contractions of the muscles about the eustachian tube and the soft palate. The opening and closing of the eustachian tube, with the accompanying alternate separation and contact of the two moist surfaces, best explains the peculiar clicking sound. Hysteria and neurasthenia have been hypothesized as predisposing or contributing factors.

Lancet, London

1:47-86 (Jan. 8) 1949

- Dangers of Criminal Instrumental Abortion. K. Simpson.—p. 47.
Consciousness and Its Disturbances Considered from Neurologic Aspect. J. P. Martin.—p. 48.
*Torulosis of Central Nervous System: Report of 2 Cases. P. M. Daniel, F. Schiller and R. L. Vollum.—p. 53.
*Diabetic Ketosis: Comparison of Results of Orthodox and Intensive Methods of Treatment Based on 170 Consecutive Cases. A. B. Black and J. M. Malins.—p. 56.
Toxic Effects of Tridione. J. N. Briggs and J. L. Emery.—p. 59.
Hypertension Following Renal Infarction. J. Wainwright.—p. 62.

Torulosis of Central Nervous System.—According to Daniel and his co-workers torulosis may involve any tissue, but disorders of the central nervous system account for about half of the reported cases. One of the 2 cases described here may be regarded as typical of the diffuse meningoencephalitic form of torulosis. Circumscribed "toruloma" of the central nervous system, the less common type of lesion, is illustrated by the second case. Both patients died. The clinical picture of torulosis of the central nervous system closely resembles that of tuberculosis of the central nervous system. Torula is one of the most resistant parasites of man. Its biologic characteristics are such that none of the usual physical or chemical agents will affect it either in vivo or in vitro; and it does not call forth effective antibody or cellular reaction. Penicillin, streptomycin and various sulfonamide compounds did not inhibit the growth of cultures of Torula. Of the sulfonamide drugs only soluthiazole® (disodium cynamylidene dibisulfite derivative of sulfathiazole) had such an effect. Gentian violet exerted a considerable inhibitory effect on cultures.

Diabetic Ketosis.—Black and Malins record the results of treatment in 170 cases of diabetic coma or ketosis and stress the effects of changing from orthodox methods to the intravenous use of large quantities of fluids and insulin. The diagnosis is rarely difficult; the authors see no similarity between diabetic and hypoglycemic coma. As soon as the diagnosis is established, an initial dose of 200 to 400 units of soluble insulin is given intravenously. An intravenous drip is set up, and within the first fifteen minutes a pint of isotonic sodium chloride solution is infused. A second pint is given in the second fifteen to thirty minutes, and perhaps a third pint at the same rate. Thereafter a solution of 5 per cent dextrose in isotonic sodium chloride solution is administered, usually at the rate of 1 pint hourly. As soon as the intravenous drip has been set up, a urethral catheter is passed and the bladder emptied. Thereafter the bladder is emptied every thirty minutes. Each specimen of urine collected is measured and tested with Benedict's solution and ferric chloride. Further soluble insulin in doses of 50 units is injected into the drip tubing every thirty minutes until the urine becomes free of acetone bodies by the Gerhardt test. The immediate objects of the treatment are: the abolition of ketosis, rehydration and restoration of chloride. These objects are quickly realized with the described treatment, and the mortality has been reduced from 28.7 per cent to 6.6 per cent.

Acta Medica Orientalia, Jerusalem

7:123-161 (July-Aug.) 1948. Partial Index

- *Treatment of Pruritus Vulvae by Local Inunctions with Pyribenzamine. B. Zondek and Y. M. Bromberg.—p. 123.
Clinical Experience and Immediate Results of Vagotomy in Intestinal Ulcers. F. Mandl.—p. 131.
Singultus. J. Kleberg.—p. 131.
*Oligospermia Associated with Impaired Dark Adaptation. J. Landau and Z. Polishuk.—p. 153.

Inunctions with Pyribenzamine* for Pruritus Vulvae.—Zondek and Bromberg failed to effect improvement in vulval pruritus caused by allergy to endogenous hormones, by the oral administration of antihistaminic substances. They therefore resorted to local administration of the antihistaminic pyribenzamine hydrochloride*-(tripelennamine hydrochloride). Glycerin seemed to be the most suitable vehicle for local administration, because it readily penetrates the skin. The 14 patients who were selected for this therapeutic trial had had vulval pruritus for six months to twelve years. Allergy to endogenous hormones was the etiologic factor in 3 of these cases, vitamin deficiency in 4 cases, diabetes mellitus in 2 cases, menopause in 1 case, vaginitis due to *Trichomonas* in 2 cases, vulvovaginal mycosis in 1 case and psychoneurosis in 1 case. In order to eliminate errors in the interpretation of the effects of tripelennamine, each patient was first treated by local applications of full strength glycerin for one week and by inunctions of 3 per cent procaine in glycerin for a second week. During the third week a 3 per cent solution of tripelennamine in glycerin was applied on the vulva in each patient at eight hourly intervals. Temporary relief from the itching was obtained in 7 patients, 6 were improved and 1 did not respond. Symptomatic relief or improvement was observed not only in cases due to allergy, but also in those due to diabetes, vitamin deficiency or vulvovaginal infections. The authors suggest that tripelennamine may interfere with release of continually increasing amounts of histamine due to injury of the vulvar tissue by scratching or inflammation. Factors other than antihistaminic ones may also be involved. The inunctions with tripelennamine have only a symptomatic effect, which does not persist beyond the cessation of treatment.

Association of Oligospermia with Impaired Dark Adaptation.—Landau and Polishuk made dark adaptation tests on 17 men with sterility due to oligospermia and on 19 men with normal spermatogenesis. In 6 of the 17 men with oligospermia a decided reduction in dark adaptation was found, whereas in the controls with normal spermatogenesis the dark adaptation values were within normal limits. Low vitamin A values were found in 2 cases of oligospermia associated with impaired dark adaptation and in 1 case of oligospermia with normal dark adaptation. In 2 other cases of oligospermia with normal dark adaptation, normal vitamin A values were noted. It is assumed that oligospermia associated with impaired dark adaptation might possibly represent a syndrome of a pituitary-hypothalamic disorder.

Acta Orthopaedica Scandinavica, Copenhagen

18:1-232 (Nos. 1 & 2) 1948. Partial Index

- Pinning for Slipping of Epiphysis of Femoral Head. G. Wiberg.—p. 4.
Results of Experimental Investigation into Morphophysiology of Joints. D. E. Holmdahl.—p. 13.
Changes in Chlorine Content of Patellar Cartilage and Intervertebral Disks Associated with Degeneration. O. Lindahl.—p. 28.
Comparative Study of Methods of Treatment of Diaphyseal Fracture of Leg. G. A. Landoff.—p. 37.
*Non-Union in Fractures of Long Bones. C. Hirsch.—p. 61.
Removal of Base of Proximal Phalanx in Hallux Rigidus. E. Severin.—p. 77.
Results of Lumbar Fusion in Disk Degeneration. L. Unander-Scharin.—p. 125.
Late Results of Operative Treatment of Recurrent Dislocation of Patella. M. Felländer.—p. 157.
Method of Autotransplantation of Diseased Tissue in Patients Suffering from Rheumatoid Arthritis. H. Novotny.—p. 227.

Nonunion in Fractures of Long Bones.—According to Hirsch the incidence of pseudarthrosis varies between 0.5 and 5 per cent. When pseudarthrosis has developed, the medullary cavity is closed by a sclerotic plug of bone, both bone ends are atrophic and there is a gap between them. The distinction

between delayed union and pseudarthrosis (nonunion) is made from the roentgenogram. If a sclerotic plug of bone fills the medullary cavity pseudarthrosis is established and surgery is the only solution. The author reviews observations on 69 cases of uninfected pseudarthrosis of the long bones treated at his clinic from 1935 to 1946. Surgical procedures for the treatment of pseudarthrosis aim to break down the sclerotic barrier. By removing the pseudarthrosis tissue, including the sclerotic bone, conditions are made favorable for the development of granulation tissue with new vessels and osteoblasts from the surrounding tissue. If there is good contact between the bone fragments and little movement between them, some form of bone perforation—e. g., Beck's drilling—is sufficient, but usually a bone graft is preferable. In 70 per cent of the cases union was effected after one operation and in 13 after a second operation. The average consolidation time was 5.4 months for Beck's drilling, 7.2 months for inlay grafts and 15 months for Küntscher nailing.

Chinese Medical Journal, Shanghai

66:467-526 (Sept.) 1948. Partial Index

- Endometriosis of Inguinal Region: Case Report. A. Wong.—p. 483.
Disgerminoma of Ovary: Case Report. Helen Chang.—p. 485.
Complications of Whooping Cough in Children. S. C. Lin.—p. 494.
*Glucose Tolerance Test in Infectious Diseases. Yoh Tse-Fei.—p. 498.
Acute Pancreatitis. T. Y. Hsu and G. L. Wu.—p. 505.

Dextrose Tolerance in Infectious Diseases.—Yoh Tse-Fei made dextrose tolerance tests on 100 patients with various infectious diseases, 40 healthy adults and 7 diabetic patients. In the patients with infectious diseases the test was made during the febrile stage and in 62 it was repeated during convalescence. It was found that during infectious diseases there is a temporary but definite decrease of dextrose tolerance with a curve simulating that of diabetes mellitus during the febrile or infective stage, and this decrease tends to disappear with the curve returning to normal or nearly normal as the infection subsides. The exact cause of this change in the carbohydrate metabolism is not known, but there is evidence that impairment of the hepatic function might account for it. Others assume that the pancreas or some other organ is involved. The author believes that the impairment of the carbohydrate metabolism in infectious diseases makes it advisable to provide a diet that is high in carbohydrate content so as to stimulate glycogenesis in the liver, because the higher the glycogen content of the liver the better is its resistance against infection and toxic influences.

Chirurg, Heidelberg

19:385-432 (Sept.) 1948. Partial Index

- *Thorotrast: Lesions Caused by It and Danger of Development of Sarcoma. K. H. Bauer.—p. 387.
*Investigations on Damaging Effects Exerted by Thorotrast on Body Tissues. W. Wachsmuth.—p. 390.
Is it Permissible to Continue the Use of Thorotrast for Angiography? H. Kuhlendahl.—p. 396.
Terminology of "Sudek's Syndrome." F. Oehlecker.—p. 398.
Clinical and Anatomic Observation After Plain Suturing of Perforation of Gastroduodenal Ulcers. H. Frangenheim.—p. 403.
Experiences with Peridural Anesthesia. A. C. Ohling.—p. 407.

Threat of Sarcoma from Use of Thorotrast*.—Bauer directs attention to the danger involved in the use of thorotrast*, a colloidal suspension of thorium dioxide. The radiation given off by this contrast medium is about 6 r per day, a quantity which is about 10 times as much as that usually cited as the maximum daily permissible dose in the regulations formulated for the protection against harmful exposures to rays. Studies on mice, rats, guinea pigs and rabbits have demonstrated that the use of thorotrast* involves the danger of sarcoma. These animal experiments suggest that in human beings the latent period between the introduction of thorotrast* and the development of sarcoma will be twelve to eighteen years. The author cites the case reported in the United States by MacMahon and his associates, in which a sarcoma developed twelve years after thorotrast* had been used for hepatography. He fears that in Germany the danger of thorotrast*-induced sarcomas is greater, because its use had not been discouraged to the same extent as in the United States, where it had been rejected by the

Council on Pharmacy and Chemistry as early as 1932. He believes that in view of the threat of sarcoma and of the fact that thorotrast® apparently also impairs the hemopoiesis in the bone marrow, spleen, liver and lymph nodes and that it may cause fragility or necrosis of bones, the further use of thorotrast® as a contrast medium is not advisable.

Damaging Effect of Thorotrast® on Tissues.—Wachsmuth reports the case of a man, aged 28, who sustained a shell missile injury in the region of the left temporal bones which resulted in the development of a cerebral abscess and osteomyelitis of the temporal bone. At the time a neurosurgeon had injected thorotrast® into the carotid artery for the purpose of encephalography. The percutaneous injection resulted in severe tissue changes, including necroses in the vascular walls. A tumor developed at the site of the lesion, probably as the result of paravasal deposit of thorotrast®. At the time of the removal of the tumor, the wall of the artery was found to be extremely friable and inelastic, but the tumor did not as yet show signs of malignancy. The author suggests that at the sites of storage of the thorotrast® in liver and spleen changes may develop which are similar to those at the site of injection, because of the continuous radioactive effect exerted by the thorotrast®. The author concludes that the use of thorotrast® for the visualization of vessels is no longer permissible, except perhaps in patients in whom life expectancy does not exceed a few years. Percutaneous injection, which involves the danger of small paravasal deposits of thorotrast®, is never advisable.

Klinische Wochenschrift, Heidelberg

26:577-608 (Oct. 1) 1948. Partial Index

- Thromboplastography, a New Method of Examination in Studies on Coagulation of Blood. H. Hartert.—p. 577.
Symptoms of Pernicious Anemia in Case of Hemolytic Icterus. G. Körner.—p. 583.
Red Blood Picture During the War and After-War Period. H. Vogt and Erika Börm.—p. 586.
Diagnosis of Familial Erythroblastosis and of Abortions and Stillbirths Caused by Rh Factor. P. Dahr.—p. 588.
Lead Content of Blood and of Cerebrospinal Fluid in Experimental Lead Poisoning. G. Straube.—p. 595.
Greater Dissemination of Cholera in Recent Years. H. Brandis.—p. 598.
*Carcinoma of Male Breast After Treatment with Estrogenic Hormone. G. Liebegott.—p. 599.

Carcinoma of Male Breast After Treatment with Estrogenic Hormone.—Liebegott presents the case of a man, aged 66, who was treated for inoperable carcinoma of the prostate by intramuscular implantation of tablets of an estrogenic substance. Two weeks after the first implantation the patient observed a swelling of the mammary glands, which did not subside again. Six months after a second implantation of hormone tablets, which was carried out four months after the first implantation, the right mammary gland was the size of a fist and two nodules could be felt in the upper and outer quadrant of the left breast. Four months later the left breast was amputated and the axillary lymph nodes were removed. Recovery after this operation was uneventful, but histologic examination revealed carcinoma of the breast and metastases in two axillary lymph nodes. The clinical and objective aspects of the carcinoma of the prostate had greatly improved during the treatment with the estrogenic hormone.

26:641-672 (Nov. 1) 1948. Partial Index

- Normal and Pathologic Histology of Peripheral Sympathetic Nervous System. E. Herzog.—p. 641.
*Hypertrophy of Parotid Glands and Diabetes Mellitus. K. Mellinghoff.—p. 652.
Grand Mal Epilepsy. R. Janzen.—p. 655.
Modification of Gram Staining. H. Knothe and W. Maassen:—

Hypertrophy of Parotid Glands and Diabetes Mellitus.—Having observed a decided change in the facial contours of some patients with diabetes mellitus, which was found to be due to enlargement of the parotid glands, Mellinghoff decided to investigate whether this hypertrophy of the parotid glands is of significance in the metabolic disturbance that characterizes diabetes. He presents the histories of 5 patients which suggest that the hypertrophy of the salivary gland in the diabetic patient usually is a part of a syndrome of endocrine disturbances, in

which extrainsular disturbances play a part. The superimposed diencephalohypophysial system apparently plays the decisive role. In 3 of the 5 reported cases, a hypophysial factor seemed to be the dominating one; in a fourth case such a factor seemed probable. Cases like the fifth one are now regarded as of primary hypophysial origin. The author considers it as improbable that the enlargement of the salivary glands is the result of a compensatory function for the impaired carbohydrate metabolism, although this has been suggested by some. He is of the opinion that the enlargement of the salivary glands, particularly of the parotid and sometimes also of the lacrimal glands, is a reaction resulting from hormonal stimulation which can be compared with any other distant symptom in the course of endocrine disturbances, such as with exophthalmos, hyperostosis frontalis and striae distensae. The diencephalohypophysial factor seems to be the decisive one, either a primary lesion in this system being responsible or secondary retroaction on this cerebral sphere being involved. Parotid hypertrophy has been observed in obese patients without signs of disturbances in the carbohydrate metabolism, in various endocrine disorders and even after ovariectomy, most probably by the intermediate action of the hypophysial system.

Nederlandsch Tijdschrift v. Geneeskunde, Amsterdam

92:3813-3912 (Nov. 20) 1949. Partial Index

- Case of Alcaptonuria. L. S. Hannema.—p. 3820.
Results of Partial Patectomy. J. B. Mullers.—p. 3824.
Systematic Treatment of Primary and Secondary Syphilis with Penicillin and with Penicillin and Bismuth. Grouping of Patients Requiring Second Treatment. H. A. van Zwijndregt, E. P. van Steenberghe and A. C. M. Stam.—p. 3828.
*Prefrontal Lobotomy (Leukotomy) in 16 Patients with Chronic Schizophrenia. P. S. Eringa.—p. 3844.

Prefrontal Leukotomy in Chronic Schizophrenia.—Eringa reviews observations on 16 cases of chronic schizophrenia, in which leukotomy was performed according to the method of Freeman and Watts. In about half of the patients the operation exerted a favorable influence. One patient died shortly after the operation. The author discusses the personality changes that resulted in these patients and suggests that this operation be considered in cases of severe chronic schizophrenia in which the various types of shock treatments have been without effect.

Nordisk Medicin, Stockholm

40:2133-2188 (Nov. 19) 1948. Partial Index

- *Treatment of Pernicious Anemia with Special Reference to Hypersensitivity to Liver Extract. H. Malmros and B. Herner.—p. 2138.
Antistreptolysin Reaction. R. Saxholm.—p. 2140.
Streptococcus Agglutination and Antistreptolysin Titer in Primary Chronic Polyarthritis. V. A. Porsman.—p. 2147.
Hepatitis and Polyarthritis. Inger-Louise Marner.—p. 2151.
Thrombosis of Posterior Inferior Cerebellar Artery (Wallenberg's Syndrome). E. C. Astrup.—p. 2156.

Treatment of Pernicious Anemia with Special Reference to Hypersensitivity to Liver Extract.—Malmros and Herner report on 17 cases of pernicious anemia treated perorally with a maintenance dose of 1 or 2 tablets of folic acid and 5 Gm. of a stomach-liver preparation daily. The results were satisfactory in 15 cases observed for over a year. In 2 cases neurologic symptoms developed and injection treatment with liver, interrupted because of hypersensitivity reaction, had to be resumed; the patients were desensitized with strongly diluted and gradually more concentrated solutions of liver extract till the ordinary dose of undiluted liver extract could be given. Injection of 0.5 to 1 cc. epinephrine solution a few minutes before the injection of liver prevented allergic reactions. The neurologic symptoms disappeared on treatment with liver in sufficiently large dosage and in spite of continued administration of folic acid in 1 case, and are ascribed to a deficiency disorder. Folic acid treatment is potentially dangerous because of the risk of neurologic complications. Peroral treatment combining folic acid and stomach-liver preparation is also not without danger. If the treatment is applied, constant observation of the patient is called for. Numbness of the hands and feet or other unpleasant sensations from arms and legs should immediately be reported to the attending physician.

Nourrisson, Paris

36:189-248 (Nov.-Dec.) 1948

Difficulties in Growth of Newborn Babies. L. Ribadeau-Dumas, Héreaux, J. Debray and Boeswilwald.—p. 189.

*Neurologic Sequelae of Familial Hemolytic Disease; Integrity of Hepatic Parenchyma Verified Seven Years After Onset of Nervous Symptoms. R. Turpin and H. Duchène.—p. 203.

Comparative Study of Mortality of Infants During the Periods of 1937-1938 and 1945-1946. Causes of Its Increase. P. Beyer and M. Lagoutière.—p. 212.

Neurologic Sequelae of Familial Hemolytic Disease.—Turpin and Duchène report a boy aged 6½ years who was admitted to the hospital for a choreoathetoid syndrome with extrapyramidal symptoms of Little's disease and cerebellar disturbances. Involuntary movements and disturbance of speech made the utilization of Binet's test difficult, but, except for this reservation, the mental capacity could be considered normal. Two weeks before the admission of the patient his mother was delivered of her second child, a boy who had kernicterus for one month. Examination of the blood of the parents and of the newborn baby demonstrated isoimmunization of the mother in response to having been pregnant with an Rh-positive fetus. History of the older boy revealed that he had presented icterus for the first days after birth, difficulties in growth and nutrition, insomnia and convulsions and that at the age of 3 he could not walk and could pronounce only a few words with difficulty. A liver biopsy performed on the older boy at the time his younger brother presented icterus demonstrated that structure and function of the cells of the parenchyma were normal. The younger boy, now aged 2, cannot pronounce more than those few words that he had been able to pronounce when he was aged 1; he cannot walk and he can assume an erect position only with support. The younger brother thus presents neurologic disturbances similar to those of his elder brother. In both patients these disturbances may be considered as sequelae of kernicterus. From the case of the older patient and from others cited in literature it is concluded that the association of kernicterus and cirrhosis is an exception which seems to be the result of a local effect of the hemolytic process. This disturbance must be distinguished from the hepatolenticular degeneration in Wilson's disease in which the association of the hepatic and neurologic disturbances may result either from a linkage or from the spread to the liver of neurologic lesions by which certain metabolic centers are affected.

Praxis, Bern

37:907-924 (Dec. 9) 1948

Congenital Superior Radio-Ulnar Synostosis. G. Meillard.—p. 907.

*Patients with Scarlet Fever Treated at Home with Depot-Penicillin; Experiences from Scarlet Fever Epidemic in Basel in 1948. F. Buser.—p. 912.

Sciatica as Sequela of Focal Necrosis and Mucous Degeneration in Ligamentum Flavum. W. Hf.—p. 915.

Depot Penicillin in Scarlet Fever.—An epidemic of scarlet fever attacked more than 1,000 persons within a few days in Basel in August 1948. There were not enough hospital beds available. Buser therefore treated 61 patients at home, 54 children between the ages of 3 and 14 years and 7 adults. Forty-nine patients were given daily injections of 1 cc. of procaine penicillin in oil (300,000 units) for four to five days, while 12 patients were treated without penicillin. In most of the cases the disease was of medium severity. The initial toxic phase subsided rapidly with return of temperature to normal within forty-eight to seventy-two hours. Complications such as mild nephritis, otitis media and cervical lymphadenitis occurred in only 3 patients (6 per cent) treated with penicillin, while hemorrhagic nephritis, cervical lymphadenitis and phlegmon of the angle of the jaw occurred in 4 of the 12 patients (33 per cent) who were treated without penicillin. There were recurrences of mild fever, probably abortive relapses, in 12 patients (25 per cent) treated with penicillin. Only 14 patients (about 30 per cent) remained definitely free of hemolytic streptococcus after the injections of penicillin. Not a single carrier of hemolytic streptococcus could be freed of the bacteria by oral administration of penicillin. Strict rest in bed was required for only eight to ten days because of the rapid clinical improvement, but convalescence lasted for at least two to four weeks. The

depot penicillin makes possible simple and successful treatment of scarlet fever at home. The favorable effect of penicillin on the toxic initial phase was similar to that obtained with a satisfactory antitoxin, but for the prevention and the treatment of complications penicillin is superior to antitoxin and to sulfonamide compounds. For cases of grave septic and toxic scarlet fever a combination of the various methods of treatment is the method of choice.

Prensa Médica Argentina, Buenos Aires

35:2449-2530 (Dec. 31) 1948. Partial Index

*Traumatic Cancer of Lung. P. C. Rospi.—p. 2508.

*Prevention of Headache Following Spinal Anesthesia. J. P. Caccia.—p. 2511.

Traumatic Cancer of Lung.—Rospi reports a man, 59 years of age, who suffered a severe trauma to the region of the left half of the chest. The trauma was followed by symptoms of pulmonary disease. A roentgenogram taken seven months later revealed a tumor shadow on the traumatized side. A biopsy taken by bronchoscopy showed basal cell epithelioma. The mechanism of the development of cancer in this case was probably one of trauma stimulating neoplastic proliferation of the lung which was constitutionally predisposed to cancer.

Prophylaxis of Headache Following Spinal Anesthesia.

—Caccia prevented headache after spinal anesthesia by administering vitamin B intraspinally. He mixed 2.2 cc. of vitamin B in sodium chloride solution, which contained 100 mg. of the substance, with the anesthetic solution to be injected intraspinally. The anesthetic effect was superior both in intensity and in duration. Headache was prevented. The author obtained favorable results from this method in more than 100 cases.

36:63-100 (Jan. 14) 1949. Partial Index

*Abscess of Lung and Abscess of Brain. M. Joselevicz and M. Kleimans.—p. 74.

Abscess of Lung and of Brain.—A man 34 years of age presented symptoms of bronchopulmonary disease, cough and fever which were controlled by penicillin. The roentgen examination of the thorax showed a cavity in the left lung. Examination of the sputum for tubercle bacilli was negative. Two months later the patient reentered the hospital complaining of loss of weight, aggravation of the bronchopulmonary symptoms, general cutaneous hyperesthesia and, for the preceding four days, constant acute headache and left hemiparesis. The cerebrospinal fluid was normal. Within four days meningitis developed, and the patient died in coma. An isolated, small abscess of the upper lobe of the left lung and an isolated abscess of the right cerebral hemisphere were found at necropsy. The case is unusual because of the development of only one cerebral abscess complicating the pulmonary abscess and also because of the seat of the abscess.

Presse Médicale, Paris

57:1-16 (Jan. 1) 1949. Partial Index

*Treatment of Late or Complicated Syphilis with Penicillin. C. Huriez and J. Dujardin.—p. 1.

Problem of Poliomyelitis and Orientation of Research. P. Lépine.—p. 2.

Frontonasal Encephalomeningocele Healed by Meningeal and Bone Plastics. G. Lazorthes, F. Deodati and P. Fage.—p. 3.

Penicillin in Late or Complicated Syphilis.—Huriez and Dujardin treated 200 patients having late or complicated syphilis with penicillin. The drug had a definite cicatrizing effect on tertiary skin lesions in 20 patients. In 28 of 33 cases of syphilitic meningitis, the lymphocytosis was reduced. In cases of this type a prolonged course with massive doses (10,000,000 units in twenty-five days) is to be preferred to the "standard" dose of 2,400,000 units. In 7 of 10 cases of cerebral syphilis the psychiatric syndrome was improved considerably, while the neurologic signs did not subside. Results obtained in 9 cases of atrophy of the optic nerve and in 3 cases of interstitial keratitis were not as constant and striking as those reported by American authors. Penicillin proved effective in 27 cases of tabes and particularly in those with lightning pains and in those with radicular attacks. Penicillin was well tolerated by patients

with cardiovascular syphilis associated with renal lesions, and the drug was fairly effective in syphilitic aortitis. Except for an occasional rise of temperature in 17 patients untoward reactions were not observed in the treatment of late syphilis with penicillin. Results obtained with penicillin in syphilitic patients with involvement of the liver, diabetes mellitus, and in pregnant syphilitic women were more satisfactory than those obtained with heavy metals. The high cost of the drug is largely counterbalanced by its rapid and effective action, particularly in cases with meningeal reaction, and also by the absence of toxic accidents. Penicillin is the drug of choice in complicated cases of syphilis.

Schweizerische medizinische Wochenschrift, Basel

78:1237-1272 (Dec. 24) 1948. Partial Index

- Effect of Alloxan in Body of Animal. A. Gigon and W. Musfeld.—p. 1237.
Osteomalacia with Paroxysmal Hypotensive Paralysis of Muscle; A New Syndrome. W. Hadorn.—p. 1238.
Penicillin and Allergy. L. Michaud and P. H. Crausaz.—p. 1242.
Periodicity in Pathology of Infection. G. Miescher.—p. 1245.
Contribution to Giant-Fillicular Lymphoblastoma; Brill-Symmers Disease. P. H. Rossier and O. Spühler.—p. 1246.
Symptol (Hydroxyphenylmethylamino-Ethanol Hydrochloride)-Histaminemia in Psychopathy and Vegetative Disorders; Sixth Report on Epinephrine-Histamine-Counterregulation. H. Staub and H. Baur.—p. 1249.
Methemoglobinemia. A. Vannotti.—p. 1252.
Anatomic Observations in Fatal Cases of Bee and Wasp Sting. C. Wegelin.—p. 1253.

Fatal Cases of Bee and Wasp Sting.—Wegelin reports 2 fatal cases of bee sting in men aged 33 and 38 and 1 fatal case of wasp sting in a man aged 39. The first patient was stung in the hand, the second in the neck and the third in the forearm. Death resulting from a single sting in all 3 cases occurred within the first hour in the first and third case and within five days in the second case. In the second case an extensive lobular pneumonia followed the initial unconsciousness, and coma persisted until death. In all 3 cases life-threatening condition developed rapidly. Nausea, cyanosis of the lips, vertigo, vomiting, pallor and sweating were followed by coma. The second patient was almost pulseless, and respiration stopped temporarily; urticaria occurred over the trunk. Necropsy revealed hyperemia of the internal organs, edema of lungs and of larynx, petechial hemorrhages of skin and mucosa and occasionally of serosa, meninges and brain, and emphysema of the lungs. The first-mentioned changes suggest severe damage to the capillary walls; the pulmonary emphysema is suggestive of an allergic reaction. The poison is absorbed rapidly by the blood, as was demonstrated in the patients bitten in the upper extremity.

Semaine des Hôpitaux de Paris

25:1-50 (Jan. 2) 1949. Partial Index

- Clinical Study of Serum Cholesterase. H. Bénard, P. Desgrez, A. Gajdos and others.—p. 1.
Thymol and Cephalin-Cholesterol Flocculation Tests in Hepatic Disorders. H. Bénard, C. Albahary, A. Gajdos and others.—p. 7.
Methionine in Treatment of Cirrhoses. H. Bénard, A. Gajdos and P. Rambert.—p. 12.
Acidosis Induced in Cirrhotic Patients by Large Doses of Methionine. H. Bénard, A. Gajdos, P. Rambert and H. Péquignot.—p. 17.

Methionine in Cirrhosis.—Bénard and his co-workers treated 7 patients, 4 men and 3 women between the ages of 30 and 70, who had cirrhosis of the liver with methionine. Five to 10 Gm. of the drug was administered daily by mouth. In 5 patients diuresis and general condition were considerably improved. In the 2 other patients the treatment failed. The drug was well tolerated except in 1 patient. Acidosis resulted from large doses of methionine in all patients but was not associated with clinical symptoms except in 1 patient in whom mental confusion took place. Confusion subsided after administration of sodium bicarbonate. In spite of the favorable effect of methionine, it does not cure the cirrhosis. The ascites did not disappear completely in any of the cases and there was no return to normal of the function tests. The drug does not seem to affect the late course of the disease. The biochemical mode of action of methionine on the liver is still obscure. It is probable that the drug may play the part of an agent of transmethylation because of its easily detachable methyl radical.

It also participates in the synthesis of choline. Combined with other methods of treatment methionine is capable of improving the condition of cirrhotic patients.

Tuberkulosearzt, Stuttgart

2:777-830 (Dec.) 1948. Partial Index

- Dysontogenesis and Generalized Tuberculosis. E. Auge.—p. 780.
*Tuberculous Pleuritis and Its Relationship to Tuberculosis in Bones and Joints. H. Holzhauser.—p. 783.
"Rheumatism" and "Sciatica" in History of Tuberculous Spondylitis. W. Rojczyk.—p. 788.
Tuberculous Meningitis and Its Relationship to Seasons. Observations on 44 Cases of the State Hospital "Mammolshöhe" for Children and on 124 Cases of University Clinic Frankfurt on Main During Periods of 1929 to 1946, Respectively 1935 to 1946 included. S. Röckl.—p. 791.

Pleurisy and Tuberculosis in Bones and Joints.—Holzhauer reports 369 patients with tuberculosis in the bones and joints who were admitted to the sanatorium Sonnenblick in Marburg (Lahn) during the period 1932 to 1947 and who presented signs of previous pleurisy. Changes in the pleura were revealed by past history in 28 patients (3.6 per cent), by history and roentgenologic examination in 154 patients (20.3 per cent) and by roentgenologic examination alone in 187 patients (24 per cent). Of 172 patients between the ages of 16 and 45 years who had pleurisy, 105 (61.2 per cent) were between the ages of 16 and 25 years. In 101 of 182 patients—i. e., in 55.5 per cent—the interval between the manifestations of pleurisy and those of tuberculosis in the bones and joints was one year or less. In the following years this percentage decreased, and only 8 patients (4.4 per cent) manifested tuberculosis in the bones and joints in the fourth year after pleurisy. A casual relationship between tuberculosis of bones and joints and a previous attack of pleurisy must be considered at least for a period of two years. An attack of pleurisy which at this interval is followed by a chronic disease of the bones and joints should arouse suspicion of tuberculous origin. The maximum incidence of pleurisy in patients between the ages of 16 and 25 and the hematogenous tuberculosis of the bones and joints which followed the pleurisy suggest that this type of pleurisy should be considered as a manifestation of the secondary stage.

Wiener klinische Wochenschrift, Vienna

60:837-852 (Dec. 31) 1948

- Anatomicopathologic Observations in Cases of Tuberculous Meningitis Treated with Streptomycin. H. Chiari.—p. 837.
Treatment of Miliary Tuberculosis with Streptomycin. O. Ruziczka.—p. 840.
*Observations on Fundus Oculi of Patients with Tuberculous Meningitis and Miliary Pulmonary Tuberculosis Treated with Streptomycin. F. Mejer.—p. 842.
Results of Cochlear and Vestibular Examination After Treatment with Streptomycin. E. H. Majer.—p. 844.

Fundus Oculi of Tuberculous Patients Treated with Streptomycin.—Mejer examined the fundi of 42 children, 15 with tuberculous meningitis without definite miliary pulmonary tuberculosis, 19 with tuberculous meningitis and miliary pulmonary tuberculosis and 8 with miliary pulmonary tuberculosis not associated with tuberculosis meningitis, who were treated with streptomycin. Choked disks were observed in more than one third of the patients with tuberculous meningitis whether or not it was associated with miliary pulmonary tuberculosis. Swelling of the papilla in the initial stage of the disease is of no importance with regard to diagnosis and prognosis, while complications may be expected in the presence of a choked disk. Late changes in the papillae constitute objective evidence of complications in the course of healing. Typical miliary choroidal tubercles or so-called solitary choroidal tubercles were observed in more than one third of the patients and most frequently in those with miliary pulmonary tuberculosis whether or not it was associated with tuberculous meningitis. In the majority of the children resolution of the foci was rapid after the initiation of the treatment with streptomycin, and the course of the disease was as a rule favorable. Complications or recurrences were observed in those children in whom resolution was slow. There were no toxic lesions of the optic nerve which could have been ascribed to the streptomycin. It is likely that those reported in the literature were sequelae of complications of the course of healing.

Book Notices

Shock and Allied Forms of Failure of the Circulation. By H. A. Davls, M.D., C.M., F.A.C.S., Associate Professor of Surgery, Director, Division of Surgery, Graduate School of Medicine, College of Medical Evangelists, Los Angeles Division. Cloth. Price, \$12. Pp. 595, with 55 illustrations. Grune & Stratton, Inc., 381 Fourth Ave., New York 16, 1949.

This work gives an extensive if not complete analysis of the pertinent literature. Each of the seventeen chapters closes with a bibliography. The text contains fourteen tables and fifty-five figures; one wishes the photomicrographs were better. A brief historical review is followed by twenty-six proposed definitions for shock, including one by the author.

Shock is recognized in numerous clinical conditions, and classified in seven categories: traumatic, hemorrhagic, burn, obstetrical, medical, anesthetic and operative. The author explains shock as "the triphasic response to stress"; i.e., to various conditions which disturb the internal environment of the organism. "The final result of all forms of stress, if sufficiently severe, will be anoxia of varying degree." The first phase is that of anoxic injury to cells. The second or catabolic phase is breakdown of body constituents, evidenced by increased non-protein nitrogen, urea, creatinine and polypeptides in the blood, hemolysis, hemoglobinuria and fever. The third or anabolic phase is reparative: regeneration of cells and the reestablishment of homeostasis by physiologic agencies.

Some will inquire by what mechanism stress produces anoxia and why anoxic effects on endothelium are of no importance. The triphasic description may fit cases reaching recovery, but those progressing to early fatality can hardly be described as triphasic.

Six chapters present details concerning degrees and stages of shock, its physiologic, biochemical and pathologic features, the effects of anoxia and other factors leading to irreversibility. Eight chapters are devoted to failing circulation incident to various clinical conditions. The findings of others are cited freely, and in most cases objectively. These discussions are both theoretic and practical, reflecting a broad survey of the literature. The final chapter, 60 pages, discusses the prevention and management of shock, therapeutics, restoration of blood volume, choice of anesthetics and contraindications for surgery in shocked patients.

The author recognizes anoxia, hemoconcentration, disturbances of fluid balance and abnormal distribution of electrolytes as factors in shock, but explanations of their origins and relationships are fragmentary or lacking. The extensive review of pertinent literature gives this treatise a scholarly tone, but by myopic perspective on major versus minor contributions the author fell short of a scholarly achievement. Appreciation of the significance of capillary phenomena as depicted by Starling, Krogh, Landis and others would have enhanced the value of this work. These defects do not lessen the value of this book to medical and surgical practitioners and specialists who inevitably must deal with shock. For them it was written, and it contains much practical information applicable to the prevention and management of shock.

The Commonsense Psychiatry of Dr. Adolph Meyer. Fifty-two Selected Papers edited, with Biographical Narrative, by Alfred Lief. Cloth. Price, \$6.50. Pp. 677, with portrait. McGraw-Hill Book Co., Inc., 330 W. 42nd St., New York 18, 1948.

A lay writer attempts to delineate the special historical position in psychiatry of a great man who developed far ahead of his time. The job is well done, and many of Dr. Meyer's most obscure writings are made more understandable. However, Meyer's work could have been summarized in a book of less than 670 pages by a psychiatrist, for today we may summarize his work that still lives in a few paragraphs. The modern psychiatrist understands Dr. Meyer's struggles to formulate a dynamic holistic approach to the human being and understands the difficulties of teaching such an approach. But he finds it difficult to fathom how a pioneer suddenly stopped short in his progress and became antagonistic to psychodynamic formulations of unconscious forces. For this other minds were necessary.

Obstetrics and Gynaecology: A Synoptic Guide to Treatment. By Beatrice M. Willmott Dobbie, M.A., M.B., F.R.C.S. Cloth. Price, 20s. Pp 358, with 22 illustrations. H. K. Lewis & Co., Ltd., 136 Gower St., London, W.C.1., 1948.

The author stresses that this book is intended for the general practitioner and particularly those that deal with the patient in the home. It is added, "The book deals almost exclusively with treatment, and lays a much needed emphasis on preventive treatment." There are few illustrations. Special commendation is offered for the lack of quotations and prior reference. Bibliography is avoided conveniently. The explanations are confidently expressed and carry the impression that the author writes from first hand experience.

Portions of the wording about the method of practice are certainly not fitting to those who do hospital deliveries exclusively.

In one hospital there were 62 cases of failed forceps. The fetal mortality from breach deliveries in the same hospital was 18 per cent. These two reports cast doubt on the quality of obstetrics in that community, but do give additional experience to the qualified obstetrician.

The chapters are appropriate in their sequence. The book has an appeal in its literary form and is easily read. It is not as complete in some portions as one might desire.

Many physicians doing obstetrics could profit by study of the diagnoses, the methods of treatment and the prognoses as presented by this writer.

Orthopsychiatry 1923-1948: Retrospect and Prospect. Prepared under the Editorial Supervision of Lawson G. Lowrey, M.D., and Victoria Sloane. Fabrikoid. Price, \$8.50. Pp. 623. American Orthopsychiatric Association, Inc., 1790 Broadway, New York 19, 1948.

This volume, marking the celebration of the twenty-fifth anniversary of the American Orthopsychiatric Association, provides essays on various aspects of the growth and development of orthopsychiatry through the past quarter of a century; twenty-nine eminent contributors have made this an impressive panorama. The whole volume indicates what stature and significance the orthopsychiatric movement has attained.

Orthopsychiatrists have reason to be proud of their twenty-five years of achievement. From simple beginnings with the study of conduct difficulties of delinquent children, the movement has expanded into the broad field of endeavor now represented by the child guidance clinics throughout the nation. Hand in hand with this physical expansion have gone refinement of treatment technics and a deepening of our understanding of the dynamics of human personality. "Orthopsychiatry 1923-1948" tells this story.

Orthopsychiatric points of view are coming to have more and more influence on pediatric thought and education. Thus pediatricians will welcome this opportunity to read about the origins of the movement, the manner of development of the child guidance clinics and the genesis of the underlying concepts. The keynotes of orthopsychiatry are sounded throughout the book: (1) that the surest attack on the problem of mental illness in our society is one of prevention, through mental hygiene work with children, and (2) that members of all the professions concerned with child care (psychiatry, psychology, social work, pediatrics, education, etc.) can most profitably work together in teams, to the common end of studying and treating childhood behavior problems. The emphasis throughout is primarily on treatment.

The book is large and perhaps not easily read. It is, nevertheless, full of rewarding material. Some of the articles are short, some long; some confine themselves largely to history and descriptions of clinical and teaching facilities; others discuss underlying concepts at some length.

From such rich and varied fare each reader will choose different essays to single out as individually noteworthy. The reviewer was particularly impressed by the following: William Healy and Augusta F. Bronner's story of the "Birth and Growth of an Idea—the Child Guidance Clinic"; Ben Karpman's scholarly review of "Milestones in the Advancement of Knowledge of the Psychopathology of Delinquency and Crime"; the

"Symposium—The Role of a Scientist in Society" with papers by Franz Alexander, Lawrence E. Cole and Margaret Mead, and Samuel J. Beck's evaluation of "Rorschach's Test in This Anniversary Year." Special note should also be made of the two papers on interrelationships between pediatrics and orthopsychiatry. For stimulating reading in an important field this book is recommended to everyone professionally concerned with children.

The 1948 Year Book of General Medicine. Edited by Paul B. Beeson, M.D., and others. Fabrikoid. Price, \$4.50. Pp. 821, with 158 illustrations. Year Book Publishers, 304 S. Dearborn St., Chicago 4, 1948.

Part I of the 1948 Year Book of General Medicine contains a review by Paul B. Beeson of the literature on the subject of chemotherapy and antibiotic therapy in various infectious diseases, and a review of literature on the use of para-aminobenzoic acid and chloromycetin in typhus and Rocky Mountain spotted fever. One chapter is devoted to the literature on the effectiveness of vaccine against influenza. There is also a brief discussion of more recently recognized and less widely known clinical entities such as Q fever, rickettsialpox, leptospirosis and toxoplasmosis. J. Burns Amberson reviews in part II diseases of the chest, the normal and abnormal physiology of respiration, the normal and abnormal anatomy and the diagnostic and therapeutic procedures. There is an adequate discussion of the vascular and circular disturbances which embrace such clinical entities as the tetralogy of Fallot, pulmonary arteriovenous aneurysm, pulmonary embolism, asthma, neoplasms and cysts and infectious diseases. A separate chapter is devoted to the subject of BCG vaccination. Literature on diseases of the blood and blood-forming organisms and diseases of the kidney is surveyed by George R. Minot and William B. Castle. A chapter is devoted to erythroblastosis fetalis and hemolytic anemias. Tinsley R. Harrison, in part IV, devoted to diseases of the heart and blood vessels, reviews in considerable detail the recent advances made in the field of congenital heart disease. This is followed by disorders of the blood vessels including hypertension, arteriosclerosis and disturbances of the circulation of the brain and the extremities. There are chapters dealing with normal and abnormal physiology, congestive heart failure and the arrhythmias. A special chapter is devoted to the anticoagulant therapy. Literature on diseases of the digestive system and metabolism is reviewed by George B. Eusterman. The therapy of gastric duodenal ulcer including vagotomy and various other methods is considered. Infectious hepatitis, biliary liver cirrhosis and lipotropic therapy of fatty liver are discussed.

The small volume offers to the general practitioner and the internist a comprehensive reference to the recent advances in the field of internal medicine.

Osteo-Arthritis of the Hip-Joint. By H. Warren Crowe, D.M., B.Ch., M.R.C.S. Cloth. Price, 35s. 6d. Pp. 70, with 5 illustrations and 14 plates. George Pulman & Sons, Ltd., 24-27 Thayer St., London, W. 1; Distributed by Rolls House Publishing Co., Ltd., Rolls House, 2 Breems Bldgs., London, E.C. 4 [n.d.].

This book is based on Crowe's personal experience with a large number of cases of osteoarthritis of the hip joint. He asserts that degeneration is not the main causal factor, that the relief of the patient's pain should never be the primary object of therapy but rather the arrest of the pathologic process together with measures of rehabilitation.

The scope of the book is chiefly medical. With two exceptions, operations are not described, because as soon as the methods advocated by Crowe become generally used the surgeon will no longer have to advocate fixation of the joint as the only remedy for intolerable pain.

The basis of this book is a series of 500 cases treated since 1927 with the full use of the facilities available at the Charterhouse Rheumatism Clinic.

Harry Coke's biochemical researches have been the main factor in deciding such issues as the degree of infection, of hepatic dysfunction or of endocrine imbalance. His differential sedimentation test has been helpful.

Osteoarthritis of the hip joint is a slow progressive disease leading to crippling deformity characterized by a variable proportion of inflammatory and of degenerative processes which involve all the joint structures associated with atrophy of muscle

nerve irritation and new bone formation. The most important of the pathologic processes is the synovial inflammation.

For the past twenty-five years, Crowe has treated every patient having osteoarthritis of the hip joint with vaccines, from time to time adding other useful auxiliary methods. In 60 or 70 per cent of patients who persisted in the treatment for twelve months, the disease has been arrested.

In addition to the intra-articular injections, exercises have been devised for increasing the strength of the muscles and maintaining mobility, more especially for counteracting the tendency of adductor spasm to produce the apparent shortening of the affected limb. Special instruments for separating the legs, worked by the patients themselves, have also been of great value, especially when both hips are involved. Lastly, the operation devised by Tavernier, of section of certain branches of the obturator nerve, has been performed with encouraging results, as the pain in the joint and the adductor spasm have been completely relieved.

The operation consists in section of the sensory branch of the obturator nerve which supplies the hip joint. The obturator operation was apparently first performed by Vulpian and Stoffel for displastic paraplegia. Seelig later divided the nerve intrapelvically.

Crowe gives full credit to Grant Waugh for introducing a valuable method which has gone a long way in revolutionizing the treatment of osteoarthritis. He found that the pH of fluid aspirated from a joint with acute synovitis was on the acid side of normal, whereas in the joint with chronic disease the reaction had become alkaline. Grant Waugh injected lactic acid into the joint cavity. Crowe and Koch substituted first acid potassium phosphate and then the magnesium salt.

Report of the Sanitary Commission of Massachusetts 1850. By Lemuel Shattuck and others. With a foreword by Charles-Edward Amory Winslow. [Dutton and Wentworth, State Printers, Boston, 1850.] Cloth. Price, \$4.50. Pp. 321. Harvard University Press, Cambridge, Mass., 1948.

This republication of the record of the sanitary commission of Massachusetts, dated 1850, is particularly timely as we approach the centennial anniversary of its publication. It is generally credited to Lemuel Shattuck and is known as the Shattuck report. Almost a century ago it made many fundamental proposals which are recognized as the essentials for public health organization and procedure today. Most notable was its proposal for creation of state and local boards of health, which were then nonexistent. Even today local boards are in such a state that their further development and extension is a major public health objective.

The Shattuck recommendations regarding vital statistics, community sanitation, health of the school child, training of nurses, house and slum clearance and medical research are still the principal areas in which medical progress is being made today.

The book is beautifully printed and bound with a frontispiece reproduction of the cover and title page of the original report, the latter containing a pencilled notation in brackets, "By Lemuel Shattuck." Many of the original illustrations are reprinted, as are the tabulations.

This is an epoch-making document in the history of public health. It can be recommended for study today by all those concerned with the progress of public health services from the present date onward. An honest appraisal of the progress that we have made in the hundred years since the Shattuck report would force the acknowledgment that in the fundamentals basic to further public health work we have made relatively little progress and that we had better look to these matters before we spread ourselves out more thinly over broader areas. Until we have a satisfactory status of vital statistics, public health laboratory services, communicable disease control, maternal and child health protection, community sanitation and health education—the six fundamentals—and until we have qualified public health units in all our counties we had better put away grandiose tones of a superbureaucracy for the alleged delivery of mythical medical care to all the people.

We need a modern Lemuel Shattuck to give us an incisive and comprehensive picture of the status of public health progress today as Shattuck gave it in this report to his contemporaries a century ago.

Your Baby: The Complete Baby Book for Mothers and Fathers. By Gladys Denny Shultz, Contributing Editor, Ladies' Home Journal, and Lee Forrest Hill, M.D. Photography by Joseph di Pietro. Line Drawings by Reisle Lonette. Cloth. Price, \$3.50. Pp. 278, with illustrations. Doubleday & Co., 14 W. 40th St., New York 20, 1948.

Described as the first book to recognize that babies have two parents, this volume might well also be termed probably the most complete of its kind. It carries parents through the various stages of motherhood and fatherhood from part 1, "A Baby on the Way," to the point where babyhood ends, at age 6. Illustrative of the detailed treatment is part 4, "Newborn to Yearling," in which parents are told "what to do" each month of the first year. There are ten parts, the last being a 34 page record section in which doting parents can enter minute details of the youngster's progress, including two pages devoted to mental, physical and nervous development.

Written in an easy, friendly and sympathetic style, the book should prove of much value both as a source of practical information for parents and as prophylaxis against the jitters of expectancy. Certainly it is an admirable mouthpiece for the busy physician, since the answers are exactly what he would give if it were humanly possible in the relatively brief interviews provided during prenatal, confinement, postnatal and pediatric periods.

In addition to excellent photographs that illustrate many of the instructions, attractive line drawing are scattered throughout the pages. Two especially helpful parts are those dealing with formulas and recipes with full details of preparation, and ailments and accidents.

This book can be recommended unreservedly to expectant mothers and fathers.

Technik der kinderärztlichen Differenzialdiagnostik für Studierende und Praktische Ärzte. Von Prof. Dr. Alphons Solé, Primarius des Karolinen-Kinderspitals der Stadt Wien. Cloth. Price, 20 Swiss francs. Pp. 384. Benno Schwabe & Co., Klosterberg 27, Basel 10; Imported by Grune & Stratton, Inc., 381 Fourth Ave., New York 16, 1948.

This book is written primarily for the general practitioner. With that objective in mind, the author reviews the basic facts about the child with special reference to physical examination and differential diagnosis.

The author devotes various chapters in his book to the discussion of rashes, disturbances of the sensorium, hemorrhage, anemia, cyanosis, respiratory disturbances, vomiting, diarrhea, convulsions, paralysis, icterus, edema and fever.

There are also chapters on examinations of the mouth and throat, the bones and joints, the abdomen, liver and spleen. The author also discusses the reasons for failure to gain weight and the significance of tuberculin reactions. Of special value are his tables on differential diagnosis.

Throughout the book, the author stresses the fact that the child is not a miniature adult and deplores this widespread misconception, which has been the source of many errors in diagnosis. He presents the child in a special pediatric setting with individual characteristics both in health and in disease.

Chemical Analysis: A Series of Monographs on Analytical Chemistry and Its Applications. Editorial Board: Beverly L. Clarke, I. M. Kolthoff, L. T. Hallett and Hobart H. Willard. Volume IV: Organic Reagents Used in Gravimetric and Volumetric Analysis. By John F. Flagg, Ph.D. Cloth. Price, \$6. Pp. 300, with 11 illustrations. Interscience Publishers, Inc., 215 Fourth Ave., New York 3, 1948.

This volume is the fourth in a series on analytical chemistry and its applications. It deals only with those organic reagents used as precipitants for gravimetric and volumetric analysis of inorganic ions.

The book is divided into two sections; namely, "General Discussion" and "Special Reagents." The first section deals largely with the theory of this method of inorganic analysis, discussing the types of salts formed by the different reagents, the various factors influencing salt formation, the structure and stability of the salt formed, the different methods employed in separation of inorganic ions and the general technics involved for a satisfactory analysis of this type.

In contrast to the theoretical considerations in the first division of the book, the second section deals entirely with the

practical side of analysis. Each of twelve chapters are devoted to a specific organic reagent or class of reagents, and detailed procedures are given for their use with various metals. A single chapter is devoted to seven organic reagents whose application is somewhat limited. One chapter also describes the use of organic precipitants for several anions.

The author has given numerous bibliographic references which seem to be rather complete through 1945, and this adds much to the usefulness of the book.

Elementary Anesthesia. By W. N. Kemp, M.D.C.M., Consultant Anesthetist, Children's Hospital, Vancouver, B. C. Cloth. Price, \$5. Pp. 289, with 100 illustrations. Williams & Wilkins Co., Mt. Royal & Guilford Aves., Baltimore 2, 1948.

This book represents the best judgment of the author, an experienced anesthesiologist, in presenting, on the basis of not only his own experience but also publications which appear valuable to him, the information that he considers is most important for the anesthesiologist. He has kept his text to the minimal amount that it is probably possible to have and still cover the entire field of activity of the present day anesthesiologist in clinical practice. One hundred illustrations are used to emphasize the points the author considers of moment. This book will be valuable to beginners in anesthesiology. It is a welcome addition to the too small list of books on the subject.

Health Instruction Yearbook 1948. Compiled by Oliver E. Byrd, Ed.D., M.D., F.A.P., H.A., Professor of Health Education, and Director, Department of Hygiene, School of Education, Stanford University, Stanford, California. Foreword by Ray Lyman Wilbur, M.D., Chancellor, Stanford University. Cloth. Price, \$3.50. Pp. 320. Stanford University Press, Stanford, California; Oxford University Press, Amen House, Warwick Square, London, E.C. 4, 1948.

This is the sixth in a series begun in 1943. They are excellent, if not essential, books for the library of the public health officer, the medical writer, the social worker or any one who is concerned with medical progress, social advances and the health of the people. If the reader remembers that when he wants the 1947 material he will look for it in the 1948 Year Book, an anomaly which the publishers have stubbornly refused to correct, he will find these volumes serviceable and interesting.

The Practice of Physical Medicine. By Heinrich F. Wolf, M.D., Consultant, Department of Physical Therapy, Mount Sinai Hospital, New York. Cloth. Price, \$5. Pp. 322, with illustrations. Wilcox & Follett Co., 1255 S. Wabash Ave., Chicago 5, 1947.

This volume contains the opinions of the author regarding the practice of physical medicine, but there is some question whether all of his opinions will coincide with those of the majority of physiatrists, especially in the treatment of pneumonia, asthma, rheumatism and other conditions. Eight chapters are included, among which are chapters on hydrotherapy, mechanotherapy, light therapy, electrotherapy and minor electrosurgery. There is much value in the book, and it can be used as a reference.

Gehirn und Rückenmark: Leitfaden für das Studium der Morphologie und des Faserverlaufes. Von Emil Villiger. Bearbeitet von Eugen Ludwig, o.o. Professor der Anatomie an der Universität Basel. Basel. Fourteenth edition. Cloth. Price, 36 Swiss francs. Pp. 481, with 326 illustrations. Benno Schwabe & Co., Klosterberg 27, Basel, 1946.

This book deals mainly with the morphology of the brain and spinal cord. It contains an enormous amount of information enhanced by illustrations. The first ten editions were written by Professor Villiger. Since his death, in 1931, Professor Ludwig has handled the revision of the book. This volume is of great value to anatomists, neurologists and neurosurgeons.

Baby Book. Prepared by New York State Department of Health Bureau of Maternal and Child Health. Paper. Pp. 48, with illustrations. New York State Department of Health, Albany, N. Y. [n.d.].

This is a handy, attractively made, concise and authentic little book prepared by the Bureau of Maternal and Child Health of the New York State Department of Health and reviewed and approved by the Committee on Public Health and Education and the Committee on Child Welfare and other representatives of the Medical Society of the State of New York. The book contains no indication of its availability outside of the state; within the state it is undoubtedly distributed by the state department of health.

Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. THEY DO NOT, HOWEVER, REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS, BUT THESE WILL BE OMITTED ON REQUEST.

PREVENTION OF CORONARY SCLEROSIS

To the Editor:—Have cardiologists agreed on prophylactic "do's or don'ts" in regard to coronary sclerosis? Odell J. Kirksey, M.D., Mulberry, Ark.

ANSWER.—Universal agreement is lacking because we know so little about the etiology. It is wise to think in terms of two types of "sclerosis." One is arteriosclerosis, which is usually associated with age and heredity; the second is atherosclerosis, which may be thought of more as a disease than as a natural process. The second type admittedly will accelerate arteriosclerosis and possibly permits the greater preventive endeavor. It occurs in a younger age group.

Arteriosclerosis is considered to be a degenerative process, possibly also influenced by an inflammatory process due to a toxic action of intermittent disease (Aschoff, Virchow, MacCollum). Wear, or aging, with or without the inflammatory process, is considered by Virchow to be the result of stress and strain. There is a loss of elasticity of the arteries, replacement by fibrous tissue and ultimately even by calcium deposits. This type is arrived at in old age, and, while in certain families the condition develops earlier than usual, at present it is considered unresponsive to therapeutic measures. When the coronary arteries are involved, and if coronary thrombosis with infarction occurs, it is possible to institute procedures which will minimize the harmful results in some cases; while in some respects this does not alter the original process of arteriosclerosis, it does favorably alter the results and constitutes in some measure a retardation of the effects of arteriosclerosis.

Atherosclerosis is often considered to be synonymous with arteriosclerosis, and the two conditions may coexist. Atherosclerosis is probably the most commonly associated condition which accelerates the arteriosclerotic process. Atherosclerosis is attributed by Leary to accumulations of cholesterol in the intima. Winternitz earlier described yellow streaks in the intima which consist of newly formed connective tissue and fat-laden wandering cells (Morgan). While these two conditions may be independent or inseparable, from a clinical point of view the approach to both problems is the same. It is agreed that certain diseases accelerate both conditions, and for purposes of discussion it is unnecessary further to differentiate atherosclerosis from arteriosclerosis. The condition is accelerated by diabetes mellitus, obesity, hypothyroidism, overwork, stress and strain, hypertension, rheumatic heart disease, syphilis and many other toxic, infectious and metabolic diseases. Prophylactic measures are obvious in the prevention or amelioration of any or all of these accelerating diseases, together with the correction of modes of living associated with excessive labor or mental stress and strain. A notable example of considerable preventive measures being employed to prevent coronary disease is in the highly successful treatment of syphilis with penicillin. It is logical to expect that the current widespread use of antibiotics in almost all infectious disease will have an ultimate prophylactic influence on coronary artery disease. It is generally considered good practice to correct the obesity factor in patients showing signs of arteriosclerosis. How much reversal of the condition is to be accomplished by correcting obesity after coronary arteriosclerosis has occurred is conjectural, but it is good practice within certain limits.

The general principle of temperance in all things is a good rule to follow. Not only will this help retard the arteriosclerotic process, when the factors of intemperance accelerate it, but it will permit the patient to get along with whatever disability he may already have. Living within one's physical capacity is a good rule. There is rather general acceptance of the thesis that the stress and strain of business account for the current high incidence of coronary thrombosis in executives. Unhappily, not all of the stress and strain of business is induced by competition from outside business relations. The pyramidal system of authority, with constant and unwise pressure "for results," causes American business men to work under unnecessary tension, and often when they should be at home. No answer has been secured as to why coronary thrombosis develops in men at a rate of almost 2 to 1 compared with women. Whether this is due to less stress and strain, or to some glandular influence or lack of it, remains to be determined.

ANESTHESIA AND ROENTGENOLOGY

To the Editor:—The medical staff of our hospital is having a discussion with our radiologist on the dangers incident to the administration of ether anesthesia in the fluoroscopy rooms of the x-ray department. Sparking from the switches has been observed recently, and this may be an explosive hazard. The members of the medical staff feel that ether anesthesia presents far less physiologic hazard to many patients than do the other general anesthetic agents, especially when complete muscular relaxation is desired as for fracture work, even considering the explosive hazard, and it is their desire to continue to use ether anesthesia when it is deemed necessary. To minimize the explosive hazard the staff has made a number of recommendations. The staff has made inquiries of thirteen comparable hospitals in the area relative to this problem, and it appears that this staff has been following precautions equal to, if not superior to, those of the other hospitals. Can you supply information as to the number of ether anesthetic explosions that have been reported in any one year, with especial reference to such explosions occurring in fluoroscopic facilities? What concentration of ether is necessary for the explosion point? What relation does humidity play in the problem? What is considered the relative mortality between ether, nitrous oxide and oxygen and thiopental sodium when given to the point of muscular relaxation—in the average adult, in the young and in the aged? What particular precautions would be advised during such ether anesthesia?

John W. Bunting, M.D., Alpena, Mich.

ANSWER.—Only occasionally is the anesthetist faced with the necessity of administering an anesthetic agent while roentgenologic equipment is in use and sparks are therefore being generated. When such a necessity arises in the hospital, it is usually either in the operating room or the roentgenologic laboratory. Whatever the situation in the hospital, the anesthetist is always aware that where there is a spark there is danger of explosion. Such a disaster is so serious that avoidable risks of it should not be taken and all possible precautions against it should be observed. The precautions are both positive and negative.

Among the negative measures, the first can be stated in the form of a rule: No inflammable anesthetic agent should be administered in a room where roentgenologic equipment is being used. Accordingly, some of the commonly employed agents that should not be used near "live" roentgenologic equipment include ether, alone or in combination with any other gas, ethyl chloride and cyclopropane. Moreover, use of chloroform in these circumstances is not advised, although that agent is not inflammable. The darkened condition of the room makes it impossible to observe the patient well.

Of the positive safety measures, perhaps the first is the following: When roentgenologic equipment is brought into the operating room, the regular machine for administering nitrous oxide, which is equipped with an ether bottle, should be removed from the room and a special nitrous oxide oxygen machine, not equipped with an ether bottle, should be substituted. This same special machine is the one to be used in the roentgenologic laboratory if nitrous oxide is to be administered.

Further positive measures have to do with the choice of agent or method and, in some cases, with dose and technic. Some years ago it was not easy to find a safe anesthetic agent or method for use when roentgenologic equipment had to be employed. The range of choice was limited. Now, however, the range of choice is wide, and there is no good excuse for departing from safe principles. Where roentgenologic equipment is in use, therefore, local, regional, spinal or intravenous methods of anesthesia may be employed, with agents appropriate to these methods; if it is desirable to employ the inhalation method, the agent should be nitrous oxide combined with oxygen but without ether. Preliminary medication also is desirable. With morphine or atropine given by hypodermic injection and pentobarbital sodium (nembutal®) given by mouth, it is possible to control the patient by means of nitrous oxide and oxygen, without ether. An additional agent and method come up for consideration when a child who has aspirated a foreign body into the trachea is to be subjected to bronchoscopy. In these circumstances solution of avertin® (tribromoethanol) with amylene hydrate is administered by rectum, the usual dose being 100 mg. per kilogram of body weight. Preliminary medication is not used in such cases.

Because of the current favor in which intravenous anesthesia is held, it merits special consideration. Intravenous anesthesia may be used where roentgenologic equipment is employed, but the agent must be given in small doses so that the patient's invisible breathing can be heard and anoxemia eliminated so far as possible. Intravenous anesthesia, nitrous oxide 50 per cent and oxygen 50 per cent, and preliminary medication, make a safe combination that may be used in practically all circumstances. Probably this is the method of choice for use in the circumstances here discussed.

If additional relaxation is necessary small quantities of curare may be administered; at the end of 15-minute relaxation will be present and then the lights may be turned out and the

patient maintained on 50 per cent nitrous oxide and 50 per cent oxygen with small amounts of intravenous pentothal.

References:

Clark, L. H.: Some Dangers Involved in the Use of Anesthetics in X-Ray Departments, *Radiography* 10: 25-27 (April) 1944.

Recommended Safe Practice for the Use of Combustible Anesthetics in Hospital Operating Rooms, Current Comment, *Anesthesiology* 2: 580-586 (Sept.) 1941; 2: 689-695 (Nov.) 1941.

Hadfield, C. F.: Use of Anesthetics in X-Ray Departments, *Radiography* 10: 17-23 (March) 1944.

COBALT IN ANEMIA

To the Editor:—A chemist informed me that research in the field of nutrition for farm animals indicated the value of cobalt as a potential substitute for iron in the treatment of the severe anemias. His wife has a severe anemia which has not responded to treatment; he is anxious that I use cobalt—about 0.75 to 1 mg. per day. What information have you on this subject?

M.D., New York.

ANSWER.—Anemia has been observed in sheep and cattle grazing in areas where the soil and herbage are deficient in cobalt. The anemia is corrected by the administration of small amounts of cobalt (Wintrobe, M. W.: *Clinical Hematology*, Philadelphia, Lea and Febiger, ed. 2, 1946, p. 96). It is difficult to produce cobalt deficiency in animals because of the low requirement of this metal. Frost, Elvehjem and Hart (*J. Nutrition* 21: 93, 1941) observed an additional effect of cobalt over that of iron and copper on hemoglobin formation in certain weanling dogs with experimental anemia. Cobalt is not a substitute for iron in hemoglobin formation, but there is experimental evidence that iron is more completely utilized in the presence of cobalt.

Polycythemia has been produced in a variety of animal species by the feeding or ingestion of cobalt. This has not been observed in man. It is of further interest that crystalline vitamin B₁₂ (prepared from liver extract), which is effective in pernicious anemia in extremely small doses, contains cobalt. Cobalt alone is ineffective in pernicious anemia. There is not much evidence that cobalt is of value in anemia in human beings. Kato (*J. Pediat.* 11: 385, 1937) found that addition of cobalt to iron in the treatment of physiologic and nutritional anemia in infants accelerated the utilization of iron in hemoglobin synthesis and erythrocyte formation. James and co-workers (*J. Lab. & Clin. Med.* 33: 1607, 1948) recently stated that in preliminary observations the daily oral administration of 60 mg. cobalt chloride to patients with prolonged suppurative infection produced increases in the erythrocyte count, hemoglobin levels, hematocrit level and total circulating hemoglobin.

GURGLING SOUND AT CARDIA

To the Editor:—My interest in a certain physical sign has been revived during studies of peptic ulcer cases. The procedure consists of having the patient (in the erect posture) take a single large swallow of water. The stethoscope is placed to the right of the spinous process of the ninth dorsal vertebra. The sound of swallowing the water is audible and the interval between this sound and a "gurbling" sound as the cardiac sphincter relaxes and the water enters the stomach is noted. I have timed patients both with and without gastric pathologic conditions and have obtained figures of 8 seconds to 40 seconds for this interval. In view of a recent article on "heartburn" appearing in *The Journal*, January 29, page 292, which favors the theory of muscular imbalance of the cardiac sphincter, I am amazed that this method of investigation was not mentioned. Does this physical sign have any diagnostic usefulness and if so in what diseases?

M.D., Pennsylvania.

ANSWER.—The "gurgle" due to the passage of material through the cardia has been well known for years. The phenomenon has not been studied or used much diagnostically, because so much more can be learned in a moment with the help of roentgen ray. Thus, one would not want to attempt the differential diagnosis of cardiospasm, cardiac carcinoma, a short esophagus or diaphragmatic hernia on the basis of the gurgle. It is much better, simpler and quicker to give barium sulfate and observe results.

GLOBIN INSULIN

To the Editor:—A patient, 62 years of age, takes 80 units of globin insulin a day. She plans to spend next July and August in England, France, Switzerland and Italy. What is the solution of her insulin supply?

M.D., New York.

ANSWER.—Globin insulin is always available in England and presumably in France, Switzerland and Italy. It is manufactured by Burroughs, Wellcome and Company, whose home offices are in England. Deterioration in a few months would be negligible with ordinary precautions.

SYRINGE TECHNIC IN PREVENTING SERUM JAUNDICE

To the Editor:—In view of the belief that improperly sterilized syringes may be the cause of serum jaundice, is simple boiling sufficient to inactivate the virus believed to be the cause of this condition, or is autoclaving necessary?

Erwin Steinman, M.D., Washington, D. C.

ANSWER.—Submersion of contaminated needles and syringes in boiling water for a sufficient length of time is a reliable method for the destruction of most pathogenic organisms including the viruses. Thorough mechanical cleansing prior to a final sterilization is imperative in order to remove any protective coating (drugs or organic matter) from the microorganisms. The plunger should be separated from the barrel of the syringe to insure contact of all parts with the boiling water. Sterilization by this method should proceed for at least fifteen minutes and the timing process should begin only after the water has begun to boil. The utilization of a tray with a wire or perforated bottom, which allows rapid drainage and aseptic manipulation of the instruments, is recommended.

It has been shown that a syringe nozzle may become grossly contaminated with blood after a single administration of a drug and should be adequately sterilized before reuse. Such contamination results from back pressure from the tissues, spread of blood by diffusion from the needle point toward the syringe and suction when removing the needle from the syringe and aspirating the needle contents back onto the nozzle. A freshly sterilized syringe should be used for each patient; in mass inoculation where this is not practicable, the use of a tap connection between the needle and the syringe has been suggested. Manual manipulation of the tap prevents contamination of the syringe nozzle; the needle and tap are removed and freshly sterilized tap and needle are fitted for the next injection. This device is unsuitable for injecting a drug that must not enter a blood vessel.

CHRONIC DACRYOCYSTITIS

To the Editor:—A child 2 years old has had chronic dacryocystitis which has been probed three times without success. A fistula inside the lower lid connecting with the canaliculus is about 4 mm. in length and runs in the direction of the canaliculus, through which mucopus extrudes. The canaliculus is mostly intact except for the area corresponding to the fistula. I would appreciate your comments on treatment.

M.D., California.

ANSWER.—In the lower vertebrates the puncta open on the inner surface of the lid, not on the margin as in man; hence the fistula described is probably a congenital atavistic anomaly. The cure of the chronic dacryocystitis must be the primary aim, and until this is accomplished the fistulous tract should be left as a safeguard against an acute exacerbation of the infection. Chronic dacryocystitis at age 2 is a different picture from that present in congenital impatency of the nasolacrimal duct. Syphilis, tuberculosis and bone disease must be ruled out. Stallard (*Lancet* 2: 743 [Dec.] 1940) has devised an effective operation for chronic obstructive dacryocystitis following traumatism to the lower internal canthal angle that might be applicable to this case. It is essentially a conjunctival dacryocystostomy. The upper part of the sac is freed and the cupola brought up and stitched to an incision in the lacus lacrimalis, after which the summit is cut off. This will permit adequate probing and dilation of the nasolacrimal duct through the opened sac. The fistulous tract can then be destroyed by galvanocautery.

LUPUS ERYTHEMATOSUS

To the Editor:—Has anything recently been found of value in lupus erythematosus?

V. W. Pryor, M.D., Holdenville, Okla.

ANSWER.—The urgency for improvement in our attack against lupus erythematosus is different for the several varieties of this disease. The efficacy of tried agents in the discoid or chronic form is greater than in the acute and toxic types. The latter usually result in death, whereas the former produces, at its worst, disfigurement unless there is a transition into an acute phase.

Among the agents which have been proposed recently for use in lupus erythematosus are vitamin E and sodium para-aminobenzoate. Both of these drugs are said to be more valuable for the chronic and subacute types and less so for the acute toxic forms. Another agent which has received little trial but has excited much more theoretical analysis is the nitrogen mustard, methyl-bis(beta-chloroethyl)amine hydrochloride. This agent is said to be of help in acute lupus erythematosus, but it should not be used by the practitioner unless he has facilities

for engaging in serious investigations. The material has strong cytotoxic properties and can be dangerous. Acute lupus erythematosus calls for heroic measures, but this is not an excuse for unbridled license.

TUBERCULOSIS IN FOOD HANDLERS

To the Editor:—I am interested in a study of comparative results of effect of food handler examinations as a control of tuberculosis. Can you tell me in what cities adequate surveys have been made?

H. P. Miller, M.D., Newark, N. J.

ANSWER.—While rigid rules are laid down by health departments in many of our cities, with reference to preemployment and periodic examinations of foodhandlers for tuberculosis and the public is being reasonably well protected against the disease from this source, apparently there is a dearth of published reports of the actual findings among the foodhandlers themselves in comparison with the disease of the general public in the same vicinity. In 1934 Martin, Pessar and Goldberg (*Am. Rev. Tuberc.* 29:172, 1934) reported the results of a tuberculosis survey among 2,000 foodhandlers in New York city. They found approximately 2 per cent with active pulmonary tuberculosis. Unfortunately the diagnoses were made largely from roentgen shadows. All persons who showed a diffuse or circumscribed infiltration in the pulmonary parenchyma or those with numerous lesions in one or both lungs were regarded as having active tuberculosis. Obviously some of those so reported may have had nontuberculous disease, since roentgen shadows are not pathognomonic. Moreover, it is never safe to attempt to determine activity of the lesion from a single roentgenologic inspection. Nevertheless, it is likely that many cases of active tuberculosis existed in this 2 per cent. On the basis of these findings Martin and associates estimated that there were probably 6,500 cases of unknown and uncontrolled active tuberculosis among the 325,000 foodhandlers in New York city. They were of the opinion that this represented the average situation in all large urban communities.

In 1947 the New York Tuberculosis and Health Association made roentgen inspection of the chests of 3,460 employees of a company which operates a chain of restaurants. Seven (0.2 per cent) cases of active tuberculosis were found, 4 in the minimal stage, 2 moderately advanced and 1 far advanced. Two of the tuberculous persons were porters, 2 candy handlers, 2 dishwashers and 1 a salad maker. There were 4 others with questionably active tuberculosis and 70 more whose disease was thought to be inactive.

Boucot and Sokoloff (*Am. Rev. Tuberc.* 58:675, 1948) examined 32,535 Philadelphia food handlers between April 1, 1947 and Jan. 31, 1948. The reinfection type of tuberculosis was found in 2.3 per cent. This figure is identical with that reported in 1946 by Elkin and associates (*Am. Rev. Tuberc.* 53:560, 1946) in a study of 71,767 Philadelphia industrial workers. Among the 25,509 white food handlers, 2.5 per cent, and among the 7,026 nonwhite, 1.9 per cent were reported to have tuberculosis. There were 587 with disease classified as minimal, 147 moderately advanced and 20 as far advanced tuberculosis. As of March 1, 1948, 66 persons had been hospitalized or this had been recommended. Of all the food handlers whose survey roentgenograms were read as indicating the presence of tuberculosis, subsequent clinical reports were available in 81 per cent after a period of follow-up varying from one to ten months. These confirmed the presence of tuberculosis in 76 per cent.

In Detroit, 48,900 food handlers had roentgen inspections of their chests in 1947 and 135 (0.28 per cent) were found to have active tuberculosis. At the receiving hospital 18,891 persons had their chests inspected by roentgen ray, and 140 (0.74 per cent) were finally given a diagnosis of active tuberculosis. In a general survey of 9,494 persons, 131 (1.4 per cent) had final diagnoses of active tuberculosis. Among 981 practical nurses, 2 (0.2 per cent) had active disease. Under the category "general survey" the figure is somewhat misleading because it covered work in the midst of the heaviest Negro area and included some referrals of suspected cases by physicians and other agencies. Roentgen inspection of the chest is required of food handlers every three years.

In San Antonio all food handlers are required to have "health cards." To keep the cards valid examination of the chest must be made every six months.

In Chicago food handlers have not been examined as a group. However, Calumet City and Maywood (Cook County) recently passed village ordinances requiring all food handlers to have roentgen inspection of the chest annually. This work is in progress.

COLD AGGLUTININS IN SMALLPOX

To the Editor:—A 14 year old boy with a smallpox vaccination in the third, or healing, stage complained of low grade evening fever of four days' duration, general aching, transient abdominal pain and backache. He was obviously ill, pale and had a soft systolic functional murmur. Laboratory work showed a white cell count of 11,000 with a normal shift of the differential count. There was moderate anemia (12 Gm. hemoglobin and 4,200,000 red blood cells). The Westergren sedimentation rate on three consecutive days was 42, 48 and 53. The last determination was done by our pathologist, who noticed excessive agglutination grossly of the red blood cells. Cold agglutinins were found in dilution to 1:500. This child's clinical and laboratory findings were confusing to us. Two weeks later a repeat examination showed a normal sedimentation rate and complete absence of cold agglutinins. Are cold agglutinins commonly found after vaccination for smallpox?

C. S. Meeker, M.D., Butte, Mont.

ANSWER.—Most of the work reported in respect to cold agglutinins has had to do with atypical virus pneumonias. According to Platt and Ward (*A. M. J. Clin. Path.* 15:165 [May] 1945), they may occur in a number of conditions, including complicated mumps, scarlet fever, tonsillitis, measles and rheumatic heart disease. Evidence is not available which indicates that cold agglutinins are commonly found after vaccination for smallpox or during an attack of variola.

VASECTOMY FOR STERILIZATION

To the Editor:—In *Queries and Minor Notes* (The Journal, Jan. 29, p. 346), the consultant states that the consensus of urologists is against vasectomy for sterilization. What are the reasons for objecting to this procedure? It is performed rather frequently in this part of the country, and I have not heard of ill effects. Robert C. Tavlin, M.D., Mooreland, Okla.

ANSWER.—One of the principal reasons against performing vasectomy for sterilization is that later on in life the patient may wish to become fertile, and it is difficult to connect the vas deferens after vasectomy has been done. Unless epididymitis or an infection develops there are not any ill effects. Contrary to earlier reports in the literature, it has been well established that vasectomy does not affect the libido.

PELS-MACHT TEST FOR PEMPHIGUS

To the Editor:—Please furnish information concerning the value of the Pels-Macht test for pemphigus.

Richard S. Refowich, M.D., Philadelphia.

ANSWER.—Many dermatologists believe the test is of little or no value; others have kept records of cases of pemphigus in which a phytopharmacologic test was performed and found that in a large percentage of cases which eventually proved to be pemphigus the reaction was positive. The value of the Pels-Macht test has apparently been strengthened by a new test devised by Dr. Macht and known as the Macht-Ostro test.

PENICILLIN IN NEUROSYPHILIS

To the Editor:—In the reply to a query on "Penicillin in Neurosyphilis" (The Journal, January 29, p. 343) the statement was made that "according to Thomas, Lyons, Romansky, Rein and Kitchen sixteen daily injections of 300,000 units of procaine penicillin did not lead to any cumulative effect in the blood." This statement is correct for large size particles of procaine penicillin in oil gelled with 2 per cent aluminum monostearate. A distinction must be made between procaine penicillin in oil or water and procaine penicillin in oil gelled with aluminum monostearate. The latter preparation is now made with small size particles of penicillin and is much more slowly absorbed than procaine penicillin in oil or water alone or when large size particles of penicillin are mixed with oil and aluminum monostearate. Tests at Bellevue Hospital have shown that when daily injection of 300,000 units of small size particle procaine penicillin in oil and aluminum monostearate was made for ten days there was some cumulative effect of penicillin in the blood. Blood concentrations of penicillin varied from a low of 0.1 unit twenty-four hours after the first injection to a high of 0.4 unit on the tenth day of treatment. When 600,000 units was injected daily blood concentrations of penicillin varied from 0.25 unit per cubic centimeter twenty-four hours after the first injection to a high of 2 units on the tenth day of treatment.

Evan W. Thomas, M.D., New York.

THYROID MEDICATION IN PREGNANCY

To the Editor:—In *Queries and Minor Notes* (Oct. 23, 1948, p. 626) I read your answer to the question of thyroid medication in pregnancy. I think that some light has been shown on the subject by Heinemann, Johnson and Man in the *Journal of Clinical Investigation* (27:91 [Jan.] 1948). They found that an early elevation of protein-bound iodine (thyroid hormone) occurs in pregnancy and that threatened and actual abortion occurred in those who had a low level of protein-bound iodine.

Earle M. Chapman, M.D., Boston.

The Journal of the American Medical Association

Published Under the Auspices of the Board of Trustees

VOL. 140, No. 7

CHICAGO, ILLINOIS
COPYRIGHT, 1949, BY AMERICAN MEDICAL ASSOCIATION

JUNE 18, 1949

TREATMENT OF DIABETES TODAY

ELLIOTT P. JOSLIN, M.D.
Boston

The detection of the unknown 1,000,000 diabetic persons should be relatively easy. We know that diabetes is hereditary and that the new million are chiefly the relatives of diabetic persons. Dr. Priscilla White found the incidence of diabetes seven times as great in the relatives of diabetic persons as in non-relatives. In Florida the incidence of newly discovered diabetes by the United States Public Health Service was four times as great among the relatives of diabetic persons as in their survey of the general population at Oxford. Diabetes is nearly fifty times as common after age 65 as it is under 15 years of age. Moreover, in the old the onset is usually unobtrusive, whereas in the young the violence of the symptoms usually makes the disease evident. Diabetes is overwhelmingly more common in the obese. Occurrence is more frequent in female subjects. The incidence is high in Jews. It is easy to find a diabetic person if one searches for him or her among these predisposed groups. It is up to each one of the medical practitioners in this country to find half a dozen new cases this next year.

DIAGNOSIS

During the next few weeks a great many patients with borderline diabetes will come into physicians' offices. It is most important to make the diagnosis promptly, preferably at the first visit. If another doctor or a diabetic friend has found sugar, consider the patient as having diabetes until the contrary is proved. If the urine is sugar free, it is often worth while to give the patient 50 Gm. of dextrose immediately and keep him waiting for a subsequent collection of the urine and a second blood sugar test at the end of an hour. Frequently the results of this procedure will be decisive. If not, the sooner a glucose tolerance test is carried out, after the patient has been on a full diet for several days, the better. One should be sure he is free from all signs of infection. Within a week I have revised the diagnosis of diabetes in a child made hesitatingly in 1933, when the result of the glucose tolerance test was positive by all criteria, because at the time I had recorded the temperature and it was 99.4 F. After fifteen years the patient returned to the office sugar free, apparently in perfect health, and

at the end of an hour after a meal the blood sugar was 90 mg. A bird in the hand is worth two in the bush, and that applies to all patients when they first appear, wondering whether they have diabetes. One should try to settle the point at once. However, even if one decides that diabetes is absent, one should counsel the patient, first, never to get fat and, second, to have the urine examined after a meal every three months. Do not quibble about diagnostic levels. If there is any doubt, keep the patient under observation and time will give the answer.

ONSET

The onset of diabetes by no means coincides with its diagnosis. I am sure that I have not seen 1 case in 5,000 in which the disease developed acutely in twenty-four hours. I have seen very few with the onset in the course of a week and only a moderate number with the onset dating back two months, leaving the vast majority with onset undetermined. Constantly on our combined medical-surgical rounds at the George F. Baker Clinic, to which you are all invited, beginning punctually at 8:00 a. m. on Mondays, we find serious diabetic complications, and yet repeatedly we cannot prove an onset within a year although the loss of weight began more than ten years earlier. To all of us it was evident that the seeds of the disease had been burrowing in the patient for a long period. Kendall Emerson¹ stated this very well in his discussion of arteriosclerosis. He commented on the direct relation between the severity of arteriosclerosis and the number of episodes of acidosis in young diabetic persons, as shown by Dr. Priscilla White, and then said, "It is just as important to remember, however, that the mild diabetic who is inadequately controlled for long periods of time, although never in critical acidosis, is even more prone to arteriosclerosis, because there is no obvious necessity for better control, as there is in the severe diabetic who must be continually treated to prevent a coma death." I am sure that all those who are interested in diabetes will heartily agree with that statement.

COROLLARIES

One should make a diagnosis early and begin treatment at once. Early diagnosis is the object of Diabetes Week, and our purpose and the advantage of early treatment are plain, because patients today live about three times as long as previously, die at over 64 years of age, instead of at 44, and few succumb to coma. If a patient with severe diabetes is acknowledged to be helped by insulin, how much more the patient with mild diabetes.

Read at the Interim Session of the American Medical Association, St. Louis, Dec. 3, 1948.

1. Emerson, K., Jr.: Nutrition in Diabetes, *Nutrition Rev.* 6: 257-259 (Sept.) 1948.

INSULIN

The use of insulin should be more widespread. Its value has been demonstrated in the treatment of patients in coma and of children. The spectacular improvement in the treatment of diabetes has occurred since its discovery. I would stress its importance in the group with milder diabetes. The question is not "Can you live without it?", because many can, and for some years; the point is that the patient with milder diabetes cannot afford to live without insulin. It is not "Must you take insulin?", but "You ought to take insulin. Your comfort in the future depends on it." I know that all in our group give insulin more and more for milder and milder diabetes now than ever before, and I do not know of any doctors who give it less. Irrespective of details of diet, bizarre though they may be, all doctors urge the use of insulin.

"Can I omit insulin?" You can, but you will probably rue the day. I have spent six months reducing the insulin dosage for a patient in whom the diagnosis was a bit doubtful. At the end of that time, when I finally omitted insulin, I arranged for the patient to come back at two and three week intervals; yet this patient, without having shown a single elevated blood sugar level in my office, later returned with 4.0 per cent sugar in the urine and an elevated blood sugar level. Over and over again I have seen patients apparently lose their diabetes. Years ago, before insulin was discovered, after treatment of a carbuncle or the removal of gallstones, I watched the diabetes seemingly disappear, but it came back. If it is difficult for me after fifty years, during which I have treated over 33,000 patients with sugar in the urine, to get through my head that I have never cured a diabetic person, how easy it must be for others, when queer results occur, to think that they have done so. When a so-called mildly diabetic patient comes back with 4.5 per cent sugar after three or four years, to whom earlier you did not give insulin because the patient objected, how do you feel? Test your patients who have done the best. Who is your best and standard patient—the model for the rest? How have you treated that one?

EXPERIMENTAL DIABETES

Experimental diabetes, akin to human diabetes, is preventable or reversible. Allen showed this for all his partially depancreatized dogs, and he further demonstrated that for these animals there was no inherent tendency to progression of the disease. It was his purpose to prove this in human beings, and he has cited evidence to support it. I will later make a contribution to his experience. In Young's anterior pituitary diabetic dogs diabetes was not maintained if measures of various kinds were adopted to keep the blood sugar normal. Diabetes due to alloxan can be prevented by previous injections of glutathione and a whole group of other substances. In Dohan and Lukens' cats, made diabetic with hyperglycemia, diabetes was reversed if within a few weeks their blood sugar levels were brought to normal by a low carbohydrate diet, insulin or phlorhizin. A high level of glutathione averts that type of diabetes in which there occurs an elevated level of uric acid in the blood.

(Incidentally, the work of Conn, with his experiments with adrenocorticotrophic hormone, lends credence to the observations in uric acid experiments which have been reported by Griffiths.) Such are the hopeful lessons from the laboratory. One cannot, one must not, disregard them.

DIET

Anyone who has read the literature of the treatment of diabetes from Rollo's time until the present, and especially that advocated by Bouchardat and Naunyn and, indeed, a host of others, cannot fail to see that the leaders and exponents of diabetic therapy, long before they knew much about the sugar in the blood, advocated strict control of the diabetic state. If glycosuria returned in his patient, Cantani locked him up again for a month before increasing the diet. Some physicians inadvertently helped to prove the correctness of these orthodox ideas by advocating other methods with disastrous results. The consensus based on experience in the last one hundred and fifty-two years and the results attained in experimental diabetes, therefore, impel me more and more to attempt to control the disease, to keep the blood sugar as nearly normal as I safely can, utilizing not only insulin but diet for this purpose. All will agree that the total diet should be restricted to prevent undue gain in weight. One should not forget that Allen's meat-fed partially depancreatized dogs could be kept in good condition although thin, but if extra meat was given to force gain of even 1 pound (0.5 Kg.) in weight, they showed glycosuria and became worse. Fortunately, insulin therapy enables one to avoid undue emaciation. All will agree that sudden changes in diet, particularly of carbohydrate, unless under the strictest supervision, are dangerous. All will agree that 150 Gm. of carbohydrate and at least a normal standard of protein are desirable, and in general, if more carbohydrate is given, it should be protected with insulin.

Responsibility for the treatment in the new 1,000,000 cases of diabetes devolves on physicians, and, if physicians do not meet it, then the state. The patients will require careful physical examinations, because in them complications will be rampant, for they have been neglected. No casual office visit will suffice. They must be stripped and examined from head to foot. As for treatment, the doctor will be swamped unless he has inexpensive assistance in his office, in nursing homes and in the hospital. More and more he must become an employer and introduce wholesale methods.

Doctors know that diabetes is a personal disease and to be managed by direct contact between the physician and the patient. Tuberculosis is contagious, and the government rightly steps in to care for the patients; but diabetes is not contagious and the only hope for its proper control rests on the doctor's impressing the patient who has it with the idea that, if he will not control it himself, the outcome will be a failure.

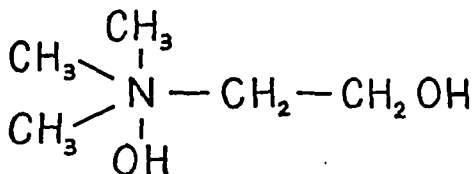
Diabetes is a disease for the doctor and not for the government to treat. Diabetes is a personal disease, and the patient who expects to live by the grace of insulin and the handout of food by the government or the community, instead of by his own zeal to get better and to recover the ability to earn a living, is

doomed to disappointment. Contrast the results of treatment in cases in outpatient clinics with their changing staffs, even though insulin is freely given, with results in cases of similar severity in private practice. Of course the new million diabetic persons and many of the old as well would like to have insulin and diets given to them free, but I doubt their being better for it.

CHOLINE

Should choline be used in the treatment of diabetic patients? Will it protect their livers or prevent them from having premature arteriosclerosis? Before one says yes, one should remember the aphorism of Plato, selected by Sir William Osler for the first edition of his "Practice of Medicine": "And I said of medicine that this is an art which considers the constitution of the patient, and has principles of action and reasons in each case."

Choline is one of the B complex vitamins. It came into prominence when Allan in Toronto, working with Best, found in the early days of insulin that, although their depancreatized dogs were treated with insulin, they would die in about three to nine months, though sugar free, with livers filled with fat. As soon as the diets of their depancreatized dogs included raw pancreas, they lived indefinitely. Later it was learned by Hershey that this also held when a constituent of the



Graphic formula for choline.

pancreas, lecithin, was substituted for the whole gland, and eventually it was found by Best and Huntsman that choline embodied in the lecithin molecule was the active principle and served as well. There is very little free choline in the body, but this wonder-working lipotropic vitamin has a wide distribution. The graphic formula for choline is given.

Choline has a profound effect on the storage and transport of fat, on growth and on various other physiologic mechanisms. Betaine and casein are similar to it, the latter acting because of its content of methionine. Choline, methionine and betaine tend to prevent fatty degeneration of the liver, and eventual cirrhosis, and accelerate the phospholipid turnover, but cholesterol, an antilipotropic factor, is their antagonist.

Dr. George R. Herrmann of the University of Texas, who has made a special study of hypercholesteremia and lipotropic agents for years, recently wrote, "The lipotropic agents warrant further clinical study in their application as possible therapeutic agents in atheromatosis." Before I shall advocate the prescription of 1 to 4 Gm. of choline daily for diabetes I shall await further evidence. As to its possible usefulness in preventing cirrhosis of the liver, from which as yet few of my diabetic patients suffer, recent experimental work has been favorable. Choline is wonderful. I hope that it will not be long before more proof of its protective power against cirrhosis of the liver and atheromatosis in diabetes is achieved.

INOSITOL

Inositol.— $\text{C}_6\text{H}_6(\text{OH})_6$ —is combined with phosphate in cereals and in the phospholipid of soy bean. It is present in liver and muscle. It is synthesized by bacteria in the intestinal tract, provided that pantothenic acid is present. The anticalcifying effect of cereal is due to the unavailability of the phosphorus in the cereal because it is combined with inositol. About inositol I feel at present as I do about choline and vitamin E. I shall remain open minded, but I want more facts.

VITAMIN E

Vitamin E (alpha tocopherol) has been recommended for the treatment of diabetes and especially for the vascular complications of the disease. Our group has not had sufficient experience with it in the treatment of our own patients to speak authoritatively, but, from what I have gleaned from the literature and my friends, I know of no reason why I should use it. Added to other proved methods of treatment, I do not know of its doing any harm. However, I have heard that, when it has been adopted simultaneously with the omission or diminution of insulin to dangerous levels, sad results have occurred. In general I hesitate to divert a diabetic person's attention from the use of diet, insulin and exercise and the constant control of his disease by giving other medicines, unless they are definitely indicated. Any of these other methods should first have convincing proof of usefulness by experiments on animals.

RESULTS OF TREATMENT OF PHYSICIANS WITH DIABETES

No one can enthusiastically and hopefully treat a chronic disease unless he is convinced that the methods used are producing encouraging results. For this reason one cannot too strongly advocate that each physician interested in diabetes compare the outcome in his cases formerly and now. Since Jan. 1, 1948, my co-workers and I have been engaged in the follow-up of our patients seen since 1898, with the assistance of a grant from The Diabetic Fund of the Boston Safe Deposit and Trust Company, a grant from the Life Insurance Medical Research Fund and the aid of the Statistical Department of the Metropolitan Life Insurance Company in compiling the reports. The data should be ready for display at the annual meeting of the American Medical Association in June 1949, but a brief reference can now be made to what has been learned regarding the physicians we have treated. I will add that all the doctors in the group have been traced.

Physicians with diabetes have a lower mortality rate than all my patients treated during similar periods. This is shown in table 1. Thus, the total death rate for physicians of all ages since the discovery of insulin was 50.6 per thousand as compared with 56.9 for all patients. But there is a significant difference for different age groups. Thus, between 25 and 39 years of age the death rate for doctors was 8, but for all patients 16.7; for the ages 40 to 59 the rate for doctors was 23.6, but for all was 33.1; whereas for the old, 60 to 79 years, the difference was negligible, 91.0 versus 93.3. Thus table 1 again demonstrates that a knowledge of their disease is an important factor in keeping those who have diabetes alive.

What insulin has done for doctors is shown in table 2. In the twenty-four years before its discovery the total death rate per thousand for ages 25 to 79 was 112.3, but for the subsequent twenty-five years, 50.6, or about 50 per cent less. For the younger doctors, 25 to 39 years, it changed from 125.7 to 8.0; for the middle aged, 40 to 59, from 55.3 to 23.6; and even for the old, 60 to 79, it fell from 164.8 to 91.0. No death has occurred among physicians aged 25 to 39 since 1938, and no death from coma among the entire group of 132 deaths during the same period. In fact, the last death of a doctor from diabetic coma was on Aug. 1, 1931. (Subsequently, 1 such death was reported.)

TABLE 1.—Comparative Mortality of 132 Diabetic Physicians and All Diabetics in Insulin Era*

Attained Age Groups	Death Rates per Thousand	
	Physicians (8/7/22-1947)	All Patients (8/7/22-1945)
25-39.....	50.6	56.9
40-59.....	8.0	16.7
60-79.....	23.6	33.1
.....	91.0	93.3

* Age-adjusted death rates per thousand on the basis of the age distribution of the total patients' experience Aug. 7, 1922 to 1945 (George F. Baker Clinic, Boston).

TABLE 2.—Mortality Among 132 Diabetic Physicians (1897-1947)*

Attained Age Groups	Death Rates per Thousand	
	1897- 8/6/22	8/7/22- 1947
25-39.....	112.3	50.6
40-59.....	125.7	8.0
60-79.....	55.3	23.6
.....	164.8	91.0
Number of Actual Deaths		
25-39.....	32	202
40-59.....	3	4
60-79.....	13	39
.....	10	159

* Death rates per thousand on the basis of the age distribution of the total patients' experience Aug. 7, 1922 to 1945 (George F. Baker Clinic, Boston).

Later the group of physicians will be studied in detail particularly to compile and report the causes of death, and for this I shall need the help of Dr. Dublin and Mr. Marks, so that the incidence of arteriosclerosis in diabetic and nondiabetic doctors can be compared. Of the 59 doctors who died since Jan. 1, 1944, cardiovascular-renal disease has claimed 83.1 per cent.

DIABETES CAMPS FOR CHILDREN AND THE NEW MODIFIED PROTAMINE INSULIN

In the summer of 1948 we placed 249 children in diabetes camps, 133 in the Clara Barton Birthplace Camp for diabetic girls and 116 in the Elliott P. Joslin Camp for diabetic boys. It seems a shame that only about 1 in 20 of the 15,000 diabetic children in the United States under 15 years of age had the opportunity of going to a diabetic camp. This year we know that we did more for the children than ever before, and partly this was due to a doctor's living

at each camp and more laboratory facilities. Not only did the camps accomplish a great deal for the children and the happiness and comfort of their families, by relieving them of responsibility for a period of two to eight weeks, but they also were constructive in that we tested in them the new modified protamine insulin. This insulin is nearly neutral in reaction, pH and contains only 0.50 mg. of protamine per hundred units of insulin, as compared with 1.25 mg. in ordinary protamine zinc insulin. It is a cloudy insulin and acts for about twenty-eight to thirty hours. It can be mixed directly with the unmodified or regular insulin with retention of most of the action of added insulin. It was a boon for the children, because one injection of it replaced two injections, namely, of crystalline or regular insulin and of protamine zinc insulin before breakfast.

I have had an opportunity to look over the charts revealing its action, compiled by Dr. Priscilla White and Dr. Ruth Reuting for the girls' camp and Dr. Alexander Marble and Dr. A. J. Gabriele for the boys' camp, and was struck by its superior power in controlling the diabetes. Their papers will soon be published. I think that this must in part be attributed to greater care in the adjustment of diets for the different parts of the day, the necessity of dependence on diet and not on insulin alone and a greater responsibility of the patient in adhering to the regimen. The new modified insulin is not a miraculous insulin, but it is distinctly a step forward, and one hopes that it eventually will be made available for wider use instead of distribution purely for investigational purposes.

The diabetic camps this summer demonstrated as never before their usefulness and the opportunity afforded for the intimate clinical study of the patients. It brought out the fact that more are needed. The loss of capital in utilization of the camps for only eight weeks a year was emphasized. At the girls' camp an experiment was made to keep the camp open one week longer for older girls, and this was most successful. We shall do our best another year, both to increase the size of the camps and to make the capital invested in them pay larger dividends by an extension of weeks of service.

NURSING HOMES

Great as is the need for diabetic camps, the necessity for nursing homes where diabetic persons can be taught is even greater. Hospitals are too expensive. Nursing homes can be built at a fraction of the cost, and in them multitudes of patients can learn how to care for themselves in the course of a week. The turnover is rapid and the good done so great as hardly to be estimated. Any young doctor who can persuade a diabetic person or some family to take an interest in caring for 1 or 2 or a few of his diabetic patients each week will advance significantly the standards of treatment of diabetes in his community and his own interests as well.

Between 1898 and 1914 the average age at death of my diabetic patients was 44.5 years and in 1944-1946 it had risen to 64.5 years. There are thus a great many patients who die of diabetes after 64 years of age. A provision must be made for their care during their final illness, which is often prolonged and preceded by invalidism so serious as to require hospitaliza-

tion. Everyone realizes the need for care for the aged, but I think that it has not been sufficiently emphasized that diabetic persons have grown 20 years older in a generation. We must begin to make provisions for them, because their diabetes is easily neglected. Diabetes camps for young persons and diabetes educational and nursing homes for older persons and the aged claim our consideration.

Diabetic persons are not living as long as they should, and the reason is that, in addition to the diet, insulin and exercise, each one of them needs personal follow-up by a doctor. If they were seen and examined every six months and their weight, blood sugar and urine reported on every three months, their expectancy would be far more than three-fourths that of the nondiabetic population and the average duration of all fatal cases would rise above 14.4 years. Today the deviation is 19.1 years for those with onset in the first decade, although the normal life expectancy is 55 years, but for those with onset above 60 years the duration is 9.1 years instead of a life expectancy of 12 years. Each diabetic ought to have a doctor to help him live longer and more healthfully. Talk as much as you like about the wonders of insulin and of diet, or the usefulness of exercise—all are of little avail unless the personality of the doctor enters into each case to see to it that treatment is followed. The patient must be made to realize this. He should know that he is being guided, protected and followed up year in and year out, and he must be shown that thereby his lot will be far better than that of the neglected person. Each doctor should have his own diabetic statistics. I know how long my patients are living today compared with those I treated formerly, and I know of what they are dying now; so guided, I try to make them live longer and escape the needless deaths to which so many in the past have succumbed.

QUARTER CENTURY VICTORY DIABETES MEDAL

For years we have given a medal to any diabetic patient who lived longer with his disease than he was expected to live without it, as estimated by life insurance expectancy tables. Probably 800 of these medals have been distributed, and I am sure, when we have followed up all our patients, that there will be many more who have earned it.

The Victory Diabetic Medal is of a different nature, because it requires health as well as duration of the diabetes to secure it. It is awarded by the Advisory Committee of The Diabetic Fund of The Boston Safe Deposit and Trust Company. The requirements are that the person shall have had undoubted diabetes for 25 years and be in sound health as certified by a physician, free from complications in the eyes as certified by an ophthalmologist and from arteriosclerosis in the arteries as certified by a roentgenologist. Thus far 4 patients have qualified for the medal. The onset of their diabetes has been at 1.9, 9, 14.1 and 14.9 years, respectively, and they have survived diabetes already 26 to 29 years.

Have you a candidate for the Diabetes Quarter Century Victory Medal? The Diabetic Fund would be happy to present your patient with its medal, because it is hoped that a study of the treatment and lives of these persons will yield definite hints for the care of other diabetic persons.

CHRONIC LYMPHATIC LEUKEMIA

A Study of 100 Patients Treated with Radioactive Phosphorus

JOHN H. LAWRENCE, M.D.
Berkeley, Calif.

B. V. A. LOW-BEER, M.D.
San Francisco

and
JAMES W. J. CARPENDER, M.D.
Chicago

In a previous article¹ were reported 129 cases of chronic myelogenous leukemia treated primarily with radioactive phosphorus (P³²). In the present paper a similar study of lymphatic leukemia is presented, based on our total experience in the use of P³² since we started these investigations. Included in the series of 100 cases are all patients with this condition who have been treated with radioactive phosphorus at the University of California in Berkeley and San Francisco since the work was started by one of us in 1936 until March 1, 1947, and followed until Sept. 1, 1948.

PREPARATION OF RADIOPHOSPHORUS

P³² in the form of isotonic sodium mono-hydrogen phosphate was prepared according to methods previously described.² The former source of the P³² was the P³¹ (n,p) P³² reaction in the cyclotron, but more recently the high yield of the S³² (n,p) P³² reaction which occurs in bombardment of sulfur by neutrons in the atomic pile has led to utilization of this source. The solution of P³² has been made isotonic by adding sodium chloride.³ Very little nonradioactive phosphate is present in the solution so obtained, and the total sodium phosphate content is less than 0.1 mg. per cubic centimeter. It is standardized against a uranium beta particle source and its activity expressed in microcurie radium equivalents.⁴

DOSAGE

The methods of dose determination have been discussed in previous reports.⁴ Briefly, the estimation is based on results with total body irradiation and the calculation that 1 microcurie of P³² per gram of tissue will give about 40 r of irradiation in twenty-four hours. Using data on percentage uptake, the rate of excretion and the rate of decay of P³², Dr. C. A. Tobias has derived formulas expressing dosage in roentgens equivalent physical whether for oral or intravenous administration. The formulas are based on the assumption of uniform distribution of P³² throughout the body (which does not occur). Correction is not made for the relative localization in the disease-involved tissues, and this is conditioned by size and frequency of dosage.

Dr. Carpende is now with the Department of Radiology, Division of Medicine, University of Chicago.

From the Radiation Laboratory and Divisions of Medical Physics (Donner Laboratory and the Department of Physics) and Radiology, University of California.

This work has been aided in part by a grant from the International Cancer Research Foundation and by the Henry Stevens Kiersted Memorial Fund for Medical Research.

1. Lawrence, J. H.; Dobson, R. L.; Low-Beer, B. V. A., and Brown, B. R.: Chronic Myelogenous Leukemia: A Study of One Hundred and Twenty-Nine Cases Treated with Radioactive Phosphorus, *J. A. M. A.* 136: 672-677 (March 6) 1948.

2. Low-Beer, B. V. A.; Lawrence, J. H., and Stone, R. S.: The Therapeutic Use of Artificially Produced Radioactive Substances: Radio-phosphorus, Radiostrontium, Radioiodine, with Special Reference to Leukemia and Allied Diseases, *Radiology* 30: 573-597 (Nov.) 1942.

3. Prior to 1945 the solution contained approximately 18 mg. of sodium phosphate (Na₂HPO₄) per cubic centimeter. From 1936 until 1945 the P³² was made in Berkeley 39 and 60 inch cyclotrons; after 1945, in an atomic pile and supplied by the Atomic Energy Commission. Valuable assistance was rendered by Mr. R. W. Dunn, Mr. R. G. Wolf, and Mr. H. O. Anger who processed and standardized the P³².

4. Lawrence, Dobson, Low-Beer and Brown,¹ Tobias, C. A.: Standardization of Radioactive Samples, in *Isotopic Tracers and Nuclear Radiations*, McGraw-Hill Book Co., N. Y., in press 1949.

With oral administration the retention of phosphate is less than after intravenous use, and this must be taken into consideration in evaluation of dosage.

DESCRIPTION OF CASES

The 100 patients under consideration were seen at the University of California before March 1, 1947. Seventy-seven of the patients consisted of the entire

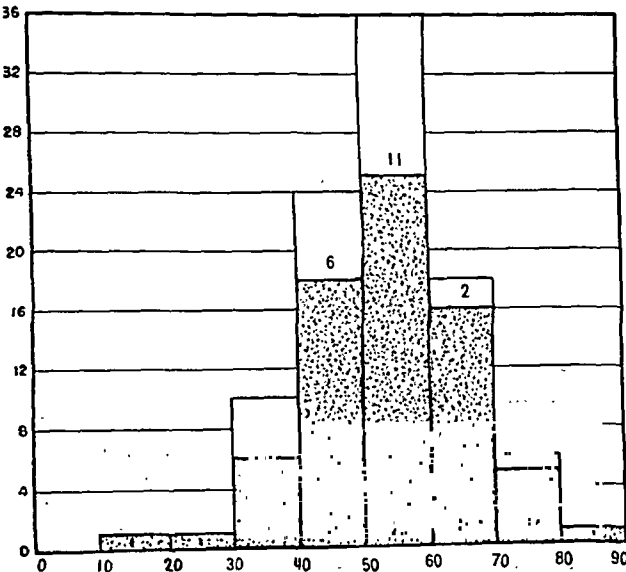


Fig. 1.—Chronic lymphatic leukemia. The distribution of 24 living and 73 deceased patients is shown according to age (years) at onset (horizontal values). The vertical values show the number of cases studied.

group seen at one of the clinics up to that date, and the remaining 23 were seen and treated at the other clinic. No attempt was made to select the patients. Fifty-eight of the patients either had had roentgen therapy before receiving P³² or were given it afterward because indication occurred for local irradiation, such as large lymph nodes or a large spleen. Some of these

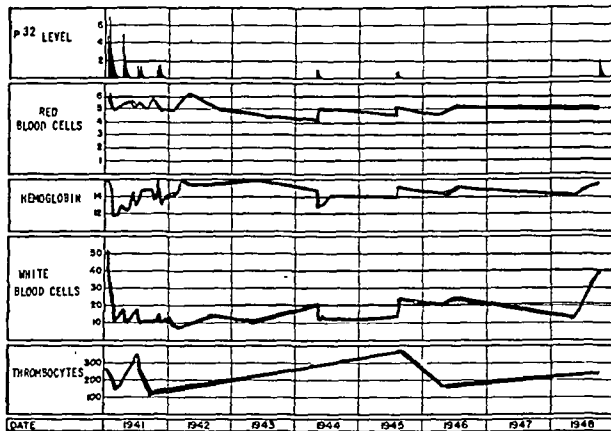


Fig. 2.—By infrequent administration of P³² intravenously, in doses from 0.5 to 4 millicuries, the white cells have been kept near normal in number and the patient, a 41 year old man with chronic lymphatic leukemia, has carried on a normal life without symptoms (P³² shown in millicuries, red blood cells in millions, hemoglobin in grams and white blood cells and thrombocytes in thousands).

patients have previously been reported, but this is the first attempt to study the entire series observed in the period 1936-1948.⁵ Follow-up studies were incomplete in 3 of the 100 patients.

5. Low-Beer, Lawrence and Stone.² Lawrence, J. H.: Nuclear Physics and Therapy: A Preliminary Report on a New Method for the Treatment of Leukemia and Polycythemia, *Radiology* 35: 51-59 (July) 1940.

HISTORIES

A review of the histories of these 100 patients shows 1 patient with a family history of blood dyscrasia. This patient had a sister who died of lymphatic leukemia. There were no patients with histories of tuberculosis, and in only 1 was it found at necropsy, in which case inactive pulmonary disease was observed. This low incidence is of interest in the light of the not uncommon concurrence of tuberculosis and leukemia.⁶

SEX AND AGE OF ONSET

The sex distribution was 71 per cent male (71 cases) and 29 per cent female (29 cases). These figures closely agree with those of Minot and Isaacs⁷ and others and indicate that lymphatic leukemia has an even greater predilection for male subjects than does myelogenous leukemia, in which 60 per cent of the

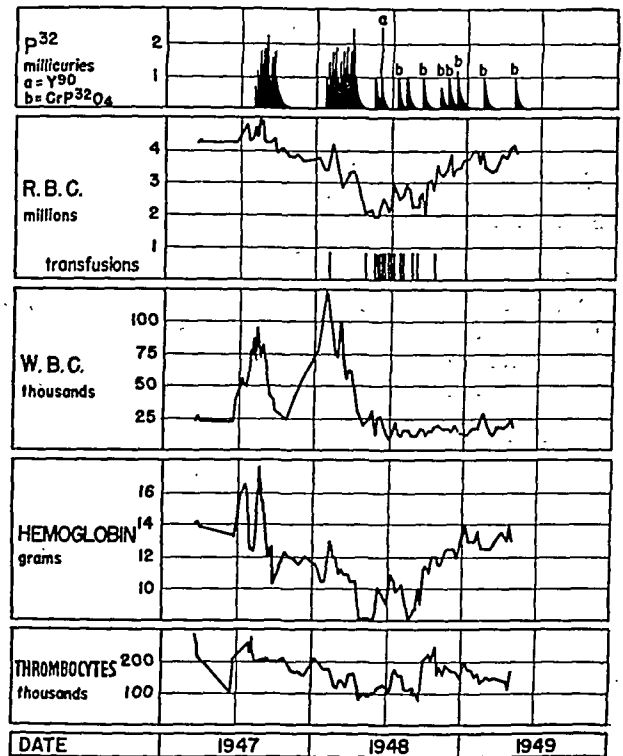


Fig. 3.—This chart demonstrates the difficulty of bringing many of the patients under control with present methods available. The patient, a 57 year old man with chronic lymphatic leukemia, had received P³² and radioactive colloids of yttrium and chronic phosphate (for liver and spleen irradiation), several doses of roentgen rays to the lymph nodes, and also several transfusions during 1948. At the time of writing, red blood cells and thrombocytes were beginning to increase, but one cannot be sure that the patient will continue to respond favorably.

cases are found in the male sex.⁸ The age of onset varied from 20 to 60 years, with the average at 53. The distribution is graphically illustrated in figure 1. This average agrees with the age incidence reported by Wintrobe.⁹ In myelogenous leukemia the greatest

6. Lawrence, Dobson, Low-Beer and Brown.¹ Holler, G.: Beobachtung über die Wechselwirkung zwischen Leukämie und Tuberkulose im menschlichen Organismus, *Klin. Wchnschr.* 10: 1663-1666 (Sept. 5) 1931. Jaffe, R. H.: Tuberculosis and Leukaemia, *Am. Rev. Tuberc.* 27: 32-46 (Jan.) 1933.

7. Minot, G. R., and Isaacs, R.: Lymphatic Leukemia: Age Incidence, Duration, and Benefit Derived from Irradiation, *Boston M. & S. J.* 191: 1-9 (July 3) 1924.

8. Lawrence, Dobson, Low-Beer and Brown.¹ Minot, G. B.; Buckman, T. E., and Isaacs, R.: Chronic Myelogenous Leukemia: Age Incidence, Duration, and Benefit Derived from Irradiation, *J. A. M. A.* 82: 1489-1494 (May 10) 1924.

9. Wintrobe, M. M., and Hasenbush, L. L.: Chronic Leukemia: Early Phase of Chronic Leukemia, Results of Treatment and Effects of Complicating Infections; Study of Eighty-Six Adults, *Arch. Int. Med.* 64: 701-718 (Oct.) 1939.

number of cases appear at a younger age. In our series, which in general agrees with others, the average age was 41.¹⁰

TREATMENT DETAILS

At the initial visit a history was taken, a physical examination was carried out and blood studies were done. These often included a sternal puncture.¹¹ After this the patient was seen at what seemed to be the proper interval, the visits ranging from semiweekly to trimonthly, the frequency being determined by the activity of the disease. Dosage regulation was roughly similar to that described in the treatment of myelogenous leukemia,¹ although smaller and more frequent doses were given. In general, enough P³² was given to produce symptomatic relief. This, when achieved, with an improved red cell count and decrease in size of spleen and lymph nodes, was considered a good response, and an attempt to bring the white cell count down to normal or to near normal with a normal differential count was not made because of danger of too great a depression of the marrow and decreased production of normal cells. By this method the average patient received 1 to 2 millicuries per week for four to eight weeks. This dosage was repeated when indi-

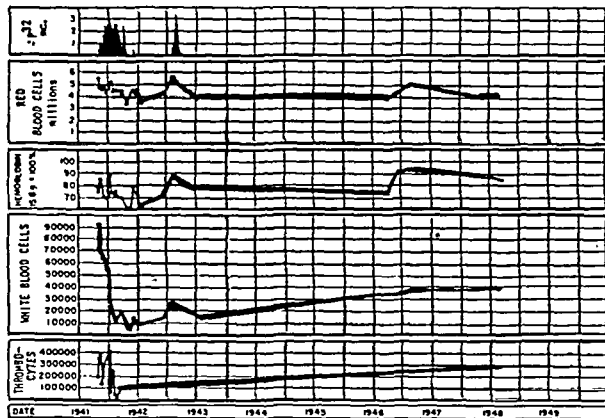


Fig. 4.—This patient, a 59 year old woman with chronic lymphatic leukemia, had a spontaneous fracture of a cervical vertebra (presumably due to leukemic involvement) and during P³² therapy was in a body case. Excellent response and no further treatment necessary after 1942. Blood smear and marrow show evidence of leukemia, but the patient continues symptom free.

cated by a return of symptoms or other evidence of increased activity of the disease process. These small doses have been found adequate for controlling most patients for shorter or longer periods of time.

RESPONSE TO TREATMENT

The response to therapy in typical cases is shown in figures 2, 3 and 4. Figure 5 presents the picture with reference to length of life, and figure 6 suggests a favorable relationship between a high original hemoglobin and duration of life. Figure 7 suggests that with onset between ages 30 and 40, average survival is longer than in other age groups. This is not in complete agreement with other series,⁷ where better survival was observed in the 40 to 50 age group. Other analyses of the data showed no correlation between height of initial white blood cell count and survival time.

COMMENT

The series of cases under discussion is showing a small increase in the average duration of life with

this form of therapy as compared with series in which roentgen irradiation alone was used. The significance of this increase (average now approaching five years) cannot be evaluated without a greater number of cases followed for a longer period of time. Minot and Isaacs⁷ reported 80 cases with an average duration of 3.45 years with no essential difference between 50 irradiated

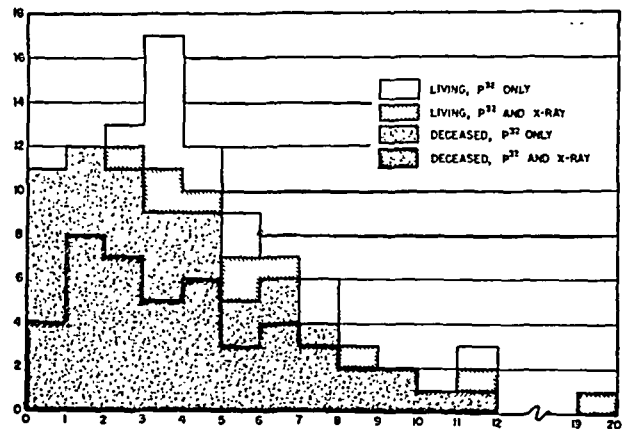


Fig. 5.—Results of P³² therapy in 97 cases of chronic lymphatic leukemia. The number of patients is plotted against average length of life after onset (September 1948). At present (May 15, 1949) the average for the whole group is 4.5 years, and the 22 living patients now have an average duration since onset of 6.8 years. (These durations have been calculated from the individual patient charts by a disinterested medical observer.) The vertical values show the number of cases studied and the horizontal values the duration in years.

patients and 30 treated by other methods. Wintrobe and Hasenbush⁹ reported 152 cases with an average duration of 3.29 years. The average duration in the present series is increasing, since 24 of the patients were still living at the time of writing; 35 per cent of the group had survived five or more years after onset, and 13 per cent of them eight or more years after onset.

In comparison with the series of myelogenous leukemia¹ in which the terminal picture in at least one third of the patients was one of acute leukemia with increased numbers of the blast cells in the blood smear, in the

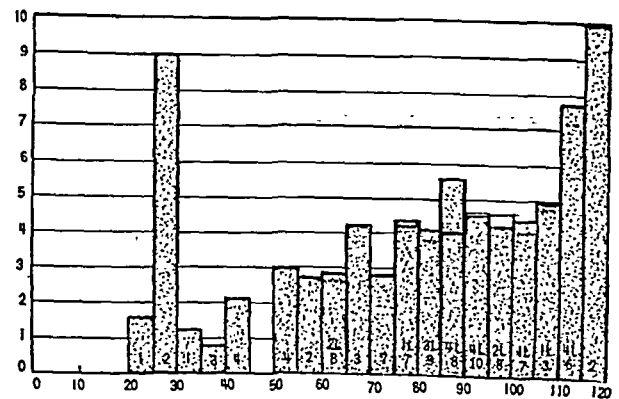


Fig. 6.—Comparison of duration of disease (in years) with percentage of hemoglobin on admission in 95 cases of chronic lymphatic leukemia treated with P³². The dotted lines are for average duration of deceased patients.

cases of lymphatic disease there were only 2 that died with this picture. In attempting to depress the rapid growth of the young cells of leukemia one may also depress normal cell production, and leukopenia or anemia may result. While there is some selective effect with P³², one is aware of the possibilities of overdosage and deleterious effects just as

10. Lawrence, Dobson, Low-Beer and Brown.¹ Minot, Buckman and Isaacs.⁸ Wintrobe and Hasenbush.⁹

11. A detailed report of the marrow observations before and after therapy is now being written.

in the use of general body irradiation with roentgen rays or radium.¹² In consequence, a number of patients had decreases in thrombocyte counts to rather low levels and some showed low red cell counts after therapy. As these effects may be due also to the disease process itself, they constitute a major problem in determination of the amount of therapy advisable, whether it be P³², total body or local irradiation. Sternal bone marrow examination may be of assistance in making the decision, but one cannot be completely dependent on this, as leukopenia, anemia or thrombopenia due to irradiation may be present with a hyperplastic marrow which ordinarily constitutes an indication for therapy. Success of therapy depends on the greater sensitivity of the leukemic cells to irradiation, and often this is slight. In animals we have not been able to demonstrate greater sensitivity of leukemic cells over normal cells.¹³

In the total of 73 patients dying of lymphatic leukemia, postmortem examination was done in 21 instances. The observations were typically those seen

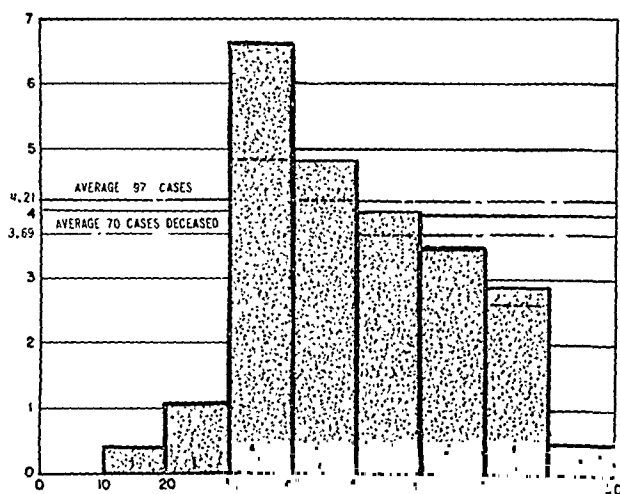


Fig. 7.—Comparison of age at onset in years (horizontal values) with duration in years (vertical values) in 96 cases of chronic lymphatic leukemia treated with P³². The dotted lines are for average of deceased patients.

in this condition with generalized infiltration of lymph nodes, spleen, liver and marrow. Several of the patients showed adverse effects on the normal blood components during the course of their disease, but in no case did the pathologist report observations suggestive of an aplastic marrow. There were, however, several patients on whom no postmortem examination was performed but who showed in the peripheral blood evidence of severe marrow depression. As in the myelogenous series some of the patients have received P³² for as long as ten years, but in this series the dosage has been lower, only 1 patient receiving a total greater

than 50 millicuries. In no case has there been evidence, at autopsy, of induced neoplasm, such as bone tumor as was reported by Brues and his co-workers¹⁴ after large doses of radioactive strontium in mice.

As in the case of myelogenous leukemia, we are limited by the adverse effect on normal cells and in some cases by what appears to be a gradual decrease in the ratio of sensitivity between leukemic and normal cells as the period of treatment lengthens. It is often necessary that one treat a patient in the face of falling red cells and thrombocyte counts in the hope that this decrease can be corrected or alleviated by inhibiting the leukemic marrow infiltration. Often palliation is all that can be achieved, but control of the disease is possible in a good percentage of the patients; it appears that the ease with which this is accomplished, by providing generalized irradiation, and the lack of radiation sickness in this form of therapy make the use of P³² advantageous. On these points all workers seem to agree.¹⁵ Despite the fact that these studies and also the studies of the cases of myelogenous leukemia indicate that P³² may be the best agent for the treatment of these conditions, either alone or in combination with roentgen irradiation, the failure to produce control or remarkable prolongation of life in many patients points to the need for much further research on this problem in the hope that, with a better understanding of the nature of leukemia, improved methods of therapy will result.

SUMMARY AND CONCLUSIONS

A study of 100 cases of chronic lymphatic leukemia treated with P³² alone or in conjunction with roentgen rays is presented. Comfortable life appears to have been prolonged as compared with the average life span after other methods of treatment. At the time of writing, 33 per cent of the group had lived five or more years after onset and 10 per cent eight or more years; these figures will be extended with the passage of time, since 24 of the patients are still living. When compared with five year end results in other types of neoplastic disease, such as carcinoma of the breast, prostate, lung, stomach and esophagus, these results are relatively good and do not encourage the prevalent hopeless attitude taken by many doctors confronted with the problem of treating chronic leukemia.¹⁶ This attitude is undesirable, since, when patients are first seen, one cannot rule out the possibility of long and comfortable life. This method of treatment is advantageous in its convenience for both patient and physician and in the lack of radiation sickness.

14. Brues, A. M.; Lisco, H., and Finkel, M.: Carcinogenic Action of Some Substances Which May Be a Problem in Certain Future Industries, Atomic Energy Commission Declassified Document MDDC 145, 1948.

15. Low-Deer, Lawrence and Stone.² Reinhard, E. H.; Moore, C. V.; Bierbaum, C. S., and Moore, S.: Radioactive Phosphorus as a Therapeutic Agent, *J. Lab. & Clin. Med.* **31**: 107-215 (Feb.) 1946. Lawrence, J. H.: Observations on the Nature and Treatment of Leukemia and Allied Diseases (Edwin R. Kretschmer Memorial Lecture), *Proc. Inst. Med. Chicago* **14**: 30-49 (Feb. 15) 1942. Warren S.: The Therapeutic Use of Radioactive Phosphorus, *Am. J. M. Sc.* **209**: 701-711, 1945.

16. Moffitt, H. C., Jr., and Lawrence, J. H.: Chronic Leukemia of Long Duration; With a Report of 31 Cases With a Duration of Over Five Years, *Ann. Int. Med.* **30**: 778-790, 1949.

Emetic Action of Salicylate.—Vomiting is one of the most disturbing features of salicylate intoxication and, if persistent, results in dehydration and may interrupt treatment. It occurs when salicylate is given by the oral, rectal, or intravenous routes. —Graham, J. D. P., M.D., and Parker, W. A., M.D., *The Quarterly Journal of Medicine*, April 1948.

12. Craver, L. F., and MacComb, W. S.: Irradiation of the Entire Body: Heublein Method, *New York State J. Med.* **34**: 249-255 (March 15) 1934. Craver, L. F., and MacComb, W. S.: Heublein's Method of Continuous Irradiation of the Entire Body for Generalized Neoplasms, *Am. J. Roentgenol.* **32**: 654-674 (Nov.) 1934. Hunter, F. T.: Spray X-Ray Therapy in Polycythemia Vera and Erythroblastic Anemia, *New England J. Med.* **214**: 1123-1127 (June 4) 1936. Medinger, F. G., and Craver, L. F.: Total Body Irradiation with Review of Cases, *Am. J. Roentgenol.* **48**: 651-671 (Nov.) 1942. Hempelman, L. A., Jr.; Reinhard, E. H.; Moore, C. V.; Bierbaum, C. S., and Moore, S.: Hematologic Complications of Therapy with Radioactive Phosphorus, *J. Lab. & Clin. Med.* **29**: 1020-1041 (Oct.) 1944.

13. Scott, K. G.; Graff, W. S., and Lawrence, J. H.: The Histologic and Therapeutic Effects of Radiophosphorus on Normal and Lymphomatous Mice, *Am. J. Roentgenol.* **40**: 44-54 (Jan.) 1946.

SPONTANEOUS REMISSION IN ACUTE LEUKEMIA

Report of a Case Complicated by Eclampsia

R. F. BIRGE, M.D.
ALONZO L. JENKS Jr., M.D.
and
STANLEY K. DAVIS, M.D.
Des Moines, Iowa

Wide interest has been aroused by a recent report that temporary remissions of acute leukemia have been produced in children with the aid of a so-called folic acid antagonist. Despite its toxicity, Farber, Diamond, Mercer, Sylvester and Wolff¹ have found that the administration of aminopterin® (4-aminopteroyl glutamic acid) produces, in the majority of patients treated, dramatic clinical improvement together with striking alteration toward normal of peripheral blood and bone marrow pictures. Comparable remissions of appreciable duration have never before been produced by numerous therapeutic agents.

On the other hand, sporadically, remissions of acute leukemia have been observed to occur without apparent relationship to therapy. Authenticated instances of spontaneous remission now seem worthy of review because they constitute a control group which may be compared with examples of drug-induced remission. Ten such cases have been described since 1931, and an additional example of unusually long remission (twenty-one months) is herein recorded. The latter case is unique in that its initial phase was complicated by eclampsia and is of especial interest because the bone marrow pattern of acute leukemia disappeared during remission.

REVIEW OF LITERATURE

Reporting a case of acute leukemia in which decided clinical improvement paralleled the return of the blood to an apparently normal state, Jackson, Parker, Robb and Curtis² stated in 1931 that they had been unable to find in the literature a description of a comparable case. Therefore, this review covers the literature subsequent to the report of these authors, excluding poorly authenticated cases, remissions of less than two months, and an example of clinical remission showing persistence of leukemic cells in the peripheral blood.³

In 1937 Forkner⁴ emphasized that spontaneous remission of acute leukemia is characterized not only by striking clinical improvement, but also by disappearance of enlargements of spleen, liver and lymph nodes, and by recession of the evidence of leukemia in the peripheral blood. In 1946 Pellegrini⁵ reported that there is a concomitant recession of the bone marrow picture during remission of acute leukemia. This observation is confirmed by study of the case herein described.

The incidence of remission of acute leukemia cannot be expressed mathematically. Although short incom-

plete remissions are not uncommon, many hematologists have not observed an instance of complete spontaneous remission lasting as long as two months. Sometimes, in reviews of acute leukemia, incomplete or very short remissions are described, while in other reviews the subject is not mentioned.

Including our case, 11 instances of acute leukemia, showing clearcut clinical and hematologic remissions of two to twenty-one months, have been recorded.⁶ Four of the patients were girls, aged 3 to 14 years. The remaining patients numbered 3 men and 4 women, ranging in age from 33 to 58 years. Every case had a febrile onset, and every case except 1 showed mucous membrane involvement at some time during the course of the disease. Enlargements of lymph nodes and spleen were observed in the majority of cases. Hemorrhagic phenomena were encountered in 8 cases and not mentioned in 3 cases. Thrombocytopenia and anemia were always present.

The initial leukocyte count was usually within the limits of normal. One patient was leukopenic throughout the early phase. Another had a count of 22,000, which was not repeated. In our case transient leukopenia trailed the onset of clinical remission, and when the leukocyte count again reached a normal level stem cells could no longer be found in the peripheral blood smears.

However, in 6 cases the disease followed an interesting pattern. As illness progressed, leukopenia appeared and became profound. Unexpected clinical improvement followed, and the leukocyte counts rapidly increased to normal or temporarily high levels while stem cells disappeared from the blood.

During remissions, the patients were ambulatory and felt well. Splenomegaly, hepatomegaly and lymphadenopathy subsided. Blood cell counts were normal, or so nearly normal that evidence of leukemia was not detected by examination of peripheral blood smears.

In 2 of Pellegrini's cases and in our case the sternal marrow was studied in the initial phase as well as at remission. In each instance, the marrow picture was characteristic of acute leukemia at the onset and essentially normal during remission.

With recurrence, almost invariably the leukocyte count was initially elevated or rapidly rose to a high level. Peripheral blood and bone marrow pictures were typical for acute leukemia. Lymphadenopathy and splenomegaly, if previously present, returned. The clinical observations at the time of recurrence were those of classic acute leukemia, and there was rapid downhill progression with early death. The case recorded by Whitby and Christie^{6d} was a remarkable exception, however, in that there were two remissions before death occurred, with observations typical of acute leukemia.

Although clinical manifestations were so similar, there was wide variation in classification of the 11 cases. In 4 cases the disease was classified as monocytic, in 3 as lymphatic and in 2 as myelogenous, while in 2 it was designated simply as acute leukemia.

From the Departments of Pathology and Internal Medicine, Iowa Methodist Hospital, Des Moines, Iowa.

1. Farber, S.; Diamond, L. K.; Mercer, R. D.; Sylvester, R. F., and Wolff, J. A.: Temporary Remissions in Acute Leukemia in Children Produced by Folic Acid Antagonist, 4-Aminopteroyl Glutamic Acid (Aminopterin), *New England J. Med.* **238**: 787-793 (June 3) 1948.

2. Jackson, H. Jr.; Parker, F.; Robb, G. P., and Curtis, H.: Studies of Diseases of the Lymphoid and Myeloid Tissues: A Case of Acute Leukemia with a Five Months Remission, *Folia haemat.* **44**: 30-37 (April) 1931.

3. Miller, F. R., and Seymour, W. B.: Leukopenic Leukemia of the Myeloblastic Type, *Am. J. M. Sc.* **196**: 621-632 (Nov.) 1938.

4. Forkner, C. E.: Spontaneous Remission and Reported Cures of Leukemia; Chinese *M. J.* **52**: 1-8 (July) 1937.

5. Pellegrini, G.: Casi di leucemia con remissione, *Haematologica* **28**: 257-292, 1946.

6. (a) Jackson, Parker, Robb and Curtis.² (b) Pellegrini.⁵ (c) Jackson, H., Jr.: The Protean Character of the Leukemias and of the Leukemoid States, *New England J. Med.* **220**: 175-181 (Feb 2) 1939. (d) Whitby, L. E. H., and Christie, J. M.: Monocytic Leukemia, *Lancet* **1**: 80-82 (Jan. 12) 1935. (e) Fliinn, L. B.: Acute Lymphatic Leukemia in a Child of Four Years with a Severe Granulopneumonia Preceding a Remission, *Ann. Int. Med.* **9**: 458-469 (Oct.) 1935. (f) Jackson, H., Jr.: Acute Leukemia with Remissions, *Am. J. Cancer* **26**: 194-195 (Jan.) 1936. (g) Marcus, I. H.: Complete Temporary Recovery, of Long Duration, in Acute Aleukemic Myeloid Leucemia, *J. Lab. & Clin. Med.* **21**: 1006-1009 (July) 1936.

REPORT OF A CASE

On Sept. 1, 1942, a white married woman, aged 33, noticed slight edema of the feet and ankles. On the evening of September 3 she had several chills. She entered the hospital the following morning for observation, stating that she was in the seventh month of her second gestation. A right salpingectomy and ovariectomy had been performed in 1940 for ectopic pregnancy. Her maternal grandmother had had profound anemia at the age of 50 and died four months later.

The temperature was 100 F. Physical examination revealed generalized slight puffiness of the skin and moderate edema of the ankles. The throat showed hyperemia. The blood pressure was 150 systolic and 84 diastolic. The abdomen was enlarged, consistent with the seventh month of pregnancy. Fetal heart tones were normal. The spleen and liver were not palpated, and enlarged lymph nodes were nowhere encountered.

Urinalysis showed albumin 1 Gm. per liter, an acetone reaction of 4 plus and a positive diacetic acid reaction; microscopic study of a centrifuged specimen revealed 12 to 15 erythrocytes and an occasional leukocyte per high power field. The initial hemogram showed: hemoglobin 9.2 Gm. per hundred milliliters, erythrocytes 2,480,000 per cubic millimeter and leukocytes 9,200 per cubic millimeter, with 81 per cent stem cells, 9 per cent neutrophils, 2 per cent monocytes and 8 per cent lymphocytes. Results of Kline and Kahn flocculation tests and a heterophil antibody test were negative. The icterus index was 10.7 units.

Blood smears contained many peroxidase negative stem cells. The normochromic anemia was accompanied with moderate polychromatophilia. Thrombocytes were moderately decreased.

A sternal puncture on September 7 showed a hyperplastic marrow containing a pronounced preponderance of stem cells similar to those observed in the peripheral blood.

On September 15 she had numerous convulsions. The blood pressure had risen to 180 systolic and 90 diastolic. The urine contained 20 Gm. of albumin per liter, and the serum protein was 4.4 Gm. per hundred milliliters. The spinal fluid pressure was normal; the cell count was 1, and the protein level was 20 mg. per hundred milliliters.

Intravenously administered pentobarbital sodium (nembutal®) controlled the convulsions, but the patient remained comatose through the following day. In the evening she gave birth to a nonviable infant.

At autopsy, the female infant weighed 1,240 Gm.; it showed slight maceration and no other grossly recognizable changes. In the placenta, numerous small fresh hemorrhagic infarcts were observed. Microscopic studies revealed no evidence of leukemic involvement of the infant's tissues or of the placenta.

After delivery, the patient remained in a comatose state for several days, but she gradually improved. Her temperature fluctuated from 100 to 105 F., but was normal after September 29. The content of albumin in the urine gradually decreased, until only a slight trace was present on October 1.

On September 24, the total leukocyte count was 5,400 with 50 per cent stem cells. Five days later the count was 4,500 with 26 per cent stem cells. The heterophil antibody reaction was negative. The serum protein was 4.6 Gm. per hundred milliliters, and the blood uric acid was 2.9 mg. per hundred milliliters. A blood culture was negative.

During October she gradually improved. The leukocyte count dropped to 2,250 on October 7 and then gradually rose to a level of 6,200 ten days later. Stem cells decreased in number until it was impossible to find them after October 12. A sternal puncture, performed on October 14, revealed a remarkably different picture from the previous one. The picture was that of an essentially normal marrow.

Interval History.—The patient was placed on a highly nutritious diet, especially rich in butter. She was given yellow bone marrow, vitamin B complex, vitamin A and vitamin D. After discharge from the hospital on Nov. 16, 1942, she gained strength and by March 1943 was doing much of her housework. By October she seemed to be entirely well, doing all her housework and taking part in social activities.

For a period of almost two years, blood cell counts were taken first at weekly intervals and then at fortnightly intervals.

Her erythrocyte count was always close to the lower limit of normal. The hemoglobin was normal. Slight macrocytosis was always present. The leukocyte count remained around 5,000, and no immature cells were observed in the smears.

The Recurrence.—On July 15, 1944, she had an abscessed tooth treated by a dentist. Afterward she felt perfectly well, but on July 26 the hemogram showed: hemoglobin 13.9 Gm. per hundred milliliters, erythrocytes 3,770,000 per cubic millimeter and leukocytes 4,350 per cubic millimeter, with 54 per cent stem cells, 1 per cent band cells, 2 per cent neutrophils, 1 per cent eosinophils, 3 per cent monocytes and 39 per cent lymphocytes.

During the middle of August she had several attacks of mild urticaria. On the morning of August 17, menstruation began. Later in the day, a mild chill occurred and the temperature was 102 F.

When she was readmitted to the hospital on August 21, physical examination revealed a few cutaneous petechiae. There was no demonstrable lymphadenopathy, splenomegaly or hepatomegaly. The blood pressure was 98 systolic and 70 diastolic.

The admission hemogram showed: hematocrit 33 volumes per cent, hemoglobin 9.7 Gm. per hundred milliliters, erythrocytes 3,010,000 per cubic millimeter and leukocytes 40,400 per cubic millimeter, with 88 per cent stem cells, 1 per cent band cells, 2 per cent neutrophils and 9 per cent lymphocytes. The urine was normal. The result of a Friedman test was negative. The sedimentation rate was 136 mm. per hour (Westergren), blood urea nitrogen 16.3 mg. per hundred milliliters, uric acid 3.1 mg. per hundred milliliters and total protein 6.6 Gm. per hundred milliliters.

The course was irregularly febrile, marked by occasional chills. Almost every transfusion was accompanied with chilling and fever. Malodorous vaginal discharge appeared, and at intervals there was passage of increasing amounts of blood and blood clots. Examination revealed ulcerative necrosis of the cervix. The hemorrhage could not be controlled by blood transfusion, by administration of vitamin K or by other measures. An abscess of the buttock developed and drained persistently. Scattered petechiae and ecchymoses appeared in the skin, and from time to time she complained of urticaria.

Blood cultures were repeatedly negative. Although the urine contained very few leukocytes, urine cultures were persistently positive for *Aerobacter aerogenes*, *Escherichia coli* and *Proteus vulgaris*.

The leukocyte count varied from 40,000 to 85,000. On August 30, she was given 3 millicurie equivalents of radioactive phosphorus in 5 per cent dextrose and isotonic sodium chloride solution intravenously. Similar amounts were given on September 4 and September 22. The leukocyte count rose to 101,000 on September 6 and then gradually dropped to 18,000 on October 2. Thereafter it fluctuated from 8,000 to 18,000, with stem cells persisting in high percentage. Anemia and thrombocytopenia persisted, the thrombocyte count falling to 9,000 on October 4.

She was maintained on a highly nutritious, high fat diet supplemented by yellow bone marrow and vitamin B complex. She received many blood transfusions and several courses of penicillin. There was very little response to any therapeutic measures attempted. She died on October 18.

Necropsy.—At necropsy, slight generalized lymphadenopathy was encountered. The liver weighed 1,955 Gm. and the spleen weighed 205 Gm. A few petechiae were found in the pleurae and endocardium. The dilated heart weighed 285 Gm. No important changes were observed along the respiratory, gastrointestinal or urinary tracts. The endometrium was represented by a thin, hyperemic irregular surface, to which a few shreds of soft red tissue were attached. The patulous cervical canal was filled with thin malodorous sanguineous fluid, and the hyperemic granular endocervix showed small areas of necrosis. The ribs and vertebral bodies showed normal density and contained abundant thick, pale red bone marrow.

The bone marrow was heavily infiltrated by cells resembling those found in the peripheral blood and in the bone marrow during life and contained few megakaryocytes, normoblasts or granulocytes. Large mononuclear cells were scattered along the

liver sinusoids and along the sinusoids of the lymph nodes, which showed preservation of architectural pattern. However, the architectural pattern of the spleen was obliterated because of proliferation of large numbers of mononuclear cells. The inflammatory process in the cervix proved to be a necrotizing one, characterized by little evidence of repair and by the presence of very few segmented neutrophils and small numbers of large mononuclear cells. Other organs did not show evidence of leukemic involvement.

COMMENT

The diagnosis of leukemia was amply confirmed when the patient was originally seen and again at the beginning of the remission. In an interesting letter, dated Oct. 24, 1942, Dr. Lawrence H. Beizer of the Mayo Clinic, Rochester, Minn. (now of Philadelphia), said:

Dr. Frank J. Heck and I have reviewed the original smears and the recent ones which you sent in the case of Mrs. E. R. We still feel that the original smears are typical of acute leukemia, probably leukemic reticuloendotheliosis. The recent peripheral blood and bone marrow smears show no evidence of leukemia. Dr. Heck tells me that in the past the men here have seen several cases in which the peripheral blood showed no evidence of leukemia during a remission. At the time those patients were seen, bone marrow studies were not being done, so that we do not know what the marrow would have shown. Subsequently, the leukemic picture returned. Because of this, I think that it would be well to give a very guarded prognosis.

The immature cells, found in the peripheral blood on both admissions and in the bone marrow initially and after death, were all similar. However, stem cells were predominant in the early phase, and large monocytic cells, many resembling reticuloendothelial cells, were predominant in the recurrent phase. Stem cells possessed large nuclei and one or more nucleoli; the cytoplasm was scanty and pale without granules. Other immature cells showed abundant cytoplasm in which fine azurophil granules could often be seen; the large nuclei frequently showed slight grooving or indentation and contained one or more prominent nucleoli. Peroxidase stains were consistently negative.

The final diagnosis, based on clinical, cytologic and postmortem observations, was acute monocytic leukemia recurrent after a long remission. The case might have been classified as one of leukemic reticuloendotheliosis. The occurrence of so-called reticuloendothelial cells in leukemia is perhaps better understood if one accedes to the view of Wiseman,⁷ who recently discussed the relationship of leukemia to the reticuloendothelial system. He stated the belief that the reticuloendothelial system has blood as well as tissue components and that the monocyte is a derivative of the reticuloendothelial system. He stated that monocytic leukemia, therefore, may be regarded, fundamentally and in fact, as leukemic reticuloendotheliosis.

In the case herein described rapid improvement followed spontaneous termination of eclamptic pregnancy. We encountered no parallel case in the recent medical literature. The experience of others has been that the course of acute leukemia is not significantly altered by termination of pregnancy. Therefore, although it is intriguing to consider the possible relationship of endocrine factors to the onset of remission in our case, such speculation seems valueless except as it may suggest a course for future investigation. A pronounced effect of estrogens on the bone marrow

and peripheral blood pictures of dogs has been reported,⁸ and a definite increase in the incidence of leukemia in mice receiving estrogens has been observed.⁹ Remarkably little information is available concerning endocrine influences on the morphologic aspect of the peripheral blood and bone marrow of human beings.

Although remission in the case of Jackson and his co-workers² followed administration of adenylic acid, there was no response to its administration during the recurrence, and other patients with acute leukemia failed to show response to this therapy. Numerous other drugs, for example ascorbic acid,¹⁰ have been tried, with doubtful success, in the management of acute leukemia. Roentgen therapy is usually considered contraindicated in these cases, and radioactive phosphorus appears to induce at best no more than temporary improvement in occasional cases.

Haines,¹¹ observing that a leukopenic phase frequently precedes the onset of remission in acute leukemia, theorized that administration of an agent toxic to leukocytes might artificially "set the stage" for a remission. His attempt to accomplish this, using neoprontosil[®] (disodium 4-sulfamido-phenyl-2-azo-7-acetyl-amino-1-hydroxy-naphthylene, 3,6-disulfonate), was unsuccessful. A similar effort was made in our case at the time of recurrence. After intravenous administration of 9 millicurie equivalents of radioactive phosphorus,¹² the leukocyte count fell from a high level to nearly normal, but clinical improvement did not ensue.

When aminopterin,[®] a folic acid antagonist, was administered intramuscularly to 16 children with acute leukemia by Farber, Diamond, Mercer, Sylvester and Wolff,¹ remarkable clinical improvement was noted in 10 cases. Leukocyte, erythrocyte and thrombocyte counts approached normal values. There was recession, if present, of enlargements of spleen, liver and lymph nodes. There was a decided effect on the bone marrow, which showed changes that varied from a decrease in number to a disappearance of the leukemic cells.

Thus, remissions induced with aminopterin[®] seem to be as dramatic as those which occur spontaneously. However, the aminopterin[®]-treated patients had not been followed long enough at the time of publication (June 3, 1948) of the preliminary report of Farber and his co-workers to determine whether or not remissions of longer than three months can be maintained. Unfortunately, the drug is rather toxic. The authors warn that their studies do not warrant the application of the term "cure" to any of the cases reported.

SUMMARY

Acute leukemia in a 33 year old woman had its onset in the seventh month of gestation. Symptoms of eclampsia developed, and she prematurely delivered a nonviable infant which showed no evidence of leukemia at autopsy. After delivery, she improved rapidly and was in good health for twenty-one months, whereafter again the clinical and hematologic picture of acute leukemia developed and the patient died.

8. Crafts, R. C.: The Effects of Estrogens on the Bone Marrow of Adult Female Dogs, *Blood* **3**: 276-285 (March) 1948.

9. Gardner, W. V.; Kirschbaum, A., and Strong, L. C.: Lymphoid Tumors in Mice Receiving Estrogens, *Arch. Path.* **29**: 1-7 (Jan.) 1940.

10. Plum, P., and Thomsen, S.: Remission in Course of Acute Leukemic Leukemia Observed in Two Cases During Treatment with Cevitamie Ugesk. f. laeger **98**: 1062-1067 (Oct. 29) 1936.

11. Haines, D. J.: Acute Leukemia, *J. Iowa M. Soc.* **31**: 430-432 (Sept.) 1941.

12. Radioactive phosphorus was obtained through Dr. Shields Warren.

7. Wiseman, B. K.: Is Leukemia a Disease of the Reticulo-Endothelial System? *Blood* **3**: 867-879 (Aug.) 1948.

During the remission, cytologic evidence of leukemia in the sternal marrow and in the peripheral blood disappeared. The administration of radioactive phosphorus, in an attempt to induce a second remission, was followed by reduction in the leukocyte and thrombocyte counts without clinical evidence of improvement.

The foregoing case exemplifies a unique form of acute leukemia which has been characterized by an acute febrile onset, frequent involvement of mucous membranes and less frequent splenomegaly and lymphadenopathy. Initially, severe anemia, leukopenia and thrombocytopenia are observed. There follows a remission, lasting as long as twenty-one months, characterized by apparent restoration of health, by disappearance of demonstrable lymphadenopathy and splenomegaly and by return of the peripheral blood and bone marrow pictures to normal or nearly normal. Suddenly, fever and other clinical manifestations of acute leukemia reappear; lymphadenopathy and splenomegaly, if previously present, return. The leukocyte count rises rapidly in most instances, and evidence of acute leukemia in the peripheral blood and the bone marrow is again apparent. Death ensues.

Ideally, remissions induced by aminopterin® (4-aminopteroyl glutamic acid) or by other means should simulate the spontaneous ones described.

EFFECT OF SYMPATHECTOMY ON BLOOD PRESSURE IN HYPERTENSION

A Review of Thirteen Years' Experience at the Massachusetts General Hospital

KENNETH A. EVELYN, M.D.
Montreal, Canada

FRED ALEXANDER, M.D.
Boston
and

STEWART R. COOPER, M.D.
Montreal, Canada

The difficulty of assessing the effectiveness of various forms of treatment for essential hypertension is due to several causes, of which the most important are the necessity for following each patient over a period of many years, the variability of the course of the disease in different patients and the lack of adequate statistics concerning the natural history of the disease in a series of patients large enough to include all possible variations in duration and severity. In addition to these fundamental sources of difficulty, the task of carrying out an accurate follow-up study is further complicated by the large number of clinical manifestations of the disease which must be taken into account and the absence of completely satisfactory methods for measuring the severity of the damage done to each of the organs affected. The net result of all these difficulties

is reflected in the fact that various authors employ a wide variety of criteria of therapeutic benefit in essential hypertension, without having arrived at general agreement as to the relative importance of each factor. For example, it is customary to evaluate the beneficial effect of treatment in terms of reduction in blood pressure, improvement in the status of the cardiac, renal and central nervous systems, favorable changes in the appearance of the ocular fundi, reduction of the severity of miscellaneous symptoms, such as headache, improvement in the patient's capacity for physical activity and increase in life expectancy. While all these criteria are generally accepted as reasonable indexes of successful therapy, there is a surprising amount of disagreement as to the reliability of various methods which are used to assess the degree of improvement or deterioration which has occurred in each of the factors mentioned. For example, in evaluating the patient's cardiac status, some authors attach great significance to changes in the size of the cardiac shadow on the roentgenogram of the chest and to certain changes in the T waves on the electrocardiogram, while other authorities consider these so-called objective observations to be less reliable than the conclusions reached by the ordinary methods of history taking and physical examination. Equally divergent methods which have been used to evaluate the degree of blood pressure reduction produced by various forms of therapy will be discussed elsewhere in this report.

In view of the large number of factors which must be taken into account in assessing the value of any type of treatment for essential hypertension, no single over-all index of therapeutic success has yet been devised, by means of which each patient can be categorized as cured, improved, unchanged or worse. Therefore, until some such over-all index of therapeutic benefit is agreed on, doctors will be forced to rely on separate assessments of each factor. This is far from being an ideal approach to the problem, but, if the assessments of individual factors are made as accurately as possible, the data obtained will eventually be sufficient to allow each observer to evaluate the results according to whatever system of weighting appears most reasonable in the light of his own experience. For example, we realize that some authorities are inclined to minimize the importance of mere reduction of blood pressure, and there are many who believe that it may actually be harmful to lower the blood pressure of certain hypertensive patients. However, as long as blood pressure reduction continues to be regarded as beneficial by most internists, and as long as sympathectomy is so often recommended to the patient as a means whereby this desirable result may be achieved, it is important that as much data as possible be published in order to determine the frequency and permanence of blood pressure reduction after sympathectomy. Because of limitation of time, this report will deal only with the specific question of the effect of sympathectomy on the blood pressure, but the follow-up study, from which the blood pressure data were obtained, was carried out on very broad lines, in order to obtain as much information as possible about all the other factors involved in a complete assessment of the value of the operation.

CLINICAL MATERIAL

During the period 1935-1947, approximately 400 patients underwent sympathectomy for the treatment of hypertension on the public wards of the Massa-

This project was undertaken by the Hypertension Committee of the Massachusetts General Hospital with the aid of a grant from the Life Insurance Medical Research Fund.

Read in a Symposium on Hypertension in a joint meeting of the Section on Experimental Medicine and the Section on Internal Medicine at the Ninety-Seventh Annual Session of the American Medical Association, Chicago, June 25, 1948.

Dr. Evelyn directed the project during a period of leave of absence from McGill University, which was granted in order to allow him to accept a temporary appointment at the Massachusetts General Hospital. Dr. Evelyn's present address is Medical School, McGill University, Montreal.

Dr. Robert Sterling Paimier placed at our disposal data collected over a period of years in the Hypertensive Clinic of the Massachusetts General Hospital. Valuable services were also rendered by Drs. W. P. Chapman, R. H. McFarlane and G. R. Turgeon, and by Mrs. Jean Barkin Waldstein, Miss Mary Butler, Miss Jean Emery, Miss Phyllis Hoffman, Miss Grace Lockwood and Miss Margaret O'Grady. The nature of the services rendered is indicated by appropriate footnotes throughout the text.

chusetts General Hospital. In order to obtain a more homogeneous series for follow-up purposes, we decided to exclude from the study all patients who were not residents of the State of Massachusetts at the time of the operation. The application of this rule reduced the series to 292 patients, who may be divided into three

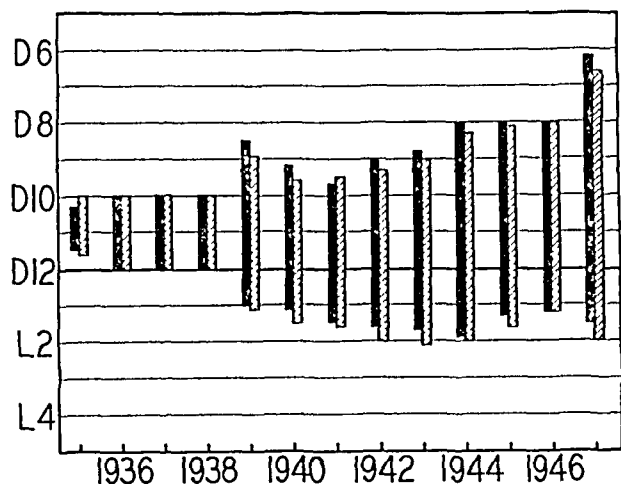


Fig. 1.—Illustration of variations in the extent of average ganglionectomy during the years 1935 to 1947 at Massachusetts General Hospital. The black bars indicate male patients and the hatched bars female patients.

groups according to the type of operation performed. The first group consists of 35 patients who were operated on by the supradiaphragmatic route during the years 1935-1938. The second group is composed of 223 patients who underwent sympathectomy by the Smithwick¹ lumbodorsal procedure between March 1939 and May 1946. The third group consists of 34 patients who were operated on by the surgical members of the Hypertension Committee² of the Massachusetts General Hospital from June 1946 to May 1947. The third group is still rather small, but its significance is likely to increase as the series grows, because it is made up of carefully selected patients who have been operated on by several different technics designed to give a more radical resection of the sympathetic trunk than the Smithwick operation.

Figure 1 shows how the extent of the ganglionectomy has varied as a result of the three major changes of policy described, together with several minor modifications of technic which have been introduced during the period covered by this study. The average ganglionectomy obtained with the supradiaphragmatic operation was from the tenth to the twelfth dorsal ganglion, but this was increased in both directions by the Smithwick technic so that the average ganglionectomy extended from the eighth or ninth dorsal to the first or second lumbar ganglion. The diagram shows that during the first five years of performance of the Smithwick operation there was a tendency to increase the extent of the ganglionectomy in the lumbar area with a consequent reduction of the height of the dissection in the dorsal area. However, during the years 1944-1946, there was a reversal of this trend which eventually resulted in the adoption of a more or less standardized ganglion-

ectomy extending from the eighth dorsal to the first lumbar ganglion. It will be noted, also, that even in the years when an effort was being made to extend the ganglionectomy in the lumbar region, the operations tended to be less extensive in this direction in the male patients in order to reduce the possibility of damage to the ejaculatory function. The last entry in figure 1 shows the increased extent of the average ganglionectomy performed in the first year, during which the more radical operations were performed by members of the hypertension committee. Although the average ganglionectomy of the sixth dorsal to the second lumbar ganglion was only slightly more extensive than that produced by the Smithwick technic, several operations extended from as high as the second or third dorsal to as low as the second or third lumbar ganglion. We have stressed these differences in the extensiveness of the ganglionectomy because one of the important objectives of this study is to determine whether the more radical operations will produce a large enough improvement in therapeutic effectiveness to offset any increase in morbidity which may occur.

Many other features of the clinical material have been examined in detail, but the most striking result of these studies is the relative constancy of most of the characteristics of the group from year to year. For example, the ratio of female to male subjects in the whole series is 1.8 to 1, and this ratio was found to have remained constant within the range of statistically allowable error during the periods 1935-1938, 1939-1942, 1943-1946 and even in the small group of patients operated on by the more radical methods during 1947. Even more surprising, in view of the various methods of case selection which have been tried at different times, is the relative constancy of the average age of the patients operated on in each year. This is illustrated in figure 2, in which it must be noted that the averages for many of the early years were based on relatively small numbers of patients, so that the agreement is all the more significant. For the series as a whole the average age of the 187 female patients was

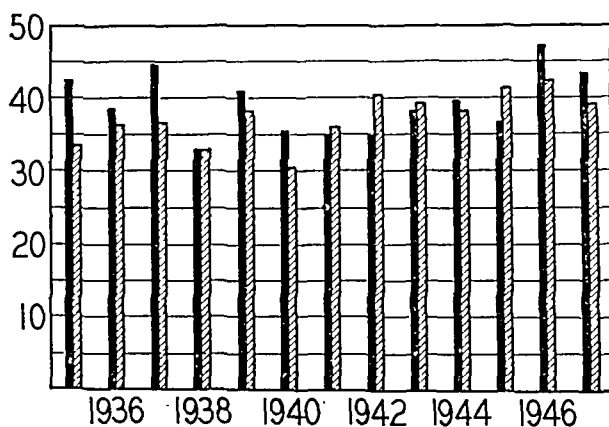


Fig. 2.—Diagram of variation of average age of male and female patients who underwent sympathectomy in each year from 1935 to 1947. The black bars indicate male patients and the hatched bars female patients.

1. Smithwick, R. H.: A Technique for Splanchnic Resection for Hypertension, *Surgery* 7:1-8 (Jan.) 1940.

2. The Hypertension Committee of the Massachusetts General Hospital was set up in May 1946 to take charge of the sympathectomy program when Dr. R. H. Smithwick left the Massachusetts General Hospital to become Professor of Surgery at Boston University. The original surgical members of the group were Drs. R. R. Linton, F. D. Moore, F. A. Simeone, W. H. Sweet, C. E. Welch and J. C. White.

39.6 years, and that of the 105 male patients was 40.2. The age distribution of all 292 patients is shown in figure 3, from which it is evident that the largest group was from 40 to 45 years of age and that 70 per cent of the patients were between 30 and 50 years of age. Of the remainder, 18 per cent were below 30 and 12 per cent were above 50 years of age.

In the great majority of cases in the series the operation was performed for essential hypertension, but there were a few patients in whom some form of secondary hypertension was present, for example, 4 cases of glomerulonephritis, 2 cases in which sympathectomy was combined with unilateral nephrectomy, 3 cases of coarctation of the aorta and 2 cases of pheochromocytoma. These patients were studied as a matter of interest, but their data are not included in any results which refer specifically to essential hypertension. In several cases which were considered to be of essential hypertension, there was evidence suggestive of coexistent pyelonephritis, but since it was difficult to be certain that the pyelonephritis had any etiologic significance, we have not excluded these cases from the classification of essential hypertension. Finally, it may be of interest to record that the incidence of papilledema in the various subdivisions of the series was 20 per cent in the 35 cases of the supradiaphragmatic series, 14 per cent in the 223 cases with operation by the Smithwick technic and 18 per cent in the 34 cases of the most recent series.

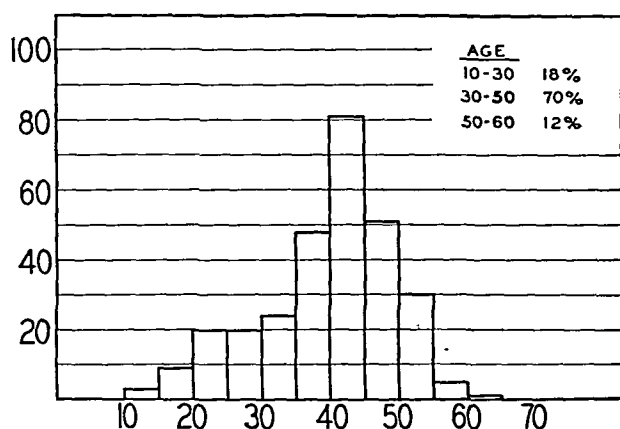


Fig. 3.—Diagram of age distribution of 292 patients who underwent sympathectomy during the period 1935 to 1947. The vertical values show the number of cases, and the horizontal values indicate the age at the time of operation.

METHOD OF STUDY

The chief objective of the investigation was to prepare a detailed analysis of all aspects of the case record of each patient and to supplement this as much as possible by obtaining additional information from the living patients by means of a personal follow-up. At the beginning of the study a list was made of all the questions about which data should be obtained, and these were classified into three main groups: clinical, biographic and statistical. The biographic section was responsible for reconstructing the patient's home life, employment record and capacity for physical activity, in order to evaluate the beneficial or detrimental effect of the operation on the patient as a person. The statistical section was responsible for verifying and recording all numerical data, such as the patient's birth date, age at operation, date of operation, extent of ganglionectomy and other similar information obtainable from the record. In this connection, the most important task of the statistical section was to prepare a list of all blood pressure readings recorded for each patient with notes on the date of each reading and the circumstances in which each reading was taken. In addition, because of the special importance of the problem, an independent project was carried on concurrently by Dr. William P. Chapman in order to evaluate the effect of the operation on the symptom of headache. Although there was a certain amount of unavoidable overlapping, four independent analyses were made of each record in order that each of the four types of data could be summarized separately

and relatively free from other types of information. This system had the advantage of simplifying the task of transferring the raw data to the comprehensive data sheets from which the final statistical analyses were made, but it also resulted in highly efficient utilization of personnel. The clinical data from each case were extracted by one of the authors and checked by another, the biographic material was handled by a professional social service worker,³ and the statistical data by specially trained statistical clerks⁴ who routinely double checked each protocol. Dr. Chapman was responsible for the fourth independent analysis, which summarized only information relevant to the problem of headache.

The record summaries were completed on schedule ahead of the date of the patient's appointment for personal follow-up study, so that discrepancies and omissions in the record could be clarified as much as possible during the patient's interviews with the physician and social worker. It was a standing rule that the patient's statements at the time of the follow-up interview, which were based on memory of events which took place several years previously, could not be used to over-rule statements recorded in the original case history at the time of their occurrence. However, we considered it justifiable to obtain certain data, such as the family history and the dates of pregnancies, operations and illnesses, which were not adequately covered in the original record. It was also considered safe to obtain certain important items of the personal history which were required to complete the biographic record. Additional useful information was often obtained by writing to hospitals to which the patients had been admitted or to physicians from whom they had received medical care during the period covered by the study. Naturally, the patient's statements, so far as they were in accord with the general trend revealed by recent entries in the record, were our main source of information regarding his general condition at the time of the follow-up interview. Occasionally, when the patient's memory was impaired, an attempt was made to obtain more reliable information from relatives or friends who were asked to accompany the patient on the visit to the Hypertension Laboratory or who were interviewed by the social service worker by the telephone. Additional information was sometimes obtained by making contact with the patient's employer.

During the early months of the project, while the system of record analysis was being developed, another member of the staff⁵ was making an effort to trace each patient in the series, to obtain details concerning the time and manner of death in those who had not survived and to arrange a suitable date for each of the surviving patients to be studied in the Hypertension Laboratory. The appointments were made at the rate of 1 case per day, so that each patient spent approximately eight hours in the laboratory, during which time the attention of all members of the staff was focused exclusively on him. In addition to the careful interviewing and history taking described, the follow-up study consisted of a complete physical examination, which included a standardized ophthalmoscopic grading of the ocular fundi.⁶ Routine laboratory tests included urinalysis, intravenous phenolsulfonphthalein test, examination of the chemical content of the blood, electrocardiogram and roentgenogram of the chest. Physiologic studies consisted of an attempt to evaluate the completeness and permanence of the effect of the operation on certain autonomic nervous functions, skin temperature measurements being used as an index of peripheral vasodilatation and electrical skin resistance measurements⁷ as an index of sudomotor activity.

The blood pressure of each patient was taken shortly after arrival under conditions simulating as closely as possible those which would exist on a routine clinic visit. Later in the

3. Mrs. Jean Barkin Waldstein was loaned to the project for this purpose by Miss Josephine Barbour, Chief of the Social Service Department of the Massachusetts General Hospital.

4. Miss Jean Emery, Miss Phyllis Hoffman and Miss Margaret O'Grady.

5. Miss Mary Butler.

6. The ophthalmoscopic examinations were done by Dr. David Cogan, Howe Laboratory of Ophthalmology, Massachusetts Eye and Ear Infirmary. Dr. Cogan was the ophthalmologic consultant of the Hypertension Committee.

7. The skin temperature and skin resistance measurements were made by Miss Grace Lockwood.

morning the standard posture and cold blood pressure test⁸ was performed, and thereafter throughout the remainder of the day the blood pressure was taken approximately once every hour at convenient intervals between various items of the follow-up program. The purpose of these frequent blood pressure readings was to provide an indication of the variability of the blood pressure, since some phases of the program caused mild anxiety in the patient, while other tests were performed after the patient had spent an hour in an air-conditioned room at a temperature which was either uncomfortably cold or pleasantly warm.

In the majority of cases, the follow-up study was completed in the course of a single day without producing undue fatigue in the patient, but whenever a patient was unable to undergo all the tests in one day a second appointment was made to complete the study.

At the time when the list of patients to be followed up was closed, the series consisted of 292 patients, of whom 219 were alive and 73 were dead. Of the 219 surviving patients, 210 were willing to cooperate to the extent of coming to the laboratory for the follow-up examinations. Six patients who were too sick to come to the laboratory were studied as well as possible at home with the collaboration of their private physicians, while 2 patients could not be located and 1 was located but declined to cooperate.

RESULTS

Although our main interest, as far as the blood pressure data were concerned, was devoted to the long term results of the operation over a period of several years, an analysis was also made of the "immediate" results of the operation, as indicated by a comparison between the average blood pressure at the end of the first week in the hospital before the operation and the average pressure just before the patient was ready to be discharged from the hospital after the second stage. For this portion of the study, patients with postoperative complications were not used, and only those records in which the blood pressure readings were entered regularly throughout the hospital stay were considered suitable. Patients who were operated on before the seventh day in the hospital and those who were discharged before the twelfth postoperative day were also excluded. With these restrictions, 114 cases were considered suitable for study; figure 4 shows a comparison of the preoperative and postoperative blood pressures of these 114 patients in the form of a scattergram. On the left hand side of the graph are shown the preoperative systolic and diastolic blood pressures of each patient obtained by averaging all readings taken before the operation on the sixth, seventh and eighth days after admission to hospital and on the right hand side the corresponding pressures obtained by averaging all readings taken on the eighth, ninth, tenth, eleventh and twelfth days after the second stage. The systolic pressures are represented by black dots and the diastolic pressures by open circles. The average preoperative systolic blood pressures ranged from 120 to 245 mm., with an average of 177 mm., while the corresponding average postoperative systolic pressures ranged from 90 to 225 mm., with an average of 152 mm. In the case of the average diastolic pressures, the preoperative range was from 70 to 170 mm., with an average of 116 mm., while the postoperative range was from 65 to 135 mm., with an average of 100 mm. The low preoperative readings obtained in such a large proportion of the patients is further

evidence of the variability of the blood pressure even in patients with long-standing hypertension, since the blood pressures of these patients in the clinic or on admission to the hospital were usually high enough to justify performance of sympathectomy. While these figures have not proved of value in predicting the long term outcome of the operation, we feel that they are of interest because they show that the average reduction of the blood pressure taken while the patient is lying in bed in the hospital at the end of approximately ten days after lumbodorsal sympathectomy is only about 25 mm. systolic and 16 mm. diastolic, in spite of the fact that in this early postoperative period there is almost invariably a drastic reduction of the standing blood pressure with symptoms of postural hypotension. This striking reduction of the blood pressure in the standing position usually tends to disappear gradually until it becomes barely noticeable at the end of the first postoperative year, except in a few patients in whom, for unknown reasons, a more or less permanent postural hypotension develops, which is always annoying and may, in extreme cases, be quite disabling.

In dealing with the long term effect of the operation on the height of the blood pressure, we have found it convenient to plot all the available clinic blood pressure

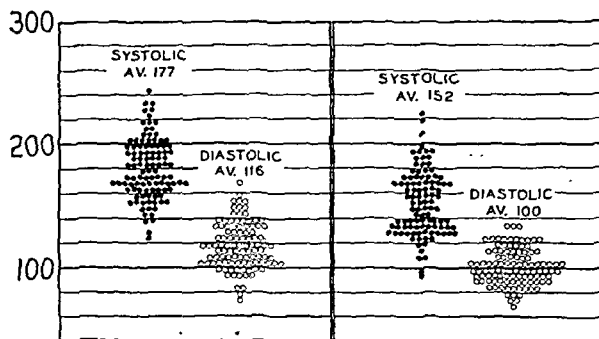


Fig. 4.—Scattergram to illustrate the differences between average preoperative and postoperative blood pressures of 114 patients taken while the patients were in the hospital. The left hand scattergram is for the preoperative period, six to eight days after admission. The right hand scattergram is for the postoperative period, eight to twelve days after the second stage.

data of each patient on a standardized chart in which the time scale is greatly compressed, so that it is possible to obtain a panoramic view of the blood pressure fluctuations during the preoperative and postoperative periods. In all these graphs the systolic blood pressures are represented by black dots and the diastolic pressures by open circles.

It has been our policy to enter on the blood pressure diagrams only those readings which are taken under so-called casual conditions, that is to say, in circumstances such as usually prevail in the average outdoor clinic where blood pressure readings are made in the course of an ordinary physical examination, without any standardized preliminary period of rest. Since such casual blood pressures are taken about as often in the lying as in the sitting position, we have plotted on the same graph all blood pressures taken in either of these two positions. We are aware of certain advantages which have been claimed for blood pressures taken under more or less "basal" conditions, but since the variability of blood pressure readings cannot be abolished by any type of environment known to us, we believe that accurate statistics can only be obtained when a relatively large number of individual blood

8. Smithwick, R. H.: Surgical Treatment of Hypertension: The Effect of Radical (Lumbodorsal) Sympathectomy on the Hypertensive State of One Hundred and Fifty-Six Patients Followed One to Five Years, *Arch. Surg.* 49: 180-193 (Sept.) 1944.

pressure readings are available for analysis no matter what conditions may have prevailed when the readings were made. This point has been adequately stressed by Ayman,⁹ who recommended that the desired frequency of blood pressure readings be obtained by teaching the patient, or members of his family, to take blood

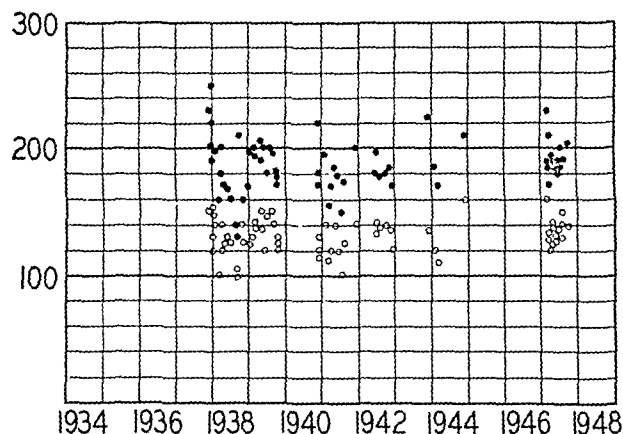


Fig. 5.—Variations in blood pressure of a woman who received medical treatment for ten years, from age 34 through age 43.

pressure readings twice a day over periods of months or years. We recognize the value of this so-called "home" blood pressure method, but on account of the immense administrative difficulties involved in its large scale application over a period of ten or more years, it is unlikely to become accepted as a routine method of studying the effect of sympathectomy on the blood pressure. In any event, no such data were available to us; we therefore tried to make the best possible analysis of the clinic blood pressure data, while fully realizing the variability of the conditions under which the blood pressure readings were made. We feel that this lack of standardization is in some respects desirable, because a graph made from a relatively large number of readings obtained under such variable conditions

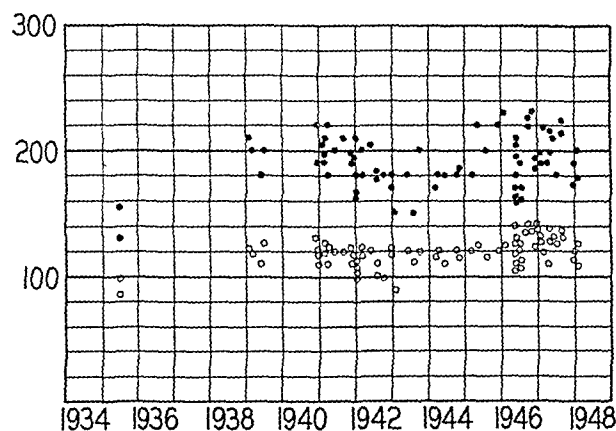


Fig. 6.—Variations in blood pressure of a woman who received medical treatment for nine years, from age 44 through age 52.

tends to give a fairly accurate indication of the range of variation of the patient's blood pressures under ordinary conditions of every day life outside the home.

9. (a) Ayman, D., and Goldshine, A. D.: Blood Pressure Determinations by Patients with Essential Hypertension: The Difference between Clinic and Home Readings before Treatment, *Am. J. M. Sc.* **200**: 465-474 (Oct.) 1940; (b) Blood Pressure Determinations in Patients with Essential Hypertension: Evaluation of Sympathectomy over a Three Year to Five Year Period, *New England J. Med.* **229**: 799-811 (Nov. 25) 1943.

Since an evaluation of the significance of any observed alteration in blood pressure can be made only in terms of the frequency with which similar variations may occur spontaneously in a medically treated patient, we have also analyzed clinic blood pressure data of patients who have not been subjected to sympathectomy, in order to obtain approximate statistics on the variability which may be expected in "casual" blood pressure readings from day to day. Figures 5 and 6 are presented to illustrate the type of blood pressure variations which are usually encountered in medically treated hypertensive patients. Figure 5 illustrates a common feature of such data, namely, the tendency of the blood pressure to be at a very high level on the first visit to the clinic, with subsequent reduction due to an early favorable response to medical treatment and with eventual stabilization at an intermediate level. However, no matter how familiar the patient becomes with the environment of the clinic, the blood pressure level never becomes stabilized in the strict sense of the word, since what actually occurs is that the blood pressure as taken in the clinic continues to fluctuate above and below the mean. In the average case, in which eight

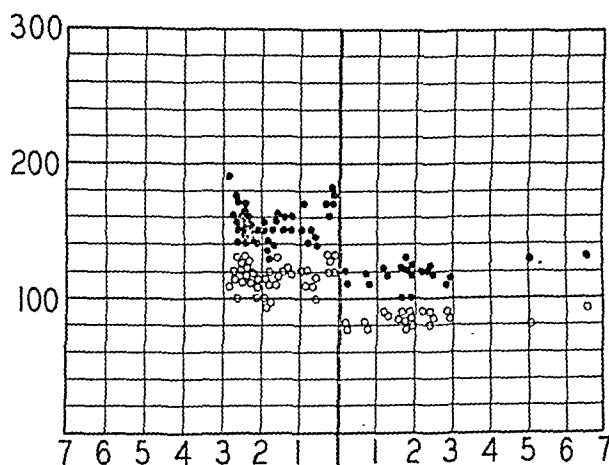


Fig. 7.—Illustration of the successful result of a sympathectomy performed on a girl at the age of 16 years. The postoperative blood pressure had remained normal for nearly seven years. The horizontal row of figures shows preoperative (left) and postoperative (right) years.

or ten clinic visits are made every year for several years, it is usual for the systolic pressure to vary over a range from 20 per cent above to 20 per cent below the average of all systolic readings recorded for the patient and for the diastolic pressure to vary about 15 per cent above and below the average diastolic. These figures apply to the great majority of ambulatory hypertensive patients, although occasional patients in the advanced stages of the disease may show relatively "fixed" blood pressures.

In presenting the results on patients who underwent sympathectomy, a series of diagrams is shown illustrating some of the typical blood pressure responses which have been observed in this series. Each graph is condensed to show the blood pressure readings for seven years before and seven years after the operation, which is represented by the double vertical line at the center of the graph.

Figure 7 shows what we regard as an excellent response in a female patient who underwent sympathectomy at the age of 16 years. It will be noted that there is an adequate control period of nearly three years during which the patient made frequent visits to the

clinic, the average blood pressure during this time being about 155 systolic and 115 diastolic. After the operation, however, throughout the seven years of observation, the blood pressure remained within normal limits, the highest postoperative systolic and diastolic readings being lower than the lowest corresponding preoperative readings. The gap in the blood pressure data during the last three or four years is due to the fact that the patient did not attend our clinic during the course of the antenatal and postnatal periods of two successful pregnancies.

Figure 8 is an example of a less satisfactory response in a 41 year old woman whose blood pressure was significantly reduced for six to seven years after the operation, although there was a slight indication of a tendency to higher levels during the seventh year. While the postoperative blood pressures in this patient were definitely not normal, there can be no doubt of the significance of the reduction as compared with the preoperative levels.

Figure 9 presents a somewhat similar, but even less favorable postoperative course in a 20 year old female patient who suffered from hypertension associated with

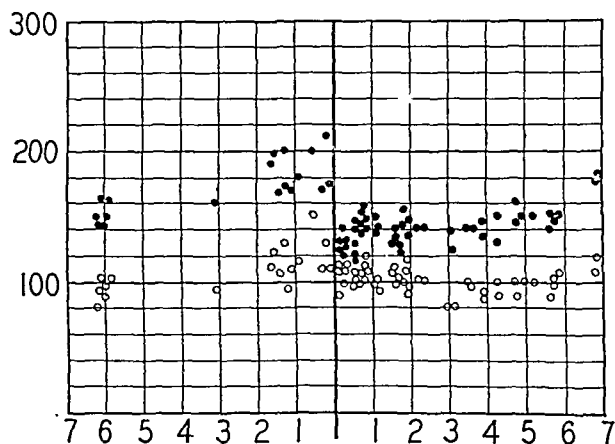


Fig. 8.—A less successful result in a woman operated on at the age of 41 years. The blood pressure had been significantly reduced for six years, although the postoperative blood pressures remained definitely above normal. The horizontal figures show preoperative (left) and postoperative (right) years.

long-standing pyelonephritis. It is difficult to state definitely that the pyelonephritis was the cause of the elevated blood pressure, but it seems probable that the recurrence of the pyelonephritis postoperatively may have been responsible for the progressive relapse during the fifth, sixth and seventh years. This case has been presented in order to illustrate the fact that hypertension associated with pyelonephritis is often favorably influenced by sympathectomy, even though the pyelonephritis may persist or recur with eventual return of the blood pressure to its preoperative level.

Figure 10 illustrates the case of a 49 year old man in whom the initial reduction of blood pressure was much smaller than in any of the 3 previous patients. In addition, the rate at which the postoperative blood pressures tended to return to the preoperative level was more rapid, so that a considerable degree of blood pressure relapse had occurred at the end of the fourth year. This is probably the commonest pattern of post-sympathectomy blood pressure behavior which we have observed in this series, namely, a significant reduction of blood pressure in the first year or two, followed by

a progressive increase toward the preoperative level. The frequency with which this pattern occurs provides a simple explanation of the gradual reduction of the percentage of favorable results which are obtained in a series of follow-up studies made at increasing intervals after sympathectomy.

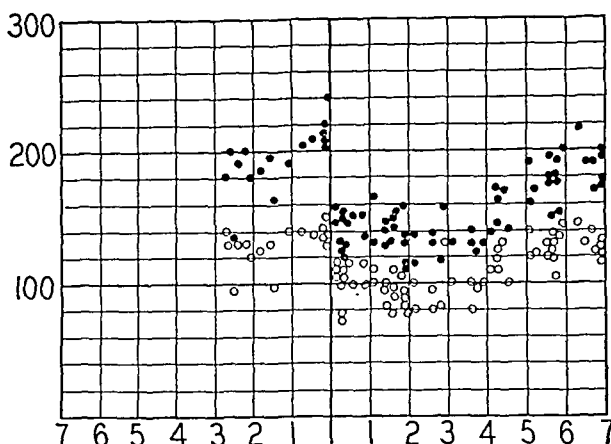


Fig. 9.—Variations in blood pressure over a seven year postoperative period of a female patient suffering from hypertension and pyelonephritis who was operated on at the age of 20 years. The progressive tendency of the blood pressure to return to the preoperative level during the fifth, sixth and seventh years was associated with persistence of the pyelonephritis.

Another type of disappointing result which occurs fairly frequently is shown in figure 11. In this 54 year old woman the operation produced little or no effect on the diastolic pressure even in the first postoperative year, although a slight reduction of systolic pressure persisted until the fourth year. The approximate average preoperative systolic pressure of 260 mm. was definitely higher than the average systolic pressure during the fourth postoperative year, which was about 230 mm. In our system of grading, the diastolic pressure is given much more weight than the systolic; therefore, such a result is not considered a significant reduction of blood pressure.

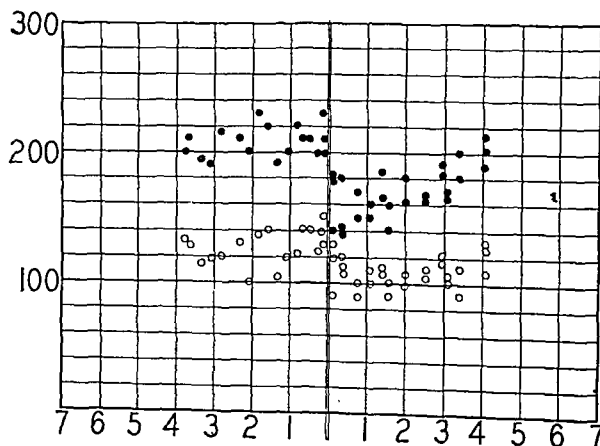


Fig. 10.—Blood pressure record of a male operated on at the age of 49. There was a brief period of postoperative reduction of blood pressure and tendency of the blood pressure to return to preoperative levels in a relatively short time. The horizontal values indicate preoperative years (left) and postoperative years (right).

Finally, there is a surprisingly large number of cases in which the operation appears to have had little or no effect on either systolic or diastolic pressure even

in the early stages of the postoperative period. In order to illustrate this disappointing type of result, figure 12 has been chosen, because it serves to emphasize two other important points. First, the fact that the patient was a 35 year old woman serves to show that the failures do not occur only in the older age

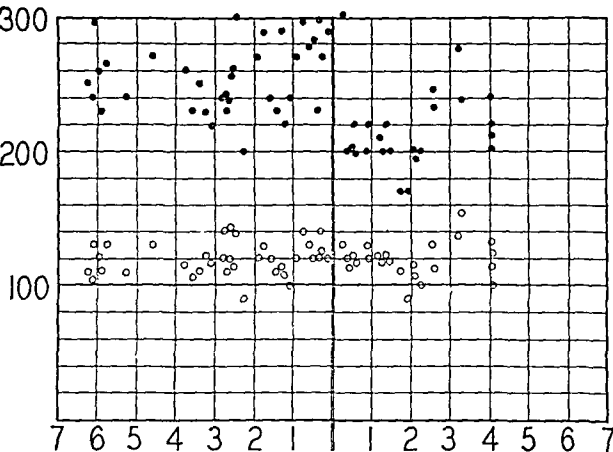


Fig. 11.—Preoperative and postoperative blood pressure record in a woman operated on at the age of 54 years. There was no reduction in the average diastolic pressure, although the systolic pressure remained slightly reduced during the fourth postoperative year. The horizontal figures show preoperative years (left) and postoperative years (right).

groups. The second important point is illustrated by the course of the preoperative blood pressures in this patient. It will be noted that the blood pressure on the first clinic visit was at the relatively high value of 230 systolic and 130 diastolic, but because of a division of medical opinion it was decided that the patient should continue with medical treatment. On this regimen the blood pressure fell considerably in the first few months, but was eventually stabilized at an average level of about 170 systolic and 115 diastolic during the next two years. At the end of this trial of

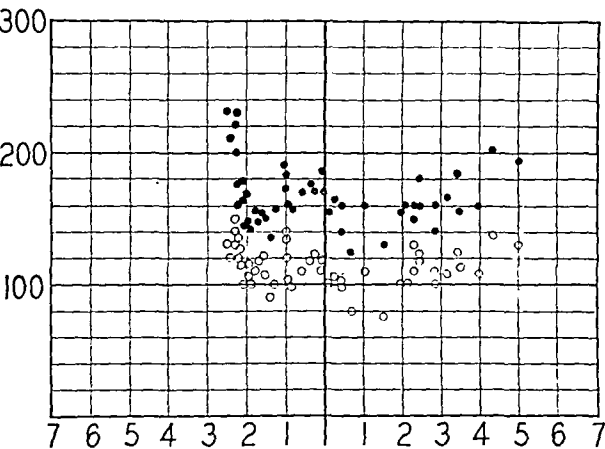


Fig. 12.—Illustration of an unsuccessful result of sympathectomy in a woman operated on at the age of 35. The blood pressure on the patient's first visit to the clinic was very high, but it became stabilized at a much lower level after two years of medical therapy. The operation did not produce significant reduction of the blood pressure as judged by a comparison of the readings in the fourth and fifth postoperative years with those in the last year before the operation. The horizontal row of figures indicates preoperative (left) and postoperative (right) years.

medical therapy, the patient requested that a sympathectomy be performed, and her request was granted. The diagram shows that the operation caused only a slight transient reduction of blood pressure below the immediate preoperative level, although the postoperative

blood pressure levels would appear to be greatly reduced if they were compared with the readings obtained when the patient was first seen in the clinic. The record of this patient illustrates an extremely important precaution which must be taken if a reliable assessment is to be made of the significance of an apparent postsympathectomy blood pressure reduction. From the purely statistical point of view, it is most unfortunate that enthusiastic endorsement of sympathectomy, in many cases by the patient or the referring physician, so often leads to the performance of the operation within a few weeks of the discovery of hypertension, so that no time is available for the accumulation of adequate preoperative data. Although it is admitted that there are a few patients in whom the indication for sympathectomy may be regarded as urgent, there are few patients indeed for whom it would not be profitable to advise a year of conservative treatment, which would afford an opportunity to build up an adequate preoperative base line not only of the blood pressure levels but also of other important clinical data.

We selected the cases shown in figures 7 to 12 in order to illustrate some of the common types of postsympathectomy blood pressure responses, and, in order

Status of 100 Hypertensive Patients Five Years After Sympathectomy*

	Males (30), Percentage	Females (64), Percentage	Total (100), Percentage
Blood pressure normal.....	11	6	8
Blood pressure significantly reduced	8	16	13
Blood pressure not significantly reduced	45	56	52
Dead patients.....	36	22	27

* When this table was presented at the Ninety-Seventh Annual Session of the American Medical Association, only 78 patients had completed their five year follow-up, but during the interval between the original presentation and the submission of the manuscript for publication, the number increased to 100.

to make as clear a demonstration as possible, we selected cases in which the preoperative and postoperative blood pressure data are adequate for statistical analysis. It must be emphasized, however, that such well documented cases are unfortunately far from characteristic of the bulk of our material. Owing to the many departures from the ideal conditions required for accurate statistical analysis which are unavoidable in every day clinical work, there are many cases in which deficiencies of preoperative and postoperative data make it necessary to introduce some degree of personal judgment in deciding the degree of significance to be attached to the recorded observations. We have tried to evaluate these cases as objectively as possible by basing the final judgment on the average of six independent assessments by six different physicians,¹⁰ of whom three were not familiar with the clinical observations in any of the cases. In the few cases in which there was uncertainty or disagreement, it was our invariable practice to resolve the controversy in favor of the operation. With these admissions of the imperfections of our data, we venture to present a brief summary of our conclusions, not in any sense as a final statistically valid solution of this much studied problem but merely as another approximate solution the chief merit of which is that it has been arrived at by a method not previously employed on such a large scale.

10. Dr. William P. Chapman, Dr. R. H. McFarlane and Dr. Guy R. Turgeon assisted in this project.

Since the number of cases in the two other subdivisions of the series is too small for accurate analysis, data are presented only on the 223 patients operated on by the Smithwick procedure. After eliminating 10 patients operated on for conditions other than essential hypertension, 8 patients who on account of illness or other reasons were not adequately followed up and 4 patients for whom the blood pressure data were entirely inadequate, we were left with a total of 201 cases. In order to simplify the tables, we have taken the liberty of eliminating the last case in the series in order to obtain an even 200 cases. All of these 200 cases have been followed up for at least two years and a few for as long as nine years. However, we have strong statistical objections to the practice of presenting data based on varying follow-up periods, such as one to five years or five to ten years; therefore, we present the salient features of our data in a single table giving the status of the blood pressure of the first 100 patients who reached the end of the fifth postoperative year. We believe that data derived from studies in which all patients are assessed at the same time after the operation are more easily understood than the results of studies in which the follow-up time is variable; therefore, even if a patient is known to have died in the sixth postoperative year he is listed in the fifth year table strictly according to his status at that time. Our reasons for selecting a follow-up period of five years are, first, that it is now a well established fact that the early favorable results of sympathectomy are to a large extent transitory, and, secondly, we believe that it is desirable to evaluate therapeutic success in a chronic disease such as hypertension in terms of a follow-up period of five years as is the general practice in the evaluation of the surgical therapy of certain forms of cancer.

The table presents our evaluation of the degree of blood pressure reduction in 100 patients followed five years, the status of the blood pressure at the end of the period being listed under three headings as normal, significantly reduced and not significantly reduced, the word "significantly" having the meaning described in the text. There is also a separate listing for those patients who died before the end of the follow-up period.

In the table separate figures are shown for the male and the female patients because of the widespread interest in the difference in prognosis between the sexes. On the whole, the difference between the results for male and female patients is not striking, because the percentage of patients in the first two "favorable" categories, normal and significantly reduced, is 19 per cent for males and 22 per cent for female patients, the percentage in the unfavorable categories being 81 per cent for males and 78 per cent for female patients. The only striking difference is the definite preponderance of dead among the male patients. In view of the interest in the importance of age as a factor in determining the outcome of the operation, we have calculated the average age at the time of operation of the patients in each of the four categories with the following results: normal, 34.8 years; significantly reduced, 39.3; not significantly reduced, 40.1, and dead, 38.9 years. While these figures do show a slight trend toward lower ages for the patients with normal blood pressures, the significance of age as a determinant of prognosis in this series is not striking.

Although it was not our original intention to present it in support of the hypothesis that the early favor-

able results of the operation are largely of a temporary nature, it may be of interest to compare the results of a two year follow-up of these 100 patients with the five year results already described. For this comparison we have divided the series into the two categories used previously, namely, favorable and unfavorable, the former consisting of patients whose blood pressure was either normal or significantly reduced and the latter of those whose blood pressure was not significantly reduced together with those who had died before the end of the follow-up period. On this basis, the two year results were 41 per cent favorable and 59 per cent unfavorable, while the five year results were 21 per cent favorable and 79 per cent unfavorable. The two year blood pressure status of patients 101-200 was rated 35 per cent favorable and 65 per cent unfavorable, a result which is somewhat less satisfactory than that in the first 100 cases.

COMMENT

Most of the points of interest in connection with our methods of analyzing the preoperative and postoperative blood pressure readings of patients who underwent sympathectomy have been adequately discussed as they arose in the text. The principal remaining point of interest is in comparison of the results of this study with those of other published reports. Unfortunately, our material and methods differ considerably from those used by many other investigators¹¹ who have published results of postsympathectomy follow-up studies. For example, this material consists of public patients only, while the patients studied by the authors quoted contain large percentages of private patients. Another important difference exists between the conditions under which the blood pressure readings used for follow-up comparison are made. For example, Smithwick^{11a} relied on blood pressure readings taken under the closely controlled more or less basal conditions which prevail in his posture and cold test, while Peet and Isberg^{11b} used as a base line the average of several blood pressure readings taken under conditions which were not described in detail, but which were apparently not as standardized as those used by Smithwick. The method used by Poppen and Lemmon^{11c} is the least controlled of the three, since they took as their preoperative base line a single reading obtained on the patient's admission to the clinic or on the last visit before hospitalization. The home blood pressure system of Ayman^{9b} involves the recording of large numbers of readings taken twice daily by the patient or one of his relatives over long periods of time before and after the operation. This method has many points of merit, although the administrative difficulties involved have prevented its widespread adoption. The use of repeated routine clinic blood pressure readings in our method bears little relation to any of the methods previously described; therefore, direct comparisons of data are almost impossible.

On the whole our material and methods are most nearly comparable to those of Palmer,¹² except that this author evaluated blood pressure reductions by means of a single criterion, according to which he clas-

11. (a) Smithwick, R. H.: Surgical Treatment of Hypertension, *Am. J. Med.* 4: 744-759 (May) 1948; Continued Hypertension, *Brit. M. J.* 2: 237-243 (July 31) 1948. (This latter paper was published after this report was read, but the delay involved in the preparation of our manuscript for publication allowed inclusion of the reference.) (b) Peet, M. M., and Isberg, E. M.: The Surgical Treatment of Arterial Hypertension, *J. A. M. A.* 130: 467-473 (Feb 26) 1943. (c) Poppen, J. L., and Lemmon, C.: Surgical Treatment of Hypertension, *J. A. M. A.* 134: 1-9 (May 3) 1947.

12. Palmer, R. S.: Medical Evaluation of the Surgical Treatment of Hypertension, *J. A. M. A.* 134: 9-14 (May 3) 1947.

sified all patients with readings below 150 systolic and 110 diastolic as "normal or near normal." Although this method of grading differs greatly from ours in theory, it is probable that the patients graded "normal or near normal" by Dr. Palmer's system will correspond fairly closely to those graded "normal" and "significantly reduced" by us. According to our results the number of patients in these two categories has decreased from 41 per cent at two years to 21 per cent at five years, a progressive reduction which is in general agreement with the trend indicated by four separate studies which have recently been summarized by Palmer.¹² In these studies the percentage of patients "normal or near normal" fell from 69 per cent at the end of a follow-up period varying from a few months to two years, to 38 per cent at the end of one to four years and eventually to 24 per cent at the end of a follow-up period varying from three to six years. Allowing for the considerable differences in method, the agreement between our results and those published by Dr. Palmer are quite satisfactory; indeed, we consider our results merely as independent confirmation of Dr. Palmer's observations by a somewhat more elaborate method.

Since the number of cases in this series is too small to make it authoritative on the basis of mere size, we feel that its only real significance is due to the fact that it is a review of the entire sympathectomy experience of the ward services of a large teaching hospital during the thirteen years which have elapsed since the operation was first performed at the Massachusetts General Hospital. In spite of the great difficulty of matching one series of hypertensive patients against another with respect to all aspects of the disease, we believe that the patients in this series are a fairly accurate cross section of the type of patients who might be considered suitable candidates for sympathectomy in any other large teaching hospital. For this reason we believe that our data may be of value as a basis for comparison with the results at any other comparable institution as long as the same method of analysis is used. Similarly, as regards the future, we hope that the data presented in this report may be of value as a standard of reference by means of which the results of any new surgical technic can be compared against the results obtained by the regular Smithwick procedure. In this connection, a word of caution may be in order, in view of the apparently discouraging trend of our results. While it cannot be denied that there is a disappointingly long list of dead patients and patients whose blood pressures returned to the preoperative level, this should not be allowed to obscure the importance of the small percentage of excellent and good results. The genuineness of these results is beyond question, and it is most unlikely that any of them could have been produced by any other method of treatment now available. This fact alone makes it highly desirable that one should continue to regard sympathectomy as an important weapon in the therapeutic armamentarium. At the same time workers must search for methods of improving the results of the operation, not only by means of better selection of cases but also by the development of improved technical procedures. It is to be hoped that the results presented in this report, together with the clinical and physiologic data which will be published at the conclusion of other phases of the parent project, may provide a few useful leads for future research.

SUMMARY

A detailed analysis has been made of the records of all ward patients from the State of Massachusetts who underwent sympathectomy for the treatment of hypertension on the public services of the Massachusetts General Hospital during the period 1935-1947. In addition, personal follow-up studies have been made of 98 per cent of the 219 surviving patients. The follow-up study was designed to summarize all information required for an assessment of the effectiveness of sympathectomy in the treatment of essential hypertension, but this report deals only with the effect of the operation on blood pressure. Diagrams have been presented to illustrate some of the typical blood pressure responses to lumbodorsal sympathectomy, and data have been presented on the status of 100 patients who were followed for five years after the operation. The results indicate that at the end of five years the blood pressure had been reduced to normal in 8 per cent of the patients and that significant reductions, though not to normal, had occurred in an additional 13 per cent. The results in the remaining 79 per cent were unfavorable, since 52 per cent of the patients had blood pressures which were not significantly lower than the preoperative levels and 27 per cent of the patients were dead. Comparison of these results with those at the end of a two year follow-up shows that the results of sympathectomy tend to become less favorable as the length of the follow-up period increases. However, it seems certain that the results of sympathectomy in the most favorable cases are valuable enough to justify continued interest in methods which will improve the selection of cases and in the development of technics which will increase the effectiveness of the operation.

ABSTRACT OF DISCUSSION

DR. KEITH S. GRIMSON, Durham, N. C.: Dr. Evelyn is to be congratulated on his careful analysis of results in the large series of patients treated by splanchnicectomy at Massachusetts General Hospital. Present confusion in the literature concerning results of sympathectomy is caused in part by multiplicity of operative technics and in part by variations in methods of classification of patients and of follow-up study. Because of the possibility of regeneration of sympathetic nerves and because of experimental evidence that splanchnicectomy does not prevent neurogenic hypertension, subtotal to total paravertebral sympathectomy was started eight years ago. A contrast of these results with those of splanchnicectomy may aid evaluation of Dr. Evelyn's paper. Of 108 hypertensive patients, usually seriously ill, 2 died shortly after operation of respiratory arrest, 1 of uremia and 1 with myocardial infarction. During a follow-up period of six months to eight years, 8 have died of sudden vascular accidents and 3 of other causes. Ninety-three patients are now living. Of these, supine blood pressure is now normal in 25, reduced but not normal in 44 and not reduced in 24. Each of the 93 patients has, however, subjective or objective evidence of improvement. A recent review of interpretable literature and of our own results indicated that, of 950 splanchnicectomies reported by others, 47 per cent have maintained some degree of lowering of supine blood pressure. Similarly, 41 per cent of our splanchnicectomies have maintained some lowering of pressure. Seventy-one per cent of the patients treated by complete or almost complete sympathectomy, which includes denervation of cardiac, cerebral and pulmonary vascular beds as well as denervation of the splanchnicectomy areas, have maintained significant reduction of supine blood pressure. Although treatment with etamon® (tetraethylammonium chloride), dibenamine® (N,N-dibenzyl beta-chloroethylamine hydrochloride) and priscol® (2-benzyl-4,5-imidazoline hydrochloride) has failed to maintain medical total sympathectomies or to predict results of sympathectomy, it is hoped that some of the

many sympatholytic drugs now being developed and tried clinically may in the future succeed and eliminate the present frequent necessity for exceedingly uncomfortable operations.

DR. GEZA DE TAKATS, Chicago: I think that this statistical study by Dr. Evelyn and his co-workers illustrates the necessity of revising our technics, possibly, and our selection of cases from time to time. I think that all groups interested in hypertension, particularly the surgical treatment of hypertension, are well aware that failures exist and all of us are trying to hammer at the causes of failure. The question arises, "Is one justified in saying that a patient with a blood pressure of 170 systolic and 100 diastolic five years after operation is in a more favorable position than before the operation with that same blood pressure?" In other words, has a certain load been taken off his heart and kidneys? One other point I would like to make, which obviously cannot be brought out in this short time, is that it is certain that some patients ought to be excluded from operation. In the study by my co-workers and me in which the medical men, such as Dr. Gilbert, Dr. Fenn and Dr. Scupham, have participated, it has been our principle never to operate on a patient with sclerotic hypertension. A patient with a high systolic and comparatively low diastolic pressure does not benefit from a splanchnicectomy. In fact, it may do serious harm. The second point is that a patient with a comparatively low diastolic pressure, such as 100 or 110 mg. of mercury, should be observed and treated medically if effective medical treatment is available. Sympathectomy should be considered only when the patient's diastolic pressure suddenly begins to rise, and rises 30, 40 or 50 mm. of mercury within a few months, not to cure the hypertension but to arrest or prevent the malignant phase. One other point concerns the immediate poor response to splanchnicectomy as shown in one of Dr. Evelyn's charts. This does not mean that at a later date the reduction of blood pressure cannot be obtained. Dr. Poppen of Boston has published such records. I have seen this type and am beginning to feel that this perhaps is the same type which Dr. Schroeder mentioned—these are the patients exhibiting a chronic renal factor, and their immediate response to sympathectomy has been very poor. However, a delayed response may occur from three to six months later, indicating that splanchnicectomy, perhaps by some means which we do not understand, may slowly affect the pituitary-cortico-adrenal mechanism.

DR. DAVID AYMAN, Boston: I am sure that you are all surprised to hear the results Dr. Evelyn has presented today, especially after reading the papers on sympathectomy reported in the past—first those reporting splanchnicectomy and then those after lumbodorsal sympathectomy. Something is obviously wrong. When my co-workers and I follow a patient with hypertension for several years, it is common to find that his blood pressure levels are lower than what they rise to when the patient enters the hospital for possible sympathectomy. The hospital frequently is far from home or from the patient's local surroundings. If one reads papers on the subject of preoperative study, one finds that most studies are completed in a brief period, since it is not practical to keep many patients in the hospital for three or four months of observation. Actually, the preoperative study is done during a three to ten day period, and during that period there is no way that the investigator can remove the great preoperative tension while the preoperative tests are being done. During this brief period the patient is on edge; he knows that he is being considered for an operation that may result in his death, or at least failure to be cured. He is tense, and there is nothing one can do about it. As a result his blood pressure levels are at a higher than usual level. During the weeks, months and years after operation the patient is in a relaxed state. What, therefore, should be considered the result of operation on the blood pressure? Should it be a comparison of the levels during the tense three to ten day period of preoperative hospital study? Should it be the period representing months or years of observation by the family doctor before the patient's entry into the hospital? It is clearly stated in the reports on sympathectomy that the level in the horizontal resting position done during the entrance to the hospital is the level to use for comparison with the relaxed

periods in later years. Such criteria give the tremendous change in blood pressure between the level during the brief tense preoperative state and the relaxed postoperative state. Actually, the relaxed state months before operation should be the correct one to use for the upper preoperative levels of blood pressure. On the other hand, surgeons have perhaps often not given themselves enough credit. I have a chart which shows the readings in the office as well as those taken daily at home by the patient's husband, indicating that during the seven month period of observation there is a distinct difference between the home readings and the much higher ones taken at the office. Therefore, as many of you have known, and as Dr. de Takats mentioned, there may be an improvement in the patient's heart size, cardiograms and fundi after operation without the improvement in the blood pressure readings in the office or clinic. Yet, in such cases the home readings may be remarkably improved. In such cases the home readings immediately rise when the patient returns to the doctor for a checkup, because this pressor reaction to the doctor or hospital cannot be removed by repetition, acquaintance with the doctor or any other such method. Therefore, many hypertensive patients have been benefited by therapy of many kinds which is not recognized unless one uses this sort of home blood pressure technic that we have used the past ten years at the Hypertension Clinic of the Beth Israel Hospital. I think that, as has been mentioned, until certain standards of evaluation, care and severity of disease are evolved, there will be no progress in the statistical determination of the results of sympathectomy. However, there is no doubt that sympathectomy has a place in the therapy of hypertension.

DR. MAX M. PEET, Ann Arbor, Mich.: It is gratifying to me to hear this much needed, careful and unbiased study of Dr. Evelyn's, since my especial interest lies in the field of surgical treatment of hypertension and, therefore, I have been exposed to all types of criticism of the procedure. I was exceedingly pleased with Dr. Evelyn's outline of the essential studies for proper evaluation of the preoperative status and postoperative results of splanchnicectomy, since it represents exactly the same program of preoperative and postoperative analysis of cases which my co-workers and I have used since 1933. Each case has been carefully studied with particular reference to cardiovascular-renal status as well as general physical condition. All studies have been carried out by unbiased independent workers in the separate specialties concerned with the problem of hypertension. Cyrus Sturgis' Department of Internal Medicine and its subsection of cardiology, headed by F. N. Wilson and his associates, F. D. Johnston and Paul Barker, have evaluated the general physical and cardiac status in each case. Eyeground changes and renal function have been evaluated by individual, unbiased workers in the departments of ophthalmology and urology. All studies have been reevaluated at yearly intervals since the work was begun by these groups independent of the surgeon. This forms the background for all of our published work pertaining to the surgical treatment of hypertension. Years ago I pointed out the need for a common denominator with which to evaluate all surgical approaches to the problems of the hypertensive state. Dr. Ward Woods, formerly of my staff, attempted such liaison with other groups without success. I wish to make one minor correction. The supradiaphragmatic splanchnicectomy which we developed and have been using regularly on hypertensive patients since 1933 was a little more than simply removing the tenth, eleventh and twelfth thoracic sympathetic ganglions. At first we removed only that number of ganglions and a long strip of the greater splanchnic nerves, but very shortly we included the ninth and many times the eighth, and for several years now I have frequently gone as high as the fifth or sixth thoracic ganglion and sometimes much higher. We have not seen any remarkable difference in our final results in patients in whom we have done a more extensive sympathectomy. It is my hope that this careful study of Dr. Evelyn's will stimulate the acceptance of such a common denominator by all workers. I am particularly pleased that his unbiased conclusions are based exactly on the same type of study which we have utilized for the past fifteen years.

DR. KENNETH A. EVELYN, Montreal, Canada: I was trying to call attention to the need of a certain change in the philosophic approach to the problem of the evaluation of evidence and not to make any criticism of any individual method of going about it. As long as one can present data which are in fact in conflict with what has been said by others and, by making every effort to keep it at a purely scientific level, have the point accepted that one is not casting any aspersions on any one method, then I feel that this may plant some seed for the joint acceptance of a completely objective method of appraisal not only of this operation but of many other forms of therapy.

THE CONTACT LENS PROBLEM

CONRAD BERENS, M.D.
New York

The American Committee on Optics and Visual Physiology¹ has been interested in the contact lens problem for some time and authorized the investigation which is the basis for this report. This committee is composed of ophthalmologists from the Section on Ophthalmology of the American Medical Association, the American Ophthalmological Society, the American Academy of Ophthalmology and Otolaryngology, and the Association for Research in Ophthalmology.

Contact lenses were first suggested by Sir John F. W. Herschel, a British astronomer, in 1827. However, it was not until the latter part of the nineteenth century that wearable lenses were made chiefly by the Zeiss Optical Company in Jena, Germany. These lenses were used primarily for pathologic conditions which could not be corrected by spectacles.

During the last few years considerable progress in the manufacturing and fitting of contact lenses has taken place in the United States. Not only are contact lenses now used for conditions which spectacle lenses will not correct, but many persons wear these lenses for cosmetic reasons, as well as for safety in certain sports and occupations. Nevertheless, despite the recent avalanche of commercial advertising, contact lenses will not take the place of spectacles in most cases in which ordinary eye glasses give serviceable vision. In these cases contact lenses may be a useful adjunct to spectacles, but they do not enable most persons to discard their glasses completely.

Most ophthalmologists believe that the increased sales of contact lenses by lay persons, not properly licensed by state laws to care for ocular conditions, is dangerous to the public. Sensational advertising in the past few years has resulted in luring many persons into spending thousands of dollars in the hope of throwing away their glasses. The largest group of aspiring contact lens wearers are those who have a psychologic aversion to wearing spectacles. Modern practitioners realize the importance of this mental attitude. Some individual feeling of inferiority is undoubtedly accentuated by the need to wear spectacles. For such persons contact lenses may be a great boon. However, the public should not be oversold on the use of contact lenses. Some manufacturers of contact lenses and certain practitioners have misused the public vanity through advertising unwarranted claims for their products and their services.

It was for these reasons that the American Committee on Optics and Visual Physiology determined to carry out an investigation of the contact lens situation. A questionnaire was sent out to 2,000 certified specialists of the American Board of Ophthalmology asking for a report from experience and observation on the following points:

1. Bad results in the fitting of contact lenses
2. Unusual cases
3. Complaints or suggestions concerning the practice of fitting contact lenses
4. The best method—(a) molded plastic, (b) Feincone, (c) trial or test plastic sets—for fitting from the point of view of (1) ease of fitting, (2) comfort of the patient and (3) expense to the patient

In response to this questionnaire, 575 ophthalmologists replied. Of this number 75 answered by letter, giving much more information than the space on the questionnaire card permitted. A summary of their comments follows:

Out of the group of 575 physicians, 162 have had no experience with contact lenses, or so little that they had no comments to offer, 373 prefer the molded plastic technic, 22 use the Feincone technic and 18 the trial or test plastic sets.

Many doctors prefer to have technicians fit the lenses, and several specifically mentioned the Oribg-trained technicians as being very satisfactory. On the other hand, an equal number of ophthalmologists believe that most of the bad results from contact lenses are caused by placing the fitting of the lenses into the hand of unskilled technicians and that a patient should not be entrusted to a technician except under the direct supervision of the ophthalmologist. Several reported having seen corneal abrasions, corneal ulcers and even the loss of an eye resulting from clumsy technic. Some objected to the length of time required for fitting the lenses and gave that as the reason for not doing it themselves.

The opinion was expressed frequently that success in the fitting of contact lenses depends to a large degree on the motivation of the patient. If the patient needs the contact lenses for optical or occupational reasons, he will put up with minor discomfort, but he is much less likely to do so when the lenses are prescribed for cosmetic purposes. Athletes, dancers and other patients who need protection from occupational hazard will endure a great deal more than those who wear the lenses for cosmetic purposes.

Practically all agreed that the patients deriving the greatest benefit from contact lenses are those with keratoconus. Others report success with patients having monocular aphakia, younger patients following cataract operations and those with high astigmatism and aniridia. Several unusual and interesting cases were reported—for example, a patient had a severe pyocyanous ulcer of the cornea which caused complete scarring of the right cornea.

Among the complaints concerning contact lenses, the most frequently mentioned by this group of physicians were the following:

1. The limited time that most patients can tolerate wearing the lenses.
2. The solution is unsatisfactory. More research work should be done to produce a better solution whereby foggy conditions might not develop so rapidly.

1. The American Committee on Optics and Visual Physiology is comprised of the following members: Drs. Thomas D. Allen, S. Judd Beach, Conrad Berens, Frederick C. Cordes, Alfred Cowan, Henry A. Imus, Walter B. Lancaster (chairman), Kenneth N. Ogle, Lawrence T. Post, Avery D. Prangen, Richard G. Scobee, Kenneth C. Swan.

3. Lenses are too expensive.
4. Many patients who buy the lenses discard them because of dissatisfaction with them.

Many suggestions were made for improving the contact lens situation, and the following represent the opinion of the majority of ophthalmologists:

1. Ophthalmologists should learn more about contact lenses by courses given at association gatherings or by the establishment of contact lens centers.
2. Patients should be discouraged in attempting to wear contact lenses except for pathologic or occupational reasons.
3. There is too much commercialism and exploitation by manufacturers, and this should be controlled.

In general, it was agreed that the whole subject of contact lenses is still in a research period.

Letters were also written to some of the leading men in the allied sciences, many of whom have made noteworthy contributions to the development of contact lenses, so that their opinions would contribute toward a well rounded picture.

About this time a request from the National Better Business Bureau was referred to the committee asking for an expression of opinion regarding contact lens advertising. This request resulted from complaints received both by the National Better Business Bureau and some local Better Business Bureaus involving misunderstandings which have resulted from the advertising of contact lenses.

RECOMMENDATIONS

Finally, from a conscientious study and evaluation of the contact lens situation as it exists in this country at the present time, the American Committee on Optics and Visual Physiology makes the following recommendations, which have been endorsed by its four participating societies:

1. National and local ophthalmologic societies should regulate the prescribing of contact lenses and the dissemination to the public of information regarding contact lenses.
2. The prescribing and/or the fitting of contact lenses by persons not properly licensed under state or national laws should be prohibited.
3. Medical opinion should be secured in every case before contact lenses are prescribed.
4. Ophthalmologists should establish standards for approving the fitness of technicians who wish to engage in fitting contact lenses.
5. Competent impartial research should be initiated toward the solution of unsolved problems concerning contact lenses. The main problem at the present time, provided that the fitting of the lenses is correct, is that of hazy or cloudy vision. Blurring of vision occurs inevitably after wearing a contact lens for some hours because of the altered metabolism of the cornea.
6. The public should be warned against those who advertise the superiority of their services or of any particular type of contact lenses. It should be pointed out that the public should not patronize such advertisers because competent professional practitioners do not resort to commercial advertising.

The ethical practice of medicine and high professional standards do not mix with self aggrandizement or advertising in any form; the organized medical profession in the country (The American Medical Association) does everything in its power to enforce the rules of professional conduct through the boards of censors in the county and state medical societies. The public should be more fully informed of these facts.

Clinical Notes, Suggestions and New Instruments

ANTI-HISTAMINE THERAPY OF BEE STINGS

WILLIAM THEODORE STRAUSS, M.D.
Upper Montclair, N. J.

The stings of members of the genus Hymenoptera, which includes bees, wasps and ants, produce harmful effects on human beings ranging from slight local pain or discomfort to a shocklike syndrome or even sudden death. Until a comparatively few years ago it was thought that the effects were purely toxic in character, but more recent investigations have indicated that an allergic factor may be involved in some instances at least.

STINGING MECHANISM OF THE BEE

The common honey bee, *Apis mellifica*, has an anatomic structure which is especially adapted for stinging. The venom glands are found only in the female and are situated under the last few abdominal segments between the uterus and the rectum. There are two types of glands, one being a larger, long tubular structure having an acid secretion derived from polygonal cells, each with a chitinous tube discharging directly into the main lumen. The other type of gland is also tubular, but somewhat shorter, and produces an alkaline secretion. These two secretions are mixed and injected into the tissues of the recipient (man) through a hollow barbed lancet. The average dose of venom received during a "sting" is about 0.3 cc.

NATURE OF VENOM

The honey bee produces a venom which is a clear colorless fluid, acid to litmus, and giving a protein reaction. The poisonous properties of the venom are destroyed by common oxidizing agents, digestion with pepsin, trypsin or papain, or precipitation by alcohol or ammonium hydroxide. Heat at 150 C. also inactivates these characteristics.

The chemical nature of the poison is not clearly understood. Langer¹ collected the venom from 12,000 bees and after careful analysis concluded that the active element was a basic alkaloid which is soluble in certain acids. The formic acid in bee venom, often believed to be the principal factor causing the reaction in man, is present in only small amounts. Actually it is said by experts not to be responsible for any of the phenomena of bee stings. It is thought to be an antiseptic to insure the keeping qualities of honey, each working bee injecting a dose of venom into the honey cell before it is closed.

Phisalix-Picot² stated the opinion that there are three constituents of bee venom:

1. An inflammation-producing substance, the results of which are seen usually in human bee stings. It is destroyed by temperature of 100 C. for 15 minutes and does not pass through a Berkefeld filter.
2. A convulsant poison which is destroyed by temperature of 100 C. for 30 minutes and likewise does not pass through a Berkefeld filter.
3. A stupefying and paralyzing poison which resists inactivation by 100 C. heat and passes in part through the Berkefeld filter.

The acid poison gland probably produces the inflammation-producing and the stupefying substances, while the alkaline gland gives rise to the convulsant factor.

SIGNS AND SYMPTOMS OF HUMAN BEE STINGS

Personal idiosyncrasy is to some extent responsible for the degree of severity of a bee sting. For example, some persons can be stung eight or more times at once with no more consequence than the development of a few small painless papules.

1. Langer, J.: Ueber das Gift unserer Honigbiene, Arch. f. exper. Path. u. Pharmacol. 38: 381, 1896-1897.
2. Phisalix-Picot, M.: Animaux venimeux et venins, Paris, Masson & Co., 1922, vol. 1, pp. 359-431.

It is possible that the phenomenon of desensitization enters into the picture as will be noted later. On the other hand, there are cases on record in which a person received a single sting and died within a few minutes.

The commoner symptoms of a bee sting include local pain of varying intensity, urticaria and other cutaneous eruptions which are suggestive of a local release of histamine. Less frequently occurring symptoms are motor weakness, areas of anesthesia, headache, muscle spasm, dyspnea, ocular paralysis, abdominal cramps, convulsions and a shocklike syndrome.

ALLERGIC FACTOR IN BEE STINGS

It is now generally believed that allergy plays some role in the human response to bee stings. Probably extreme reactivity is an acquired condition.³ Since it is known that bee venom is protein in nature, it is not surprising that it can act as an antigen. Numerous attempts have been made to desensitize human beings by inoculation with gradually increasing doses of either the venom itself or an extract of the whole bee. Success has been reported by Benson,³ Braun⁴ and Fisher.⁵

A particularly important consideration is the histamine-like action which has been ascribed to bee venom.⁶ Benson and Semenov⁷ found that 1 part of bee venom in 100,000 parts of isotonic sodium chloride solution produced a distinct histamine-like response in a strip of virgin guinea pig uterine muscle.

TREATMENT

Until recently the immediate symptomatic treatment of a bee sting was directed toward the local application of any alkali, such as a weak solution of household ammonia or washing soda. Mud packs are still frequently used, the rationale being obscure. The severer symptoms may be counteracted sometimes by injections of caffeine, epinephrine or nikethamide.

Because of the probable presence of histamine in bee venom and because of the close resemblance of the symptoms to those induced by histamine, I tested the effectiveness of thephorin,[®] an antihistamine of proved clinical value in allergic disorders.⁸

Chemically, thephorin[®] is 2-methyl-9-phenyl-2,3,4,9-tetrahydro-1-pyridindene hydrogen tartrate. It is distinguished clinically by a remarkably low incidence of side effects. In particular, drowsiness, so common with other antihistamines, is said to occur in less than 3 per cent of patients.

Thephorin[®] was employed by me in the form of a 5 per cent ointment.⁹ In each of the 8 cases (including several of ant bites) the ointment was applied liberally at the site of the sting as soon as the patient came to our attention, usually within a few minutes after the sting occurred. Gentle massage was used to decrease the time of absorption.

In every instance the intense pain and stinging sensation was relieved within one or two minutes. One patient stated

that the pain seemed to "melt away." The majority of patients did not have any local swelling, a factor which in itself tends to indicate a true antihistaminic action of the drug. No secondary effects, such as nausea, headache and muscle weakness, were observed.

REPORT OF A CASE

One particularly interesting case is presented in some detail:

T. S., a 5 year old boy, accidentally walked into a swarm of bees. He was attacked by the insects and received seven individual stings, four on the right leg just above the ankle and the remaining three around the left ankle.

Within a few minutes thephorin[®] ointment was applied to the lesions and the surrounding area of skin. The cries of the child subsided in less than one minute, and he stated that all of the pain had disappeared. A short time later, while at play in the same area, he received another sting on the left thigh. The pain of this lesion also responded rapidly to treatment with thephorin[®] ointment. No swelling whatsoever was observed, and the only evidences of the stings were minute, pinpoint areas of petechial hemorrhage at the sites of the actual stings. These disappeared after seventy-two hours.

COMMENT

The symptomatic treatment of insect bites has been unsatisfactory in the past. The most popular medication has been weak alkali, probably based on the misconception that the formic acid in the venom produced the symptoms. My successful use of thephorin[®] ointment, an antihistaminic preparation, is based on the theory that histamine, known to be present in the venom of certain insects, produces many of the commoner immediate symptoms of a sting. The mere fact that relief was obtained so rapidly lends credence to this concept.

Personal communications from colleagues indicate that thephorin[®] ointment may also be valuable in alleviating the intense pain associated with "bites" of hornets, wasps, mosquitoes and ants. Here, too, the nature of the lesions and their rapid response to thephorin[®] indicates that histamine is a major causative factor.

SUMMARY AND CONCLUSIONS

The nature of bee stings is reviewed.

Thephorin[®] ointment (2-methyl-9-phenyl-2,3,4,9-tetrahydro-1-pyridindene hydrogen tartrate) was employed in a group of patients who were stung by bees or other insects. Relief of pain was almost immediate, and swelling of the affected part rarely occurred. No side effects of any kind were observed.

In my opinion there is no longer any place for outmoded forms of therapy for insect bites and stings. A locally applied antihistamine, thephorin[®] ointment, may be used to advantage in all such instances when it is suspected that a liberation of histamine is a factor in the causation of symptoms.

8 Chester Road.

Dissecting Aneurysm.—The important clinical feature to recognize is the dramatic suddenness of the onset of the pain and its initial overwhelming severity. Tearing, stabbing, choking pain strikes the patient usually across the chest and arms, but may spread to the back and down the abdomen to the labia or testicles, later to the legs. It may be intermittent and disappear gradually, to recur in subsequent attacks at lower levels as the dissection extends. Unlike the pain of cardiac infarction it is singularly maximal at its onset; a sense of constriction is unusual, hypertension is invariably present, and the dissection commonly begins during an act of physical exertion or sudden emotional strain. Severe pain in the back or spine indicates splitting up of the walls of the descending aorta, with rupture of the intercostal and lumbar arteries (Shenpan, 1934). The dissection may obliterate the coeliac axis to cause infarction of the bowel, or the renal arteries may be involved.—Lovibond, J. L.: Extrathoracic Pain in Cardiovascular Disease, *British Medical Journal*, May 14, 1949, page 835.

3. Benson, R. L.: Diagnosis of Hypersensitivity to the Bee and to the Mosquito, with Report on Successful Specific Treatment, *Arch. Int. Med.* 64: 1306 (Dec.) 1939.

4. Braun, L. I. B.: Notes on Desensitization of a Patient Hypersensitive to Bee Stings, *South African M. Rec.* 23: 408 (Sept. 26) 1925.

5. Fisher, D. C.: Hypersensitivity to Bees Successfully Treated with Whole Bee Extract: Case Report, *J. Allergy* 5: 519 (July) 1934.

6. Wells, H. G.: Chemical Pathology, ed. 5, Philadelphia, W. B. Saunders Company, 1925. Marcov, I.; Derevici, A.; and Derevici, M.: Distribution of Histamine in Bee, *Apis Mellifera*, and in Its Venom: Explanation of Cutaneous Reaction to Stings, *Compt. rend. Soc. de biol.* 126: 726, 1937.

7. Benson, R. L., and Semenov, H.: Allergy in Its Relation to Bee Sting, *J. Allergy* 1: 105 (Jan.) 1930.

8. Kesten, B. M., and Sheard, C., Jr.: Treatment of Allergic and Some Other Dermatoses with Thephorin: A Preliminary Report, *J. Invest. Dermat.* 9: 65 (Aug.) 1947. Reynolds, J. L., and Horton, B. T.: Clinical Observations on the Use of Thephorin (Nu-1504): A New Antihistamine Agent, *Proc. Staff Meet., Mayo Clin.* 22: 574 (Dec. 10) 1947. Lehmann, G.: Pharmacological Properties of a New Antihistamine, 2-Methyl-9-Phenyl-2,3,4,9-Tetrahydro-1-Pyridindene (Thephorin) and Derivatives, *J. Pharmacol. & Exper. Therap.* 92: 249 (March) 1948. Peters, J.

Thephorin: A New Antihistaminic, *Illinois M. J.* 93: 314 (June) 1948. Cohen, E. B.; Davis, H. P., and Mowry, W. A.: Thephorin in Allergy: A Study of Two Hundred and Ninety-Two Cases, *Ann. J. Med.* 5: 44 (July) 1948. Boyd, L. J.; Weissberg, J., and McGavack, T. H.: Tolerance Studies of the Antihistamine Drug Thephorin, *New York State J. Med.* 48: 1596 (July 15) 1948. Frank, R.: Study of a New Histamine Antagonist (2-Methyl-9-Phenyl-2,3,4,9-Tetrahydro-1-Pyridindene Hydrogen Tartrate), *Ann. Allergy* 6: 398 (July-Aug.) 1948. Gelfand, H. H.: The Role of Thephorin in Allergic Disorders, *New York State J. Med.* 48: 1947 (Sept. 1) 1948.

9. Supplied by Hoffmann-La Roche, Inc., Nutley, N. J.

Council on Pharmacy and Chemistry

NEW AND NONOFFICIAL REMEDIES

The following additional articles have been accepted as conforming to the rules of the Council on Pharmacy and Chemistry of the American Medical Association for admission to New and Nonofficial Remedies. A copy of the rules on which the Council bases its action will be sent on application.

AUSTIN SMITH, M.D., Secretary.

STARCH-DERIVATIVE DUSTING POWDER.—
"Bio-Sorb"—Ethicon.—A biologically absorbable powder prepared from cornstarch by etherification with epichlorohydrin. The starch polymer chains are presumably cross-linked by 1,3-diether glycerine group to the extent of not more than 2 per cent of the original starch weight. The starch derivative is mixed with magnesium oxide, 2 per cent, and small residual amounts of sodium sulfate and sodium chloride.

Actions and Uses.—Starch derivative dusting powder is a light dusting powder suitable for use as a lubricant for the hands in donning rubber gloves and for other uses to which talcum powder is ordinarily applicable in general hospital routines. As a substitute for ordinary powdered talc, it has been shown to have the advantage of biologic absorbability and is thus comparatively nonirritating and nontoxic. Its use therefore avoids the known hazards of talcum powder.

Starch derivative dusting powder should be autoclaved for the purpose of sterilization. Slight clumping which occurs after repeated autoclaving may be readily broken up with moderate pressure. Dry wall heat sterilization is not recommended for bacteriologic reasons and should be avoided because of the possible inflammability of the powder. However, even in contact with red hot cautery, the powder will flash only to about the same degree as cotton, so that this property is not considered to constitute a hazard to its use in surgery.

Dosage.—An amount just sufficient to lubricate the skin or article for which a dusting powder is indicated should be employed in the same manner as for the use of ordinary talc.

Tests and Standards.—

Starch-derivative dusting powder is an odorless, white powder. The pH of a 10 per cent suspension of starch-derivative dusting powder in distilled water is 10.4-10.8.

Determine the particle-size distribution of starch-derivative dusting powder with Tyler screens of 60, 100 and 200 mesh: no more than 0.1 per cent of starch-derivative dusting powder should be retained on the 60 mesh screen, no more than 3.0 per cent on the 100 mesh screen and no more than 8.0 per cent on the 200 mesh screen.

Determine the amount of swelling of starch-derivative dusting powder in hot water as follows: Boil 100 cc. of a 10 per cent suspension of starch-derivative dusting powder in distilled water for 20 minutes. Pour the cooled suspension into a 100 cc. graduated cylinder, add water to the 100 cc. mark and allow the graduate to stand, undisturbed, for 24 hours: the settled starch-derivative dusting powder should occupy a volume of not more than 60 cc.

Dry about 2 Gm. of starch-derivative dusting powder accurately weighed, contained in a tared weighing dish of 40-50 mm. diameter, to constant weight at 105 C. (2 hours): the normal moisture content is 10 per cent.

Char 1 Gm. of starch-derivative dusting powder, accurately weighed, in a covered platinum crucible until most of the carbon is burned away (avoid igniting the sample). Remove the cover and ignite the residue to constant weight: the ash does not exceed 3 per cent of the sample as received.

Dissolve the ash obtained in the ignition of starch-derivative dusting powder in a few cc. of diluted hydrochloric acid. Transfer the solution to a beaker and make it up to 100 cc. with distilled water. Add 20 cc. of ammonium phosphate, dibasic, T.S., then add strong ammonia solution, dropwise, until the solution is neutral to litmus, and finally add 10 cc. excess. Allow the precipitate to settle 4 hours or overnight, filter the mixture through ashless filter paper, and wash the precipitate with cold ammonium hydroxide (1:20). Transfer the precipitate to a tared crucible, ignite it to magnesium pyrophosphate, and weigh. Each Gm. of magnesium pyrophosphate is equivalent to 0.3623 Gm. of magnesium oxide: the magnesium oxide content does not exceed 2 per cent of the sample weight.

Place 1 Gm. of starch-derivative dusting powder, accurately weighed, in a 50 cc. crucible and fuse it with 5 Gm. of a 1:1 mixture of sodium carbonate and potassium nitrate. Cool the crucible, leach the fused mass with water and transfer the solution to a beaker. Dissolve any residue in a few cc. of nitric acid and add it to the aqueous solution. Make the combined solution up to 150 cc. with distilled water, filter if not clear, heat, and add 5 cc. of silver nitrate T.S. Allow the beaker to stand overnight in the dark. Filter the silver chloride onto a tared Gooch crucible, wash with dilute nitric acid (1:1000) until the washings are free of silver, and then wash successively with small portions of water, alcohol and ether. Dry to constant weight at 100 C., and weigh. Run a blank on the fusion mixture and make the appropriate corrections. Each Gm. of silver chloride is equivalent to 0.2473 Gm. of chloride: the chloride content does not exceed 0.2 per cent of the sample weight.

Place 1 Gm. of starch-derivative dusting powder, accurately weighed, in a 50 cc. porcelain crucible and add 20 cc. of concentrated nitric acid saturated with bromine. Cover the crucible with a watch glass and allow it to stand for 1 hour. Then heat the crucible gently until all of the bromine has evaporated. Remove the watch glass and rinse the adhering liquid into the crucible with a small amount of distilled water. Evapo-

rate the contents of the crucible to dryness on a steam bath. Cover the residue with 5 Gm. of a 1:1 mixture of sodium carbonate and potassium nitrate and fuse, heating gently until the reaction is complete. Break up the fused mass and transfer it to a beaker with the aid of a stream of distilled water, and then add 5 cc. of concentrated hydrochloric acid. Make the solution up to 200 cc. with distilled water. Filter the solution if it is not clear, heat it to boiling, and add, dropwise and with constant stirring, 10 cc. of hot barium chloride T.S. Allow the beaker to stand overnight. Filter the barium sulfate formed onto a tared Gooch crucible. Wash the precipitate with hot water, dry at 100 C. for 20 minutes and ignite the crucible and contents to constant weight. Each Gm. of barium sulfate is equivalent to 0.4115 Gm. of sulfate: the sulfate content does not exceed 0.8 per cent of the sample weight.

ETHICON SUTURE LAB'S., DIVISION OF JOHNSON & JOHNSON, NEW BRUNSWICK, N. J.

Bio-Sorb (Powder): 2.27 Kg. cans.

U. S. trademark pending.

ALUMINUM HYDROXIDE GEL-N. N. R. (See New and Nonofficial Remedies 1948, p. 338).

The following dosage forms have been accepted:

WYETH, INCORPORATED, PHILADELPHIA 3

Suspension Amphojel (Flavored): 180 cc. and 360 cc. bottles. An aqueous suspension containing the equivalent of 3.6 to 4.4 per cent of aluminum hydroxide, 5 per cent glycerin, and not more than 0.5 per cent sodium benzoate. Flavored with oil of peppermint.

Suspension Amphojel (Unflavored): 180 cc. and 360 cc. bottles. An aqueous suspension containing the equivalent of 3.6 to 4.4 per cent of aluminum hydroxide, 5 per cent glycerin, and not more than 0.5 per cent sodium benzoate.

Tablets Amphojel: 0.3 Gm. and 0.6 Gm. Each tablet contains the equivalent of 0.3 Gm. or 0.6 Gm. of aluminum hydroxide with excipients and flavoring agents.

U. S. trademark 370,518.

METHADONE HYDROCHLORIDE (See New and Nonofficial Remedies 1948, p. 25).

The following dosage forms have been accepted:

THE WM. S. MERRELL COMPANY, CINCINNATI 15

Solution Methadone Hydrochloride: 10 mg. per cc., 20 cc. vials. Preserved with chlorobutanol 0.5 per cent.

Tablets Methadone Hydrochloride: 5 mg.

THE UPJOHN COMPANY, KALAMAZOO 99, MICH.

Elixir Methadone Hydrochloride: 1 mg. per cc., 500 cc. bottles.

Hypodermic Tablets Methadone Hydrochloride: 10 mg.

Solution Methadone Hydrochloride: 10 mg. per cc., 30 cc. vials.

Tablets Methadone Hydrochloride: 2.5 mg., 5 mg. and 10 mg.

HEPARIN SODIUM (See New and Nonofficial Remedies 1948, p. 352).

The following dosage form has been accepted:

THE UPJOHN COMPANY, KALAMAZOO 99, MICH.

Solution Heparin Sodium: 100 mg. per cc., 4 cc. vials. Each cc. contains 10,000 units of heparin sodium. Preserved with chlorobutanol 5 mg.

ESTROGENIC SUBSTANCES (WATER INSOLUBLE) (See New and Nonofficial Remedies 1948, p. 370).

The following dosage form has been accepted:

WARREN-TEED PRODUCTS COMPANY, COLUMBUS 8, OHIO

Aqueous Suspension Estrovarin: 20,000 I. U. per cc., 1 cc. ampuls and 15 cc. vials.

DIETHYLSTILBESTROL-U. S. P. (See New and Nonofficial Remedies 1948, p. 378).

The following dosage form has been accepted:

GOLD LEAF PHARMACAL COMPANY, INC., NEW ROCHELLE, N.Y.

Solution Diethylstilbestrol in Oil: 1 mg. and 5 mg. per cc. in sesame oil, 1 cc. ampuls and 30 cc. vials. The vials are preserved with chlorobutanol 0.5 per cent.

EPHEDRINE SULFATE-U. S. P. (See New and Nonofficial Remedies 1948, p. 231).

The following dosage form has been accepted:

STRONG-COBB COMPANY, INC., CLEVELAND 4

Solution Ephedrine Sulfate: 25 mg. and 50 mg., 1 cc. Amps.

THE JOURNAL OF THE
AMERICAN MEDICAL ASSOCIATION

535 NORTH DEARBORN STREET - - - CHICAGO 10, ILL.

Edited by
MORRIS FISHBEIN, M.D.
*Assistant Editor, AUSTIN SMITH, M.D.**Associate Editors*
JOHNSON F. HAMMOND, M.D. RICHARD J. PLUNKETT, M.D.*Editor for Current Medical Literature, GEORGE HALPERIN, M.D.**Assistant to the Editor, JEWEL F. WHELAN*

Subscription price - - - - Twelve dollars per annum in advance

Cable Address - - - - "Medic, Chicago"

Please send in promptly notice of change of address, giving both old and new; always state whether the change is temporary or permanent. Such notice should mention all journals received from this office. Important information regarding contributions will be found on second advertising page following reading matter.

SATURDAY, JUNE 18, 1949

THE PROGRAM OF THE WORLD HEALTH
ORGANIZATION

In an address before the annual meeting of the Association of State and Territorial Directors of Local Health Services, Calderone¹ pointed out that international health agencies confined themselves in the past to dissemination of epidemiologic information and the establishment of quarantine regulations and sanitary conventions but that the World Health Organization advances a new and revolutionary concept of health, namely, "a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity."

In the first World Health Assembly held in Geneva in 1948 the delegates from sixty nations outlined a six point program for positive action in the field of health. The program involves the mass use of insecticides, water sanitation and sewage disposal technics. Effort will be concentrated on maternal and child health, venereal disease, tuberculosis, malarial control, public health administration, training, health demonstrations and fundamental health education of populations. One of the most fertile fields is malaria control. The World Health Organization is collaborating actively with the Food and Agriculture Organization of the United Nations in establishing antimalarial campaigns, especially in regions where increased food production is possible. Large scale operations under joint action are planned for rural restoration of approximately 10,000,000 acres where malaria control will be associated with general improvement of health standards, including economic, agricultural, sociologic and other considerations.

1. Calderone, F. A.: An Address at the Annual Meeting of the Association of State and Territorial Directors of Local Health Services, Peabody Hotel, Memphis, Tenn., April 28, 1949.

Important on the agenda is the campaign against tuberculosis. This will include traveling fellowships for personnel from countries most in need of assistance; the provision of demonstration teams; the development of uniform procedures on classification of tuberculosis, roentgenologic interpretation, laboratory diagnosis of the presence of tubercle bacilli and the evaluation of new chemotherapeutic agents such as streptomycin. Even more important is the mass immunization program which is being carried on by the International Children's Emergency Fund with the cooperation of the World Health Organization, the Danish Red Cross and Scandinavian societies, bringing tuberculin testing and BCG vaccination to Europe, Asia, South America and North Africa. Another top priority is venereal disease control. The World Health Organization and United Nations' International Children's Emergency Fund have initiated extensive activities to combat prenatal and infantile syphilis with penicillin. Model demonstration projects for the treatment of this disease are under way in Poland, Yugoslavia, Hungary, Bulgaria and Greece, the Eastern Mediterranean and South East Asia. The program will be extended to Albania, Czechoslovakia, Rumania, India, Pakistan and Siam.

Since adequate nutrition in all stages of life is an important factor in safeguarding and restoring health, the World Health Organization is collaborating with the Food and Agriculture Organization of the United Nations both in scientific and in operating programs which aim to increase the production of food in many areas in the world.

The World Health Organization also plans to conduct epidemic control activities and special research on typhus, trachoma, yellow fever, smallpox and plague. It is investigating new pharmaceutical and biologic products; it is implementing the sanitary conventions; it is standardizing health statistics, biologic and pharmaceuticals, and unifying the pharmacopeias.

An interesting feature of the program is the establishment of fellowships providing extensive periods of training for public health and medical personnel for many countries by which they can improve their knowledge and return to their own countries better equipped to contribute to local health programs. Already four hundred and sixty-one fellows from twelve countries have been trained under the auspices of the World Health Organization in the outstanding institutions of the United States, England, Canada, Denmark, France and other countries. During 1950 it is planned to train about five hundred additional fellows from almost every country of the world. Six fellowships for study in Europe will be awarded to the United States this year for work in the fields of malaria, tuberculosis, maternal and child health, nutrition and sanitation. For many areas, of greatest importance are programs for the

increase of food production by means of insecticide projects, introduction of modern agricultural methods, improved animal husbandry, introduction and modernization of water and food sanitation and sewage control.

The program envisages a vast undertaking for the eradication of the disease wherever it exists by positive methods based on the newest advances made by medical research.

MILK-BORNE CANCEROGENIC VIRUS

In 1933 Little¹ of the Jackson Memorial Laboratory, Bar Harbor, Maine, reported the results of several years' genetic study of inbred "high tumor" and "low tumor" strains of mice. In the high tumor strains over 90 per cent of the females died of spontaneous mammary cancer by the age of 12 months. In less than 10 per cent of the low tumor strains and in less than 1 per cent in some strains mammary tumors developed. Reciprocal crosses between high tumor and low tumor mice gave data not in accord with mendelian laws of genetics. From this, Little concluded that some unknown extrachromosomal factor played a major role in the hereditary transmission of a high tumor diathesis.

Three years later, Bittner² identified this unknown extrachromosomal factor as some substance or deficiency in the breast milk of high tumor mice. If immediately after birth the young of high tumor mice were foster-fed by low tumor mothers, they did not acquire the usual high tumor tendency.

An attempt to determine the nature of the cancerogenic factor in high tumor milk was made by Visscher³ and his associates of the University of Minnesota.

Using a specially devised procedure for preparation of homogenized high cancer breast tissue, they developed a substance which was injected into 84 young mice which survived such administration. By the age of 12 months 10 (or 71 per cent) of the 14 surviving mice given the homogenized tissue had verified mammary carcinoma. Fifty-five per cent of those given the ultrasediment had cancer. Progressively smaller percentages developed in mice given the first sediment and the fat fraction. Cancer did not develop in any of the mice given the final supernatant fluid.

From this, Visscher concluded that most of the cancerogenic agent of the lactating breast from high cancer mice is present in the secondary sediment obtained by ultracentrifugation. This sediment is virtually free from matter above colloidal dimensions and contains a large share of the soluble material of high molecular weight. From this he concluded that the cancerogenic agent is either a colloid of high molecular weight or a virus.

Attempted identification of this factor was subsequently made by Graff⁴ and his associates, who examined the ultracentrifugates of milk of high cancer and low cancer mice by means of the electron microscope. They report that high cancer strain milk contains a "heavy particle" which has "virus-like dimensions." Passey⁵ and others made similar examinations of aqueous extracts of normal and cancerous breast tissues. In extracts from the tissues of high cancer mice they found a "particulate component" about 200 angstrom units in diameter, which was not present in extracts from low cancer strains.

Both these observations are subject to criticisms, since the alleged agent was easily confused with cytoplasmic detritus. To avoid this difficulty, Porter and Thompson⁶ of the Rockefeller Institute made electron micrographs of intact mammary epithelial cells grown from explants on formvar[®]-coated slides. When, after a few days, small peripheral sheets of epithelial cells were obtained, the explants were removed. The remaining cell sheets were then washed with Tyrode's solution, fixed by exposure to the vapor of osmium tetroxide, mounted on screens and dried.

Electron micrographs of these dried cells showed numerous small spherical particles readily differentiated from the normal cytoplasmic components. Most of the particles showed a dark or dense nucleus-like center with an average diameter of about 75 millimicrons. This was surrounded by a capsule-like envelope about 135 millimicrons in diameter. The particles thus resembled the viruses of equine encephalomyelitis, influenza A and B and vaccinia, as previously described by Sharp,⁷ Green⁸ and others.

The particles were associated only with the epithelial cells. Fibroblasts observed in the same tissue cultures did not carry them. The particles occurred singly, in pairs or in clumps. Clusters of four bodies, two large and two small, were fairly common. Occasionally an unusually large particle was composed of two, four or more nuclei in a single capsule. The particles were not found in any normal tissues thus far examined.

These and other data led Porter to assume that the observed particles represent a virus identical with Bittner's milk-borne cancerogenic agent. Further evidence for or against this assumption is being sought from a study of cells cultivated from tumors in mice free from the Bittner factor.

4. Graff, S.; Moore, D. H.; Stanley, W. M.; Randall, H. T., and Hoagensen, C. D., in *Proceedings of the Fourth International Cancer Research Congress*, 1947, p. 144.

5. Passey, R. D.; Dmochowski, L.; Astbury, W. T., and Reed, R.: *Nature*, London **160**: 565, 1947.

6. Porter, K. R., and Thompson, H. P.: *J. Exper. Med.* **88**: 15, 1948.

7. Sharp, D. G.; Taylor, A. R.; Beard, D., and Beard, J. W.: *Morphology of Eastern and Western Strains of Virus of Equine Encephalomyelitis Arch. Path.* **36**: 167, 1943. Sharp, D. G.; Taylor, A. R.; McLean, I. W., Jr.; Beard, D.; Beard, J. W.; Feller, A. E., and Dingle, J. H.: *J. Immunol.* **48**: 129, 1944.

8. Green, R. H.; Anderson, T. F., and Smadel, J. E.: *J. Exper. Med.* **75**: 651, 1942.

1. Little, C. C.: *Science* **78**: 465, 1933.

2. Bittner, J. J.: *Science* **84**: 162, 1936.

3. Visscher, M. B.; Green, R. G., and Bittner, J. J.: *Proc. Soc. Exp. Biol. & Med.* **49**: 94, 1942.

Current Comment

THE PRESIDENT-ELECT—DR. ELMER LEE HENDERSON

The President-Elect of the American Medical Association, chosen unanimously by the House of Delegates in the Atlantic City Session, is Dr. Elmer Lee Henderson of Louisville, Ky., a distinguished surgeon and a leader in the work of the Association for many years. Dr. Henderson was elected to the House of Delegates in 1937, and in 1939 to the Board of Trustees; he has been Chairman of the Board since 1947. He was formerly president of the Jefferson County Medical Society and of the Kentucky State Medical Association and counselor and chairman of the Surgical Section of the Southern Medical Association. Dr. Henderson was born in Garnettsville, Ky., in 1885, graduated from the University of Louisville Medical School in 1909 and has been engaged in the practice of surgery in Louisville since 1911. He is a specialist certified by the American Board of Surgery, a fellow of the American College of Surgeons, a former vice president and president of the Southeastern Surgical Congress, a recent past president of the Southern Medical Association and of the Alumni Association of the University of Louisville. Dr. Henderson is Director of the Kossair Crippled Children's Hospital and a member of the staff of the Kentucky Baptist Hospital and of the St. Joseph Infirmary.

In World War I he served as a major in the U. S. Army Medical Corps, nine months of which service was overseas. For many years he was a lieutenant colonel in the Medical Reserve Corps. In World War II Dr. Henderson was chairman of the Fifth Service Command Committee, Procurement and Assignment Service for Physicians, Dentists and Veterinarians. Since 1942, he has been a special surgical consultant to the Air Surgeon's Office. In choosing Dr. Henderson the House of Delegates recognized the innumerable days devoted to the cause of the medical profession, often at great personal sacrifice; his skill in diplomatic negotiation, evidenced by his activities in the World Medical Association; his financial acumen, dem-

onstrated by the progress of American Medical Association affairs under his leadership. In his address of acceptance Dr. Henderson pledged himself unwaveringly to opposition against nationalized medicine.

ETIOLOGY OF HODGKIN'S DISEASE

Grand¹ has recently described cytoplasmic inclusion bodies in tissue cultures of lymph nodes affected by Hodgkin's disease. Similar inclusions were not found in cultures of normal lymph nodes, or those involved by lymphosarcoma or leukemia, or in lymphadenitis. The cells of normal human lymph nodes in tissue

cultures exposed to cell-free supernatant fluid from cultures of Hodgkin's nodes also developed the characteristic inclusion bodies. Cultures of Hodgkin's nodes and of normal lymph nodes exposed to supernatant fluid from Hodgkin's node cultures rapidly underwent cell degeneration. Such cultures produce liquefaction of the culture medium. Similar degenerative changes are not seen in cultures of tumors. The cultures can be maintained viable for months or years. The author suggests that the degeneration might be due to an overwhelming virus infection of the cultures. The inclusions closely resembled morphologically those described in cells infected with known viruses. Both results support the conception of a virus causation of Hodgkin's disease and suggest that it is inflammatory rather than neoplastic in nature. Claims for a virus



ELMER LEE HENDERSON, M.D.
PRESIDENT-ELECT OF THE AMERICAN MEDICAL ASSOCIATION

causation of Hodgkin's disease have previously been made on numerous occasions. Proof has always been lacking. One of the strongest contenders for a virus causation was Gordon,² who published photographs of elementary bodies which he regarded as the probable causative agent. The relation of the bodies which he illustrated to the inclusion bodies now described by Grand remains to be determined. If Grand's findings can be confirmed the understanding of this disease will have been greatly advanced.

1. Grand, C. G.: Cytoplasmic Inclusions and the Characteristics of Hodgkin's Diseased Lymph Nodes in Tissue Culture, *Cancer Research* 9: 183 (March) 1949.
2. Gordon, M. H.: Recent Advances in the Pathology and Treatment of Lymphadenoma, *Proc. Roy. Soc. Med.* 27: 1035 (June) 1934.

THE DISTINGUISHED SERVICE MEDAL AWARDED TO SEALE HARRIS

The House of Delegates of the American Medical Association at the meeting in Atlantic City selected Dr. Seale Harris of Birmingham, Ala., as recipient of the Distinguished Service Medal, which is the highest scientific award granted by the Association. Dr. Harris has won international recognition for his research on hyperinsulinism and its control. He was born in Cedartown, Ga., on March 13, 1870. After academic training at the University of Georgia, he studied medicine and received his degree from the University of Virginia in 1894. He began practice in Union Springs, Ala., and after twelve years moved to Mobile, where he remained for nine years. He then moved to Birmingham, where he became professor of medicine in the medical department of the University of Alabama. He is a member of the American College of Physicians. He served as president of the Southern Medical Association in 1921. He served with the armed forces as major in 1917 and retired as colonel in 1919. He edited *War Medicine*, published in Paris during World War I, and was secretary of the Research Committee of the American Red Cross in France. At that time he was cited by General Pershing "for conspicuous and meritorious service in France." In 1939 he was cited by the Medical Association of the State of Alabama for contributions to medicine beneficial to mankind. One year after the discovery of insulin, Dr. Harris spent a week in Toronto with Banting, Best, Collip and McLeod studying many cases and witnessing insulin reactions. These observations led him to recognition of the effects in nondiabetic patients of excessive secretion of insulin. Dr. Harris has contributed notably in his medical writings, including chapters on food poisoning, hyperinsulinism and pellagra in various systems of medicine. He published in 1946 a book entitled "Banting's Miracle" and has now in process of preparation a biography of Marion Sims. Dr. Seale Harris is in the tradition of the true physician, caring for his patients, serving his community and his nation as a great citizen, advancing the science of medicine and earning the devotion and respect of the people he serves.



SEALE HARRIS, M.D.
AWARDED DISTINGUISHED SERVICE MEDAL

COMBINED AUREOMYCIN AND DIHYDRO- STREPTOMYCIN TREATMENT IN BRUCELLOSIS

Mice infected with *Brucella* organisms, after treatment with aureomycin or with chloromycetin,¹ still had great numbers of *Brucella* organisms in their spleens, according to Heilman.¹ Aureomycin combined with streptomycin or dihydrostreptomycin proved to be most effective. The addition of a sulfonamide compound to the combination of aureomycin and dihydrostreptomycin did not yield better results. Herrell and Barber² treated four acutely ill patients who had culturally proved brucellosis with the combination of aureomycin and dihydrostreptomycin. The average daily dose of aureomycin was 3 Gm. by mouth given in divided doses every six hours. Dihydrostreptomycin was given simultaneously in divided doses intramuscularly, the average daily dose amounting to 2 Gm. The patients did not receive other treatment except rest in bed and the usual supportive measures, which included vitamin supplements. This combined treatment was continued for twelve to fourteen days. In brucellosis complicated by some localizing lesions, such as involvement of the skeletal system, urinary tract or endocarditis, the course of treatment should be extended to twenty-one to twenty-eight days. All patients so treated promptly recovered without recurrence. The administration of aureomycin was associated with little or no toxic manifestations. Aureomycin is much less toxic than sulfadiazine.

The toxic effect on the eighth nerve associated with the administration of streptomycin can be reduced by the employment of dihydrostreptomycin. The combination of aureomycin and dihydrostreptomycin is apparently most effective as measured by bacteriostatic activity. This combination reduces and to some degree eliminates the undesirable toxic effects which might be encountered with regular streptomycin alone or sulfadiazine or the two in combination.

1. Heilman, F. R.: The Effect of Combined Treatment with Aureomycin and Dihydrostreptomycin on *Brucella* Infections in Mice. *Proc. Staff Meet., Mayo Clin.* 24: 133-137 (March 16) 1949.
2. Herrell, W. E., and Barber, T. E.: The Combined Use of Aureomycin and Dihydrostreptomycin in the Treatment of Brucellosis. *Proc. Staff Meet., Mayo Clin.* 24: 138-143 (March 16) 1949.

ORGANIZATION SECTION

PROCEEDINGS of the ATLANTIC CITY SESSION

MINUTES OF THE ANNUAL SESSION OF THE HOUSE OF DELEGATES OF
THE AMERICAN MEDICAL ASSOCIATION, HELD IN
ATLANTIC CITY, JUNE 6-10, 1949

HOUSE OF DELEGATES

First Meeting—Monday Morning, June 6

The House of Delegates convened in the American Room of the Hotel Traymore, Atlantic City, N. J., and was called to order at 10:10 a. m. by the Speaker, Dr. F. F. Borzell.

Preliminary Report of the Reference Committee on Credentials

Dr. H. B. Everett, Chairman, stated that 154 delegates had registered, and the Speaker appointed as Sergeants-at-Arms Drs. Joseph F. Londrigan, New Jersey, Chairman; John J. Masterson, New York, and John J. Curley, Massachusetts.

Roll Call

At the request of the Speaker, the Secretary called the roll, and those who entered after their names had been called reported to the Secretary.

Photograph

The House paused long enough so that a photograph of the House could be taken.

Tellers

The Speaker appointed the following to serve as tellers at this Annual Session:

Ernest E. Shaw, Iowa, Chairman	Leonard W. Larson, Section on
Clarence G. Bandler, New York	Pathology and Physiology
H. Russell Brown, South Dakota	Roscoe H. Reeve, Wyoming
Jesse D. Hamer, Arizona	George A. Woodhouse, Ohio

Distinguished Service Award

Dr. E. L. Henderson, Chairman of the Board of Trustees, presented a report of the Board as follows:

The Committee on Distinguished Service Award of the American Medical Association submitted five names to the Board of Trustees.

In accordance with Division Three, chapter XIV, section 3, of the By-Laws, the Board has selected by ballot the following names for presentation to the House of Delegates in alphabetical order: Dr. Alfred Blalock, Baltimore; Dr. Seale Harris, Birmingham, Ala., and Dr. Shields Warren, Boston. Dr. Henderson, on request, read to the House information concerning Drs. Blalock, Harris and Warren.

The tellers spread the ballot and the Secretary announced that one hundred and sixty-eight votes had been cast, of which Dr. Blalock received fifty-two, Dr. Harris, sixty-nine and Dr. Warren forty-seven.

The Speaker announced that since no one had received a majority of the votes cast, a second ballot would be taken with the elimination of the name of Dr. Warren.

Dr. James R. Reuling, Vice Speaker, assumed the chair.

Compliments to Miss Jewel F. Whelan

While the tellers spread the ballot, the Speaker called the attention of the House to the absence of one face at the desk, stating that Miss Jewel F. Whelan had been taken ill but is now recovering.

It was moved by Dr. George W. Kosmak, New York, seconded by Dr. Walter E. Vest, West Virginia, and carried unanimously that the House expresses its compliments to Miss Whelan and wishes her a speedy recovery.

Orchid to Miss Hattie A. Niehoff

The Speaker announced that one person was celebrating her silver anniversary because of services rendered to the House for the last twenty-five years and presented to Miss Hattie A. Niehoff, who he stated had served the House well and faithfully, an orchid as a token of the appreciation of the House.

Distinguished Service Award, Continued

The Vice Speaker declared the ballot closed and the Secretary announced that one hundred and sixty-five votes had been cast, of which Dr. Harris received ninety-seven and Dr. Blalock sixty-eight. The Speaker declared that the House had selected Dr. Seale Harris, Birmingham, Ala., as the recipient of the Distinguished Service Award for 1949.

Adoption of Proceedings of St. Louis Interim Session

The Secretary presented the proceedings of the St. Louis Interim Session Nov. 30-Dec. 3, 1948, which were adopted on motion of Dr. Mather Pfeiffenberger, Illinois, seconded by Dr. Walter E. Vest, West Virginia, and carried.

Address of Speaker, Dr. F. F. Borzell

With the Vice Speaker, Dr. James R. Reuling, in the chair, the Speaker presented the following address, which was referred to the Reference Committee on Reports of Officers:

Gentlemen:—Since the Interim Session at St. Louis last December, the American Medical Association has been the pivotal point of many charges and discussions. Its officers have been attacked both from within and without. We have been accused of holding our membership behind an "Iron Curtain." The officers and Board of Trustees have been called a hierarchy made up of reactionaries committed only to the maintenance of a "status quo." It has become necessary for our officers to make public denial and even direct refutation of these charges even to the membership of Congress.

It is because of the events of the last six months that this session of the House of Delegates of the American Medical Association assumes proportions of great significance, not only to the medical profession but to the entire nation as well.

This House of Delegates, constituting for the most part the elected representatives of the membership of the constituent state associations, took deliberate and unanimous action on several matters of vital consequence to the American people. We were accused of having set up a "slush fund." This charge was made with implications of intent to apply pressures corruptly on our legislators for our own selfish ends. If there is one responsibility that is outstanding on this session of the House of Delegates, it is that its deliberations must show the American public once and for all that the American medical profession, constituting the American Medical Association, is a completely democratic body and that when the House of Delegates speaks it speaks for the vast majority of American physicians. It must further demonstrate more clearly than ever that its motivations spring solely from a sense of primary responsibility to insure for our people the maintenance of a quality of medical service equaled nowhere else in the world.

As an answer to criticisms of adverse publicity arising from the St. Louis session, your Speaker respectfully requests this House of Delegates to authorize the appointment for this session of a special committee of five members of the House to be known as the Committee on Publicity whose function will be to cooper-

ate with the Department of Press Relations of the American Medical Association to the end that releases may be made expeditiously and authoritatively. The Speaker has discussed the mechanics of operation of this proposed committee with Mr. John Bach, Director of the Department of Press Relations, and believes that such committee offers a practical solution to the problem.

A better understanding of the democratic functioning of this House might perhaps be stimulated if the delegates would invite selected members from their state societies who are in attendance at the scientific sessions to observe at least one meeting of the House.

The Speaker wishes to take this opportunity to thank the many delegates who have by letter and personal communication shown a keen desire to fulfil their important duties.

It is apparent that this House is faced with a continuing necessity of giving extended consideration to social and political problems dealing with the nation's health. On the other hand, it is noteworthy that while so much emphasis has of necessity been placed on these problems, our scientific activities have been carried on without relaxation through THE JOURNAL, other publications of the Association and the various councils and bureaus. We must, therefore, continue to look to the delegates from the various scientific sections to keep the House alerted to scientific matters requiring action.

At the St. Louis session several resolutions were presented with multiple endorsements. The Speaker is of the opinion that the intent of such resolutions would be better served if they were presented by a single endorsement and the supporters appeared before the proper reference committee in support. This not only will save time and be more democratic but also will more effectively record approval. Your responsibilities are such that your deliberations must be accurately reported and be given correct interpretation to the public. You therefore must continue to assume full responsibility, individually and collectively for your actions. This responsibility demands that we guard every move we make lest we fail in upholding our proud traditions and the lofty position we have attained.

In periods of great stress, in the heat of battle, human reactions are intensified and irritations magnified. It is difficult to retain the calmness necessary for good generalship. Righteous indignation may easily be transmuted into blind hatred. The former is a source of strength, the latter an evidence of weakness. The eyes of the country are on us. Our comrades in arms, the great medical profession, are looking to us of the House of Delegates for leadership. We, then, must lead and not be led. Pressures stimulated by vindictiveness, base emotions or self interest dare not activate our conduct.

He whom the Gods would destroy, they first make mad. There are those who would gladly destroy the American Medical Association, but as long as we hold to a course of dignity, singleness of purpose and unwavering solidarity, we can win. Gentlemen, your responsibility is great and in your hands rests the health of this nation.

REFERENCE COMMITTEES

In accordance with the By-Laws, the following reference committees are appointed. A few changes have been necessary since publication in THE JOURNAL and the Handbook:

SECTIONS AND SECTION WORK

Edward L. Compere, Chairman, Section on Orthopedic Surgery.	Charles H. Phifer, Illinois
Jacob W. Bird, Maryland.	John M. Porter, Kansas.
	Charles T. Stone, Section on Internal Medicine.

RULES AND ORDER OF BUSINESS

Albert F. R. Andresen, Chairman, New York.	James Stevenson, Oklahoma.
L. Howard Schriver, Ohio.	John F. Conway, New Mexico.
	E. Roger Samuel, Pennsylvania.

REPORTS OF BOARD OF TRUSTEES AND SECRETARY

Thomas A. Foster, Chairman, Maine.	Allen H. Bunce, Georgia.
Warren L. Allee, Missouri.	William F. Costello, New Jersey.
	William M. Skipp, Ohio.

MEDICAL EDUCATION

B. R. Kirklin, Chairman, Section on Radiology.	Lowell S. Goin, California.
W. P. Anderton, New York.	H. G. Hamer, Indiana.
	Charles L. Shafer, Pennsylvania.

LEGISLATION AND PUBLIC RELATIONS

William Bates, Chairman, Pennsylvania.	Leo G. Christian, Michigan.
F. J. L. Blasingame, Texas.	Walter G. Phippen, Massachusetts.
	H. Gordon MacLean, California.

HYGIENE AND PUBLIC HEALTH

Deering G. Smith, Chairman, New Hampshire.	Stephen E. Gavin, Wisconsin.
W. Palmer Dearing, Public Health Service.	Scott Lord Smith, New York.
	Felix J. Underwood, Mississippi.

AMENDMENTS TO CONSTITUTION AND BY-LAWS

William D. Stovall, Chairman, Wisconsin.	Paul K. French, Vermont.
Ivan Fawcett, West Virginia.	William A. Hyland, Michigan.
	B. E. Pickett Sr., Texas.

REPORTS OF OFFICERS

F. J. Pinkerton, Chairman, Hawaii.	J. Stanley Kenney, New York.
J. B. Lukins, Kentucky.	Charles J. Kickham, Massachusetts.
George E. Earl, Minnesota.	

CREDENTIALS

H. B. Everett, Chairman, Tennessee.	Raymond F. Peterson, Montana.
E. P. Flood, New York.	Charles F. Strosnider, North Carolina.
Carl A. Lincke, Ohio.	

INDUSTRIAL HEALTH

William L. Estes Jr., Chairman, Pennsylvania.	Warren W. Furey, Illinois.
Wyman D. Barrett, Michigan.	Edward H. McLean, Oregon.
	Carl A. Grote, Alabama.

EXECUTIVE SESSION

John W. Cline, Chairman, California.	Thomas P. Murdock, Connecticut.
Robert H. Hayes, Illinois.	Howard K. Petry, Pennsylvania.
	Hugh P. Smith, South Carolina.

MISCELLANEOUS BUSINESS

Mather Pfeiffenberger, Chairman, Illinois.	William R. Brooksher, Arkansas.
George Braunlich, Iowa.	Andrew A. Eggston, New York.
	Hoyt B. Woolley, Idaho.

TELLERS

Ernest E. Shaw, Chairman, Iowa.	Leonard W. Larson, Section on Pathology and Physiology.
Clarence G. Bandler, New York.	Roscoe H. Reeve, Wyoming.
H. Russell Brown, South Dakota.	George A. Woodhouse, Ohio.
Jesse D. Hamer, Arizona.	

SERGEANTS-AT-ARMS

Joseph F. Londrigan, Chairman, New Jersey.	John J. Masterson, New York.
	John J. Curley, Massachusetts.

On motion of Dr. Walter E. Vest, West Virginia, seconded by Dr. George W. Kosmal, New York, and carried, the nominations for membership on reference committees made by the Speaker were confirmed.

The Speaker requests authorization for the appointment of two special reference committees, as follows:

INSURANCE PLANS AND MEDICAL SERVICE

E. Vincent Askey, Chairman, California.	William H. Halley, Colorado.
Paul A. Davis, Section on General Practice.	Louis M. Orr II, Florida.
James Q. Graves, Louisiana.	Herbert P. Ramsey, District of Columbia.

EMERGENCY MEDICAL SERVICE

Leland S. McKittrick, Chairman, Massachusetts.	Robertson Ward, California.
Karl S. J. Hohlen, Nebraska.	Consultants
George S. Klump, Pennsylvania.	George E. Armstrong, U. S. Army.
Roland W. Stahr, Nevada.	Joel T. Boone, U. S. Navy.
	Edward H. Cushing, Veterans Administration.

It was moved by the Speaker, seconded by Dr. Charles H. Phifer, Illinois, and carried, that these special reference committees be authorized and their membership confirmed.

COMMITTEE ON PUBLICITY OF HOUSE ACTIVITIES

I also request at this time in accordance with my opening remarks, authorization from the House of Delegates to appoint the following Committee on Publicity to serve for this session, to confer with the Speaker or Vice Speaker, the Chairman of the Board of Trustees, the Secretary and the publicity staff of the American Medical Association, to authorize releases or to return to the House if in doubt for House action, and to be prepared to act at any time:

Thomas K. Lewis, Chairman, New Jersey.	Louis A. Baie, Section on Gastro-Enterology and Proctology.
Creighton Barker, Connecticut.	Raymond L. Zech, Washington.
Henry B. Mulholland, Virginia.	Floyd S. Winslow, New York.

Dr. Borzell moved approval of the recommendation and the motion was seconded by Dr. Walter E. Vest, West Virginia, and carried.

IN MEMORIAM

The Speaker read the names of those who have departed from this life since the last annual session as follows (the dates following the names indicate years of service in the House):

William F. Bowen, Kansas, 1934-1935.
William H. Breuer, Missouri, 1934-1937.
Frank L. Brown, Illinois, 1931.
Robert S. Cathcart, South Carolina, 1908-1909.
William T. Corlett, Cleveland, Section on Dermatology, 1902.
Gilbert G. Cottam, South Dakota, 1924.
Crum Epler, Colorado, 1908; 1932-1934.
William A. Evans, Chicago, Section on Pathology, 1902; Section on Preventive Medicine and Public Health, 1912.
Albert A. Gartner, New York, 1943-1948.
John Green, Missouri, 1907.
Arthur H. Gross, Pennsylvania, 1928.
Edward L. Keyes, New York City, Section on Genito-Urinary Diseases, 1917.
Charles E. Kiely, Ohio, 1930-1932; 1934-1941.
James C. E. King, Utah, 1902.
Jennings C. Litzenberg, Minnesota, 1924-1925; 1927-1929.
William E. Lower, Ohio, 1909.
John B. McAlister, Pennsylvania, 1909; 1914; 1928; 1931.
Ross S. McElwee, North Carolina, 1941-1945.
Stuart McGuire, Virginia, 1903-1904; 1906-1908.
Oliver W. H. Mitchell, New York, 1943-1948.
John James Moren, Kentucky, 1917.
A. P. Nachtwey, North Dakota, 1936-1947.
N. J. Nessa, South Dakota, 1943-1945.
Howard T. Phillips, West Virginia, 1933; 1936-1937.
B. S. Pollak, New Jersey, 1928; 1931-1933.
Alfred C. Prentice, New York, 1920.
Joseph Scattergood Jr., Pennsylvania, 1942-1944.
Solomon Solis-Cohen, Philadelphia, Section on Therapeutics, 1907.
J. Walter Vaughan, Detroit, Section on Pathology, 1913.
Olin H. Weaver, Georgia, 1930-1947.
John E. Weeks, New York, 1910-1911.
Guy W. Wells, Rhode Island, 1934-1937; 1939-1940; 1946-1947.
Kasimir A. Zurawski, Illinois, 1913.

The Speaker announced that since this list had been prepared Dr. Roy B. Henline, Section on Urology, had died.

At the request of the Speaker, the audience arose to stand for a moment in silent tribute to the memory of these absentees.

Address of President R. L. Sensenich

The Speaker resumed the chair and called on President R. L. Sensenich for his address and the audience arose in tribute to Dr. Sensenich.

Dr. R. L. Sensenich, President, presented the following address, which was referred to the Reference Committee on Reports of Officers:

That is a very wonderful gesture which rather embarrasses me because I do not know whether it is all coming to me.

During the past year, and, for that matter, throughout the past two years, there have been an almost unprecedented number of things which needed attention and which fell on the President to do. I have been happy to do them. I admit at times they were a bit rugged and the time demanded probably exceeded what usually has been given over to this service, but I am happy to have done them and I hope I have helped some.

Among the myriad things that have come up for consideration during that time, I selected four that I thought might well be discussed here this morning, and I shall give you a brief survey, so far as I am able to in the brief time I have, of the status of these various subjects. They have all been selected because I thought they were important.

One of them is medical education. I think that is one of the most important subjects that you will have to deal with, and no doubt some report from the Council will come to you during this session. As you well know, the medical schools and medical colleges were greatly disturbed during the war as a result of the accelerated courses, the change in students and the diminished number of students, except those that were supported by the military establishment.

The postwar situation was not relieved to any great extent—the G. I. pressure, the number of students and, again, the teacher shortage. By the way, this comes up frequently in Washington. It came up less than two weeks ago, and representatives of the Council on Medical Education and Hospitals are there today. There is perhaps less attraction to teachers with respect to

university positions. There is, of course, government pressure on the other hand because of the alleged shortage of physicians. That shortage is not as it is represented but nevertheless it is made a reason for a great deal of argument for compulsory health insurance which carries with it provisions for funds to be used in medical education. Some of the endowed schools are having great financial trouble, and there is always a temptation to accept government money, and the temptation comes from government. The government socializers have been rather active in this respect.

The university hospitals have been a source of considerable complaint in many areas because they engage in the practice of medicine. That is not news. Some of our very good hospitals for many years have accepted patients and taken the payments for their services and applied those payments to the cost of the maintenance of their medical schools and their teaching staffs, but in some areas that has been a subject of violent discussion and unfavorable reaction.

Then, there has been the matter of the study of medical courses as they are now operated. There has been much criticism in connection with some of the specialist courses, that the persons so trained have had an insufficiently broad base, and it has been suggested that the courses should be studied, and that there should be a reevaluation of courses and of the proportion of time spent and of the methods of teaching. There are many other angles that are being given consideration in the various schools.

Lack of funds has led to an effort to stimulate the donor interest. How far that will go toward meeting the need is not known. In fact, at the moment we have no way of knowing how many schools there are that need substantial financial help. It would seem improbable that federal funds would be necessary for the support of state schools when the states in turn must contribute the funds to the federal government which will later be reappropriated to them. State schools in some instances, apparently, have not had the support of the profession or have not been sufficiently active in their efforts to obtain additional funds. On the other hand, nonstate schools, those that have not received financial support from the states, probably will be in serious need also. This will all come before you in this meeting, no doubt.

A committee from the Council on Medical Education and Hospitals and the Association of American Medical Colleges, the chairman of that committee being a prominent editor, not a physician, is now in the process of making a study of our educational institutions and the things to which I have just referred.

With regard to the second of these four important subjects, I think that preferred attention should be given to the work of the Council on National Emergency Medical Service. The Council will report to you today. That, however, has been the subject of a great deal of discussion and communication, and much has been done in an effort to stimulate interest, especially among those young men who received a part of their medical education at the expense of the government and had no military medical service. The Council was set up for the purpose of conferring with government authorities and units of the American Medical Association concerning possible national emergencies, medical emergencies and consideration of the military and civilian medical needs. Along with that was the training and organization to meet those needs.

There was much complaint at the conclusion of World War II, as after World War I, that medical men had not been well utilized, and one of the chief pressures that developed as a result of the survey made of discharged medical men at the conclusion of the war was the fact that they felt we must insist on the best possible utilization of the special training and skills of medical officers in the armed forces.

We request especially the establishment of a pattern of administration that will prevent assignment of well qualified physicians to minor medical or nonmedical duties or wastage in inactivity. If the medical departments of the armed forces are to be maintained at a high level, the services must provide attractive opportunities to well qualified physicians to progress in medical science. The Army and Navy medical organizations

must have capable medical administrators. However, there must be opportunities to progress in clinical medicine with comparable rewards for physicians detached from major administrative duties.

This may require a concept of military medical reward broader than that presently measured by the breadth of command and proportionate administrative functions, so that the individual may progress and may be rewarded for his superior medical services and continued in medicine rather than, of necessity, being diverted to administrative positions or positions having a great deal of administrative work in order that he may be advanced in proportion to his contribution to the work of the forces.

Additionally, the number whom it is possible to advance under the present medical promotion through administrative positions is limited, and the men become discouraged, and many of them are not interested in accepting service for that reason. The medical officer spends more years than in most other fields in preparation in the highly scientific field of study, and he must continue that study if in medicine he is going to progress and continue to serve as he should in his particular assignment.

I have had complaints, and, by the way, the mail that comes to the President's office is very voluminous. I have been written to a number of times and the definite statement has been made that much of our trouble lies with the fact that the Surgeons General of the services are not given proportionate rank and position. There is probably something to that. That would be reflected down across the board to all of the officers, the younger men, who come back and complain because they were unable to attain their majorities while much younger and less experienced men in the line became colonels. I have had a multitude of communications of that kind.

The armed forces at this time need medical officers. Legislation to draft physicians has been proposed with opportunities being given for voluntary commissions, every effort being made by the medical departments of the armed forces to provide opportunity for good medical work where there are facilities and qualified medical officers with whom superior medical training may be continued. I think that is important.

Some young medical men have been hesitant because of present hospital connections but have accepted commissions when they were assured that they would be given consideration as to appropriate hospital service on completion of their military service. I have had that information from a number of different sources. We rather encouraged and pressed physicians to encourage the young men in the hospitals to accept commissions, and, almost universally, the complaint was, "Well, I am committed here, and I want to go on to a residency; I want to do this or that, and that will be interrupted," but when they were given assurance that they will be given special consideration on their return from military service, many of them accepted that service. Others apparently have assumed that they would not be drafted, and so have chosen to disregard the appeals for young medical officers who have not had military service. This matter will, no doubt, come to you in discussion and will be up for your judgment.

Just a brief report on the present state of legislation as the third subject. The Washington administration has promoted so-called compulsory health insurance, using arguments that by direct statement and implication have been misleading and not factual. The public has indicated its wishes and does not desire this attack on its freedom by government control of personal medical services.

I think it is apparent from the large number of organizations that have supported the opposition to compulsory health insurance, which should be called compulsory sickness taxation, that the public has indicated that it does not wish it, will oppose it, has no interest in it. For that reason, I think it will certainly be impossible to secure that kind of legislation at present.

However, no doubt this drive for government political invasion of the life of the individual will continue as the first step in socialization of America after the pattern of the European nations which are now socialized. The debasement of the individual is the initial step in the concentration of power in the state, or, let's be factual and say in the hands of the bureaucrats whom the political organization will place in control of the personal affairs of the individual.

Felix Morley in his recent book says, "It has been said that freedom is not an abstraction like liberty but an underlying condition of life that cannot be fragmentized." Neither the patient nor the physician can be free to deal with his personal problems of illness and problems of living when the conditions of that service are controlled by a political employee in a distant office. It cannot be fragmentized; you cannot break it down and say that you will be restricted in this and this, and in this you may do so and so. It is just impossible. It is necessary that we distinguish then between what belongs to the individual and what is a proper function of the political commonwealth.

I was greatly interested in, and I want to say how much I appreciated, the talk of Senator McClellan at the "Grass Roots" Conference last night. It was in complete harmony with our views. One cannot quarrel with this issue on the little problem of the doctor alone or in any way so that it becomes distorted as if it were a purely personal interest. It is basic, and Senator McClellan brought that out in beautiful fashion, and his earnestness in the matter was very comforting. Personal service and medical care belong to the individual, and this freedom is not attained by giving everything to the state.

However, this is unfortunate, because in an ever expanding bureaucracy the personal interest of the great army of job holders in the political fortunes of the group managing the state becomes such that it is ghastly; it never stops; it is a continuing pressure.

I heard the head of one of the departments in Washington say yesterday—and I am sorry that I cannot give his name although I do not think he would object particularly—that this pressure is unending; it never ceases. Every man in the department is working for himself, and his own fortunes lie only in proportion as the political organization and his own inside departmental organization progress and grow bigger and stronger.

Last is the matter of cooperation, and this is brief. I do think that we should be careful to cooperate, and endeavor to cooperate in anything that we can do in the fields in which we may come to agreement. By cooperation in those fields in which we agree, we reduce the area of struggle, we reduce the argument which is constantly directed against us, rightly or wrongly. We remove this one angle from our field of battle.

On the other hand, it is equally important that we be not led into thinking that we are cooperating or, by pressure, into asking for cooperation when what they really seek is compromise or an acceptance of and compliance with something which is definitely objectionable to and destructive of those things which we fight for; we have a moral obligation to the public to prevent those things.

I do think it is important, however, that we be not placed in a position where we can be accused of being continuously obstructing, unwilling to participate or to cooperate in those things which might help in the improvement of conditions in general but, on the contrary, to draw the line definitely when that cooperation is made and say, "This is the line. This is why. With this other we will have nothing to do, because what you are asking is not cooperation; you are asking compliance, compromise in things which we recognize as very important."

We must insist that, after all, psychologically and spiritually and physically, it cannot be said that we are detached from any of these things on the material and physical side; we are interested in the men, the women and the children and in those things that are best for them, and, if they are to have that which is best, then it is important that we strive to continue to maintain for them that freedom which will not only make it possible to do better for them but will, from a purely national interest, prevent the deterioration of our governmental structure into something similar to the totalitarian government which we see everywhere else.

Introduction of President-Elect, Vice President and Past Officers of Association

The Speaker introduced Dr. Ernest E. Irons, President-Elect of the Association, Dr. Olin West, Retired Secretary and General Manager, Past President Nathan B. Van Etten and Vice President Roy W. Fouts, each of whom arose as his name was called.

REPORT OF THE BOARD OF TRUSTEES

Dr. E. L. Henderson, chairman, presented the following report of the Board of Trustees as printed in the Handbook, which was referred to the Reference Committee on Reports of Board of Trustees and Secretary:

To the Members of the House of Delegates of the American Medical Association:

The following report of the Board of Trustees is respectfully submitted:

The official reports of the Treasurer and the Association's Auditors are appended as a part of this report.

Financial Statement

The following sources of revenue produced a total of \$5,166,107.08 in the fiscal year ending December 31, 1948.

Fellowship dues	\$ 73,185.00	
Income from investments	138,912.11	
Miscellaneous receipts and other income	17,700.74	
		\$ 229,797.85
Periodical subscriptions	\$2,339,309.34	
Periodical advertising	2,519,306.84	
		\$4,858,616.18
Books, pamphlets and reprints sold	77,693.05	
Total revenue from all sources		<u>\$5,166,107.08</u>

Costs incident to the production of these revenues together with the expenditures of the Councils, Bureaus and Committees aggregated \$4,767,137.09. The excess of revenues over costs, which amounted to \$398,969.99, was carried to the capital account of the Association, increasing it to \$4,133,380.25 as of Dec. 31, 1948.

Advertising revenue from all periodicals in 1948 totaled \$2,519,306.84, as compared with 1947 revenue of \$2,342,605.39, or an increase of \$176,701.45.

Investment income in 1948 amounted to \$138,912.11 and in 1947 \$133,998.80, an average annual return of 2.25 per cent. The Association's investment counsel advises a conservative investment policy.

An increase of \$783,211.23 in subscription revenues, including Fellowship dues, to \$2,412,494.34 in 1948 from \$1,629,283.11 in 1947 reflects:

- The increase in annual Fellowship dues and the subscription price of THE JOURNAL effective Jan. 1, 1948.
- An increase in the subscription price of other periodicals published by the Association effective the same date.
- An increase in the circulation of Association periodicals.

Publication costs continued to rise, and in 1948 this item amounted to \$3,309,453.42 compared to \$2,840,344.46 in 1947, or an increase of 16 per cent over the previous year.

Printing of Association periodicals was interrupted early in 1948 by a work stoppage in the plant due to a wage dispute affecting certain workers in the Chicago jurisdiction, and for approximately four months the plant was not in normal production. During this period substitute processes were employed and some of the monthly periodicals were printed in other cities. This situation and the fact that expired labor contracts were renewed at advanced hourly rates contributed to higher costs.

It has been the Association's policy to supply to the medical profession books and pamphlets, as well as reprinted articles which are ordered by authors at production cost. In 1948 a loss of \$11,535.52 was sustained in this service because much of the reprinting of articles was performed outside of the plant at high costs. In 1947, when the printing was performed in the Association's plant, an income of \$6,105.06 was derived from this source.

Although the Councils, Bureaus and Committees of the Association were increasingly active in 1948, expenditures were restricted to \$1,169,165.62, which compares with \$1,128,427.65 expended in 1947. Comparison of some other major expense classifications follows:

	1948	1947	Increase
Legal and investigation	\$ 20,027.18	\$ 1,000.00	\$ 19,027.18
Employees' group annuities	146,115.02	141,159.01	4,956.01
State unemployment tax	9,461.46	6,543.37	2,918.09
Federal social security taxes	23,685.92	21,744.22	1,941.70

Wages and salaries paid in 1948 totaled \$2,405,239.15, an increase from \$2,347,671.00 in 1947. These figures are not comparable in measuring labor costs for the period because some printing was performed by outside contractors during the work stoppage.

Paper costs for periodicals increased to \$580,791.28 in 1948 from \$554,972.18 in 1947; engraving and illustrations to \$97,423.94 from \$68,554.35; first class postage to \$112,152.22 from \$94,468.72; second class postage to \$97,066.40 from \$95,315.04; building maintenance to \$89,201.00 from \$79,924.52. Practically all other expenses increased considerably over 1947.

In 1948 the Association added to its investment in printing equipment, and office and laboratory equipment to the extent of \$79,651.61 and paid \$252,663.20 on the contract for construction of a five story addition to its headquarters building which is scheduled for completion in June of 1949. The total cost of the addition will approximate \$600,000 without furnishings or expenses incident to a relocation of many departments.

The balance sheet of the Association as of Dec. 31, 1948 indicated total assets of \$8,949,504.29 and liabilities of \$1,145,561.54. The residual amount of \$7,803,942.75 consisted of the American Medical Association Research Fund Reserve of \$1,495,562.50, additional specified reserves totaling \$2,175,000 and the capital account of \$4,133,380.25.

Included in the assets of land, buildings, equipment, inventories, accounts receivable, etc., were marketable securities totaling \$6,158,587.64. Of this total, specific securities in the amount of \$1,484,637.50 were held in the American Medical Association Research Fund. Other securities represented investments of the:

General Fund	\$1,268,950.14
Depreciation Reserve Fund	1,230,000.00
Association Reserve Fund	350,000.00
Building Reserve Fund	450,000.00
Retirement Reserve Fund	675,000.00
Equipment Modernization Reserve Fund	<u>700,000.00</u>

Through these investments the various funds are assured the financial stability to accomplish the purposes for which they were created.

Aside from the specific reserves, only \$1,268,950.14 in securities was in the General Fund. This is not a relatively large amount, considering that in 1948 Association expenditures amounted to almost \$5,000,000.

Report of Bureau of Medical Economic Research

At the June 1948 meeting of the House of Delegates a resolution was introduced by Dr. William F. Costello, delegate from New Jersey, recommending that the Board of Trustees negotiate with representatives of the life insurance industry with the view of obtaining a nationwide upward adjustment in the level of fees paid by life insurance companies to physicians for medical examinations and attending physicians' statements. This resolution was referred to the Reference Committee on Legislation and Public Relations, which recommended, and the recommendation was approved by the House, that the matter be referred to the Bureau of Medical Economic Research for study. The Director of the Bureau has interpreted the resolution to mean that the Bureau was directed to study the question of life insurance examination fees rather than to make any formal recommendation for action by the House of Delegates.

A few weeks after the House of Delegates' meeting it was learned that the life insurance companies were making a survey of this question of fees. It seemed inadvisable for the Bureau to make a separate study, and most of this report is, therefore, based on the results of the four questionnaires sent out by the Committee for the Promotion of Life Insurance Medical Education of the Association of Life Insurance Medical Directors, hereinafter referred to as Doctor Frost's Committee, Dr. Harold M. Frost, Medical Director of the New England Mutual Life Insurance Company of Boston, being chairman.

The following medical societies have passed resolutions recommending some upward adjustment in life insurance fees. They are:

Rhode Island Medical Society
Tennessee State Medical Association
Oregon State Medical Society
Medical Society of New Jersey
Colorado State Medical Society
Greene County, Pa., Medical Society
Jasper County, Iowa, Medical Society
Oakland County, Mich., Medical Society
Aroostook County, Maine, Medical Society
California Society of Internal Medicine
Chicago Medical Society
Honolulu County, Hawaii, Medical Society
Sonoma County, Calif., Medical Society

Apparently action is contemplated in the near future by the state medical associations of Idaho and Utah. A table showing comparisons of these resolutions and a detailed summary of the replies to the four questionnaires have been prepared by the Bureau for possible use by the reference committee to which the present report will be referred. A number of the medical societies have requested an increase in fees from \$5 to \$10. Others have requested that the fee be raised to \$7.50. Some societies propose that the fee for attending physicians' statements be raised from \$2 to \$3, while others desire the fee to be \$5. None of these societies which have passed resolutions report any adjustment in fees as a result of the resolutions.

The four questionnaires were mailed to the 240 life insurance companies which currently have more than 95 per cent of the life insurance business in the United States. The replies to the questionnaires were recorded by four groups of companies classified according to the amount of business in force:

Group	No. of Companies	Amount (in Millions)
I	144	\$200 or less
II	39	\$201-\$500
III	29	\$501-\$1,000
IV	28	Over \$1,000

One hundred and fifty-three companies or more replied to each of the four questionnaires. These replies come from the companies doing 92 per cent or more of the life insurance business in the United States. It is felt that the failure of some companies to reply does not distort the results of the questionnaire.

An analysis of questionnaire IV, which is devoted entirely to fee schedules, reveals that 95 per cent of the replying companies in group I pay the medical examiner a fee of \$5 for the long form examination. A fee of \$5 is paid by 81 per cent of the replying companies in group II, 84 per cent in group III and 60 per cent in group IV. Eighty-five per cent of all the companies replying to questionnaire IV report that they pay a \$5 fee for the long form examination; 1 per cent pay \$4 and the remaining 14 per cent use a sliding fee schedule. Questionnaire IV clearly indicates that with few exceptions \$5 is almost a universal fee for the life insurance examination. Dr. Frost did not identify the companies which are currently paying more than \$5 under sliding fee schedules. Furthermore, this \$5 fee has been in effect for roughly three fourths of a century.

Questionnaire III furnished information regarding attending physicians' statements, and the results show that 85 per cent of the replying companies pay regular fees for such statements. A fee of \$2 is paid the attending physician by 68 per cent of the replying companies in group I, 58 per cent in group II, 88 per cent in group III, 63 per cent in group IV and 69 per cent of all companies replying to questionnaire III.

Dr. Frost estimated on the basis of limited data that more than 95 per cent of the \$13,000,000 paid by life insurance companies to all practicing physicians was for the life insurance examination fees. He stated further that company practices vary considerably in the matter of the attending physicians' statements, and that in his opinion considerable flexibility was desirable because of differences in the types of statements.

Dr. Frost summarized in a letter dated April 4, 1949, the general position of his committee as a result of the survey.

1. That the life insurance companies through their payments to policyholders and beneficiaries indirectly aid the medical profession in providing funds out of which medical care expenses can be met.
2. That more and more life insurance is being written without a medical examination and that probably this trend would be accentuated if a sharp increase in examination fees materialized.
3. That the life insurance companies as a group "would not feel free to negotiate with the Board of Trustees of the American Medical Association for a nationwide upward revision of the examination fee schedule because of the danger that such action would be construed as a violation of the Sherman Antitrust Act."
4. That individual companies will feel that they should continue to negotiate in the future as they have in the past with individual physicians regarding stipulated fees.

The Director of the Bureau considers Dr. Frost's first point to be somewhat irrelevant. His second point, so far as it refers to trends, is correct, but is probably an overstatement because it would seem very unlikely that the life insurance companies would ever write most of their business on the nonmedical basis. The Director has conferred with the Bureau of Legal Medicine and Legislation regarding the third point, and the Director of that Bureau has commented as follows:

There would be no violation of the federal law if representatives of the insurance companies confer with designated representatives of the Board of Trustees concerning the raising of examination fees, nor would there be any violation if the representative group of the companies recommended that medical examiners be paid according to the value of the services they rendered. If the representative group of the companies, on the other hand, undertook to make it mandatory or to compel individual companies to pay the suggested increase in fees, there might then possibly arise some question as to a violation of the antitrust act. It does not seem to me, however, that Dr. Frost is entirely frank in his statement about this matter and I rather doubt that his statement is based on impartial legal advice.

Dr. Frost's fourth point implies that the present \$5 fee has been developed over many years through the process of negotiation between individual companies and individual physicians. Some might question the notion about the "process of negotiation" actually being responsible for the present \$5 fee.

The laws regulating the life insurance companies in the various states do present some difficulties for the companies in providing a sharp increase in examination fees because it would increase first year expense. The problem is much less if the policy is a large policy. This has led some of the companies to experiment with the sliding fee schedule ranging from \$5 to \$10 or \$15 according to the size of the policy. It has already been noted that 40 per cent of the replying companies in group IV—the largest companies—use the sliding fee schedule; these are the companies which write the highest average policy. Although this sliding fee schedule arrangement does have merit from the standpoint of the insurance companies, it raises certain questions about the quality of the medical examination's depending on the size of the policy; these are questions on which the Director of the Bureau of Medical Economic Research does not feel competent to comment.

According to the sample studies of fee schedules of practicing physicians for patients generally the average fee in the United States was 36 per cent higher in 1947 than in the base period 1935 to 1939. The whole cost of living index had risen 71 per cent. As an economist, the Director of the Bureau would suggest that any standard fee, such as that paid by life insurance companies, should neither rise as high nor fall as low as the extremes of fluctuations in the general price level, the cost of living or the general fee schedules of physicians.

Report of Committee on Rural Health

The Committee on Rural Health at its annual meeting in February 1949 adopted an eleven point program. This program envisions coordination and utilization of successful efforts now in operation by the medical profession, lay groups, agricultural extension organizations and government to insure better rural health. All of the elements needed to bring high standards of health to rural communities are now functioning. What is

required is that these be channeled through community organizations such as health councils with medical guidance. The program outlined below provides for such channeling:

1. State and public health services for general community hygiene and communicable disease control, public health nursing, well-baby conferences and clinics.
2. The Hill-Burton Hospital Construction Act operating where the people of a community demonstrate sufficient desire for such facilities.
3. Scholarships provided by medical associations, farm organizations and through legislative appropriations to be given to deserving boys and girls, without discrimination, for medical education where the recipients agree to practice for a time in rural areas, and for nurses particularly from rural areas.
4. Agricultural school extension services where they utilize their home demonstration courses, 4-H clubs, health specialists whose special duty it is to organize health councils in the counties for the purpose of health education and where appropriate to apply for Hill-Burton facilities; the teaching of better farm methods, better soil conservation and soil building practices, better grain and productive livestock methods such as calf and pig clubs, five acre club lots, better cost accounting and business methods.
5. Parent-Teacher Associations where they encourage examination of school children for hearing, sight, heart, hernia, immunization, school hygiene, as well as physical education.
6. Voluntary health agencies such as tuberculosis, poliomyelitis, cancer, and heart, which do considerable educating within narrow limits.
7. Application of voluntary prepaid medical and hospital care plans to rural communities, taking into consideration that several of the large farm groups have their own indemnity prepaid medical and hospital plans.
8. Promotion of state and county health councils, the medical profession acting cooperatively with organized farm groups and other civic, church, and school organizations and special health groups for the purpose of health education and health activities of local character.
9. Creation of a plan to bring the medically indigent or low income farmer into voluntary prepaid medical plans.
10. Use of health education programs for rural groups.
11. Encouragement of civilian population to help itself.

Respectfully submitted,

F. S. CROCKETT, Chairman.

Report of Committee on Liaison with Red Cross Blood Bank Program

The Committee on Liaison with the American Red Cross National Blood Bank Program met jointly in Washington, D. C., on Feb. 13, 1949, with the Executive Committee and the Committee on Blood and Blood Derivatives of the Advisory Board on Health Services of the American Red Cross.

At this meeting it was disclosed that there would be thirty-four Red Cross Blood Centers in operation by July 1, 1949. Officials of the Red Cross reaffirmed their determination to abide by the policies established by the American Medical Association House of Delegates.

The committee developed a plan to survey the private blood bank situation throughout the country. Accordingly, a questionnaire has been sent to each of the 6,400 registered hospitals in the United States to learn where the blood banks are located; 5,600 replies have been received. A second questionnaire is being prepared to determine such points as the capacity, type of organization, material used and charges made.

The American Hospital Association, the American Protestant and Catholic Hospital Associations, the American College of Surgeons, the College of American Pathologists, the American Society of Clinical Pathologists, the American Association of Blood Banks, the American Red Cross and the National Research Council are cooperating with the Association's committee in this study.

Respectfully submitted,

LEONARD W. LARSON, Chairman.
HERBERT P. RAMSAY.
JOHN W. GREEN.
JAMES R. REULING.
WILLIAM D. STOVALL.
DEERING G. SMITH.
WILLIAM A. COVENTRY.
JAMES Q. GRAVES.
JAMES STEVENSON.

Report of Committee on Nursing Problems

This is the final report of the committee of the American Medical Association to study the nursing problem in the United States. At the same time it is the annual report to the Board of Trustees of the representatives of the American Medical Association on the Commission for the Improvement of the Care of the Patient.

When the Commission for the Improvement of the Care of the Patient was being formed, the Board of Trustees designated its Committee on Nursing Problems to represent the American Medical Association. At the annual session of the Association in June 1948 the House of Delegates endorsed the recommendation of a reference committee that the Committee on Nursing Problems be continued. The members of the Committee on Nursing Problems feel that this committee should now be discharged for the following reasons: (1) The major part of its work has been accomplished; (2) the "follow through" will be carried on by the Commission for the Improvement of the Care of the Patient, and (3) the confusion will be cleared up by this action.

In order that the purpose of the Commission for the Care of the Patient may be understood, a copy of its By-Laws is appended to this report.

At a meeting of the commission in March 1949 Dr. Howard K. Gray was elected chairman to take office in March 1950.

ADMINISTRATIVE REGULATIONS (BY-LAWS) OF THE JOINT COMMISSION FOR THE IMPROVEMENT OF THE CARE OF THE PATIENT

I. *Name*.—The name of this organization shall be "The Joint Commission for the Improvement of the Care of the Patient."

II. *Purposes and Objectives*.—The major purpose of this commission is to stimulate, implement, assist in and conduct activities which will contribute to the improvement of the care of the patient as may be mutually satisfactory to the appointing organizations.

To achieve this objective, the commission performs as a service agency to the parent organizations. It shall be the intention of the commission to obtain a better understanding of the problems and programs of all represented groups; to serve as a source of information on trends within the programs of the participating organizations; to facilitate the development of a more unified public relations approach by the participating organizations; to explore the needs for and stimulate studies in areas of patient care in which the organizations participate; and to perform such functions and carry on such activities contributing to the major objectives as may be mutually satisfactory to the appointing organizations and to the commission.

III. *Membership*.—A. "The Appointing Organizations shall consist of the American Medical Association, American Hospital Association, American Nurses' Association, and National League of Nursing Education."

B. The Appointed Membership shall consist of six representatives of professional nursing, six representatives of the American Medical Association, and six representatives of the American Hospital Association.

The six representatives from professional nursing are to be three from the American Nurses' Association to include representatives actively concerned with the problems of the practical nurse, and three from the National League of Nursing Education to include representatives actively concerned with the problems of public health nursing and the collegiate schools of nursing.

The six representatives of the American Medical Association are to include representatives actively concerned with the problems of the American College of Surgeons, the American College of Physicians and the American Academy of General Practice.

The six representatives of the American Hospital Association are to include representatives actively concerned with the problems of the American Protestant Hospital Association and the Catholic Hospital Association of the United States and Canada.

C. *Ex-Officio Membership* shall be:

(a) The presidents of the American Hospital Association, the American Medical Association, American Nurses' Association and National League of Nursing Education.

(b) The editors of the official journals of the American Medical Association, the American Nurses' Association and the American Hospital Association.

(c) The executive secretaries of the National League of Nursing Education, the American Nurses' Association, the American Medical Association and the American Hospital Association.

IV. *Authority for Appointment*.—Each of the parent organizations shall have authority to appoint representatives in accordance with Sections 3 and 5. The 4 organizations shall be known as the Appointing Organizations.

V. *Terms of Appointment*.—Each appointment shall be for three years so staggered that two of the American Medical Association members, two of the American Hospital Association members and one each of the National League of Nursing Education and American Nurses' Association members shall terminate their appointments each year, with two of the initial appointments from nursing, medicine, hospitals to be for one year, two for two years and two for three years.

A person having served one regular three year term shall not be eligible for immediate reappointment. Vacancies shall be filled by the respective appointing organization.

VI. Voting Privileges and Quorum.—Only appointed members present shall have a vote, except that in the absence of an appointed member a designated ex officio member of the appointing group shall have the power to vote.

A quorum shall consist of ten voting members providing all of the appointing organizations shall be represented.

VII. Officers.—There shall be a chairman, vice chairman and secretary. The first two shall not be from the same major group (nursing, medicine and hospitals). The chairman shall be elected for a one year term at the annual meeting and may be reelected for one additional term. He shall take office the following January 1.

The vice chairman shall be elected in the same manner and at the same meeting as the chairman and may be reelected for one term.

The secretary may be an employee of the commission, a member of the commission, or a member of the staff of an appointing organization. He shall be elected for a two year term.

The chairman shall preside at meetings and perform the usual functions of presidents of similar organizations. The vice chairman shall have the duties generally ascribed to vice chairmen. The secretary shall perform the functions customary for that position in similar organizations.

VIII. Meetings.—There shall be two regular meetings annually. The first regular meeting of the calendar year will be the annual meeting. Special meetings may be called by the chairman.

Attendance at meetings shall be limited to appointed members, ex officio members and other individuals who may be invited by the chairman to participate in the program, or whose presence may be requested by one of the appointing organizations.

IX. Committees.—There shall be an Executive Committee of four members consisting of the chairman, vice chairman, and one other elected annually at the annual meeting to represent the third group, and the secretary ex officio. Vacancies may be filled by the chairman.

The Executive Committee shall carry on the activities of the commission between commission meetings. Other committees may be appointed by the chairman.

X. Financing.—The expenses of representatives shall be a responsibility of the respective appointing organization.

Other organizational expenses such as those for clerical service, meeting space, and office work shall be divided equally between the three major groups (medicine, hospitals and nursing).

XI. Relationship of the Commission to Appointing Organizations.—The commission shall be a service group to the organizations represented. It shall be a sounding board for a constructive exchange of opinions. Actions of the commission are advisory to and not mandatory on the appointing organizations. The commission may originate actions for consideration by, or may receive actions for consideration from the appointing organizations.

The work and conclusions of the commission when approved in principle by all appointing organizations may be transmitted by the commission to state commissions for the improvement of the care of patients where they exist, and otherwise to state constituent organizations of the appointing organizations. The failure of an appointing organization to approve or disapprove a commission conclusion within a period of three months shall be accepted as approval in principle.

Such items as are unanimously approved by the commission and deemed suitable for publication by all four executive directors of the appointing organizations may be released by the commission to the public through professional and other media.

XII. Amendments.—These rules may be amended without previous notice by unanimous vote, or by a two thirds' vote if the amendment has been presented to the membership of the commission at least two weeks in advance of the meeting at which the vote is taken.

XIII. These rules and/or amendments shall become effective when approved by the commission and appointing organizations.

XIV. Deliberations of all meetings of the commission shall be governed by Robert's Rules of Order, Revised.

The by-laws of the commission provide that six representatives be appointed from each of the parent organizations (the American Medical Association, the American Hospital Association, the American Nurses' Association and the National League of Nursing Education). These appointments are to be staggered and are to include men from the special societies, who are, of course, members of the American Medical Association. For the representatives of the American Medical Association, the Committee on Nursing Problems recommends the following appointments: For one year, beginning in January 1950, Drs. Leland S. McKittrick and Thomas P. Murdock; for two years, beginning in January 1950, Drs. Howard K. Gray and Donald Smelzer; for three years, beginning in January 1950, Dr. Howard C. Naffziger and a general practitioner.

The by-laws further provide that the presidents, editors and executive secretaries of the parent organizations are ex officio members of the commission. This is important, as will be seen from certain sections of the by-laws. It is felt that the ex officio members should attend the meetings if possible.

The present representatives of the American Medical Association feel that this commission has potentialities for great good. It is the first time that these large groups representing the healing arts have had a forum to discuss and attempt to solve problems common to all.

Respectfully submitted,

THOMAS P. MURDOCK, Chairman.
HOWARD K. GRAY.
EDGAR P. MCNAMEE.
LELAND S. MCKITTRICK.
DONALD SMELZER.

Recommendation Regarding Advisory Board for Medical Specialties

At the St. Louis Interim Session the House of Delegates adopted a recommendation of the Reference Committee on Medical Education which provided that two members of the Council on Medical Education and Hospitals should be appointed to membership on the Advisory Board for Medical Specialties. This recommendation was brought to the attention of the Council, which has reported to the Board of Trustees as follows:

The action of the House of Delegates was reviewed at length by the Council on Medical Education and Hospitals at its meeting on February 8 and 9. The Council concluded that it would be preferable to maintain the present relationship of the Council to the Advisory Board. During the past two years the Council has developed an increasingly close liaison with the Advisory Board to the point where members of the Council are now invited to sit with the Board at its business meetings and to participate freely in the discussion of all matters which are of interest to the Council. It is the Council's feeling that through this liaison it can accomplish even more than it could through membership on the Advisory Board. The Council would appreciate knowing whether the Board of Trustees approves the Council's desire to maintain the present relationship with the Advisory Board.

The Executive Committee of the Board of Trustees, after consideration of the Council's statement, voted to refer the matter back to the House of Delegates for decision.

Respectfully submitted,

ELMER L. HENDERSON, Chairman.
EDWIN S. HAMILTON, Secretary.
LOUIS H. BAUER.
JOHN H. FITZGIBBON.
JAMES R. MILLER.
WALTER B. MARTIN.
DWIGHT H. MURRAY.
EDWARD J. MCCORMICK.
GUNNAR GUNDERSEN.

ADDENDA TO REPORT OF BOARD OF TRUSTEES

TREASURER'S REPORT

Report of the Treasurer of the American Medical Association
for the Year Ended December 31, 1948

Investments (at cost) as at January 1, 1948.....	\$4,402,833.70	
Bonds purchased (at cost).....	1,227,091.85	
	\$5,629,925.55	
Less:		
Bonds called, matured or sold.....	955,975.41	
Investments as at December 31, 1948.....		\$4,673,950.14
Balance held for Investment January 1, 1948..\$	34,098.57	
Interest received on Investments in 1948.....	104,283.19	
	\$ 138,381.76	
Transferred to General Fund.....	75,000.00	
Uninvested Funds at December 31, 1948.....		63,381.76
Invested and Uninvested Funds as at December 31, 1948...		\$4,737,331.90

DAVIS MEMORIAL FUND

Balance in fund January 1, 1948.....\$	8,103.45
Interest earned on bank balance in 1948.....	101.60
Funds on deposit at December 31, 1948.....	\$ 8,205.05

AMERICAN MEDICAL ASSOCIATION RESEARCH FUND

Investments (at cost) as at January 1, 1948..	\$1,488,012.50	
Bonds purchased (at cost).....	100,000.00	
	<u>\$1,588,012.50</u>	
Deduct:		
Bonds Sold (at cost) (loss \$2,000.00).....	103,375.00	
	<u>\$1,484,637.50</u>	
Investments as at December 31, 1948.....		\$1,484,637.50
Uninvested funds as at January 1, 1948.....	\$ 9,550.00	
Increase in uninvested funds.....	1,375.00	
	<u>\$ 10,925.00</u>	
Uninvested funds at December 31, 1948.....		\$ 10,925.00
Invested and Uninvested Funds as at December 31, 1948..		<u>\$1,495,562.50</u>
Interest earned on investments and transferred to General Fund to apply on Research ex- penditures	\$ 35,850.00	

JOSIAH J. MOORE, Treasurer.

AUDITOR'S REPORT

To the Board of Trustees,

American Medical Association,
Chicago, Illinois.

Dear Sirs:

We have examined the balance sheet of the American Medical Association, as of December 31, 1948, and the related statement of income for the year then ended. Our examination was made in accordance with generally accepted auditing standards and included such tests of the accounting records and such other auditing procedures as we considered necessary in the circumstances, except as hereinafter stated regarding confirmation of receivables.

The cash and bank balances have been confirmed by count or by certificates from the depositories. The United States Government and other marketable securities were confirmed by an acknowledgment from the Continental Illinois National Bank and Trust Company of Chicago where the securities are held for safekeeping.

We did not independently confirm the accounts receivable by communication with debtors. The accounts receivable were reviewed as to age and collectibility and, in our opinion, the balances are fully realizable.

Materials, supplies, work in progress, and publications on hand are stated in accordance with physical inventories taken and valued by employees under the direction of the management, and certified by officials of the Association as to description, quantities, condition and valuation. We made tests of the physical existence of the quantities of certain items selected by us, thereby satisfying ourselves that the recording of the quantities was carried out effectively. We tested the prices and computations and satisfied ourselves as to the general basis of valuation.

Expenditures charged to property and equipment accounts during the year, in our opinion, were properly capitalized as representing additions or improvements. The provision for depreciation for the year appears to be reasonable.

All liabilities of which we obtained knowledge in the course of our examination have received appropriate recognition. Attorneys for the Association state that the only litigation pending against the Association is a libel suit, which names the Association among others, and which in the opinion of the attorneys will be defeated.

In our opinion, subject to the exception indicated in paragraph three, the accompanying balance sheet and statement of income present fairly the position of American Medical Association on December 31, 1948, and the results of its operations for the year then ended, in conformity with generally accepted accounting principles applied on a basis consistent with that of the preceding year.

Fidelity insurance is carried on all officers and employees under a comprehensive form policy covering loss through dishonesty, forgery, etc., in amounts ranging from \$2,500.00 to \$50,000.00 (depending upon nature of loss) for each individual.

We have pleasure in reporting that the books are well maintained and that every facility was afforded us for proper conduct of the examination.

Yours truly,

PEAT, MARWICK, MITCHELL & Co.

INDEX TO STATEMENTS

	Exhibit
Balance Sheet as of December 31, 1948.....	"A"
Statement of Income for the year ended December 31, 1948.....	"B"
	Schedule
Publications (Periodicals) Costs and Expenses for the year ended December 31, 1948.....	"1"
Expenses of Councils, Bureaus and Committees for the year ended December 31, 1948.....	"2"

BALANCE SHEET

AS OF DECEMBER 31, 1948

ASSETS	Exhibit "A"
Property and Equipment—At Cost:	
Land	\$ 328,773.98
Buildings	\$1,387,615.15
Machinery and printing equipment.....	583,851.27
Office and laboratory equipment.....	298,942.49
	<u>2,270,408.91</u>
Less—Reserve for depreciation.....	<u>1,227,431.22</u>
	1,042,977.69
Building addition under construction.....	252,663.20
Type metal (book inventory)—At average cost	<u>38,932.76</u>
	1,663,347.63
Total Property and Equipment.....	
American Medical Association Research Fund:	
United States Government securities—At cost (valuation based on market quotations, \$1,456,518.75)	1,484,637.50
Cash in bank.....	<u>10,925.00</u>
	1,495,562.50
Marketable Securities—At cost (valuation based on market quotations, \$4,608,178.50):	
United States Government securities.....	2,997,543.75
Railroad, municipal, public utility and indus- trial bonds.....	<u>1,676,406.39</u>
	4,673,950.14
Representing investments of:	
General Fund.....	1,268,950.14
Depreciation Reserve Fund.....	1,230,000.00
Association Reserve Fund.....	350,000.00
Building Reserve Fund.....	450,000.00
Retirement Reserve Fund.....	675,000.00
Equipment Modernization Reserve Fund..	<u>700,000.00</u>
Cash Held by Treasurer for Investment.....	63,381.76
Cash in Banks and on Hand.....	<u>206,327.88</u>
Accounts Receivable:	
Advertising	267,686.82
Reprints	15,942.62
Directory Report Service, 18th Edition.....	7,651.65
Miscellaneous accounts receivable.....	<u>34,356.85</u>
	325,637.94
Interest Accrued on Investments.....	28,863.05
Inventories of Materials, Supplies, Work in Progress and Publications—At cost.....	273,698.52
Expenditures on Publications in Progress....	<u>191,280.31</u>
Prepaid Expenses, Deposits and Advances:	
Insurance, etc.....	12,487.15
Deposits and advances.....	<u>14,967.41</u>
	27,454.56
Total	<u>\$8,949,504.29</u>
LIABILITIES	
Accounts Payable and Accrued Expenses:	
Cooperative Medical Association Bureau....	\$ 42,714.02
Miscellaneous accounts payable.....	105,976.39
Salaries and wages.....	<u>19,255.47</u>
Taxes:	
Social security.....	\$ 14,825.51
Real estate and personal property.....	<u>43,940.00</u>
	58,765.51
Provision for completion costs of current year's publications not yet issued.....	<u>276,120.52</u>
	502,831.91
Total Accounts Payable and Accrued Expenses.....	593,243.90
Unexpired Subscriptions	
Deferred Credits—Directory sales and report service, and other credits applicable to subse- quent period.....	49,485.73
American Medical Association Research Fund Reserve	<u>1,495,562.50</u>

Net Worth:

Association Reserve.....	350,000.00
Building Reserve.....	450,000.00
Retirement Reserve.....	675,000.00
Equipment Modernization Reserve.....	700,000.00
Capital account:	
Balance at December 31, 1947.....	\$3,734,410.26
Excess of income over expenses for year ended December 31, 1948.....	398,969.99
	4,133,380.25
	6,308,380.25
Total.....	\$8,949,504.29

STATEMENT OF INCOME

FOR THE YEAR ENDED DECEMBER 31, 1948

Exhibit "B"

Income:

Fellowship dues.....	\$ 73,185.00
Income from investments.....	138,912.11
Miscellaneous receipts and other income....	17,700.74
	229,797.85

Publications—Periodicals:

Subscriptions.....	\$2,339,309.34
Advertising.....	2,519,306.84
	4,858,616.18
Cost and expenses—Schedule "I".....	3,309,453.42
	1,549,162.76
Books, pamphlets and reprints sold.....	77,693.05
Less—Printing and other costs.....	89,228.57
	(11,535.52)
Total Income.....	1,767,425.09

Expenses:

Conducting councils, bureaus and committees —Schedule "2".....	1,169,165.52
Legal and investigating.....	20,027.18
Employees' group annuities.....	146,115.02
State unemployment tax.....	9,461.46
Federal social security taxes.....	23,685.92
	1,368,455.10
Income in Excess of Expenses.....	\$ 398,969.99

Parentheses enclose red figures.

PUBLICATIONS (PERIODICALS) COSTS AND EXPENSES

Schedule "I"

FOR THE YEAR ENDED DECEMBER 31, 1948

Wages and salaries.....	\$1,322,204.82
Paper stock.....	580,791.28
Contract printing—Labor and supplies.....	194,428.40
Engravings and illustrations.....	97,423.94
Ink.....	29,631.62
Magazine mailing supplies.....	1,272.82
Factory supplies.....	29,453.40
Repairs and renewals.....	11,770.84
Express and cartage.....	16,027.74
Power and light.....	16,134.87
Building maintenance expense.....	89,201.00
Fuel.....	10,794.60
Insurance and taxes.....	41,213.53
Editorial news and reporting.....	33,216.92
Postage—first class.....	112,152.22
Postage—second class.....	166,332.26
Subscription and advertising commissions.....	66,391.98
Discounts.....	2,311.61
Exchange.....	68,743.29
Subscription promotion expense.....	37,525.62
Office supplies.....	10,041.41
Telephone and telegrams.....	65,729.22
Binding.....	3,490.52
Miscellaneous operating expense.....	34,804.70
Employees' group hospital and life insurance.....	21,376.00
Estimated cost to complete issues of special journal publications.....	214,086.58
Bad debts and tax recoveries (net).....	110.68
Loss on sale of equipment.....	126.34
Loss on metal dress sales.....	234.75

3,344,089.36

Depreciation (based on estimated remaining life):

Buildings.....	\$ 23,521.81
Machinery.....	23,085.00
Type and factory equipment.....	2,367.77
Furniture and equipment.....	11,913.36
	60,887.94

3,404,977.30

Deduct—Proportion of overhead expenses charged to other publications and departments.....

95,523.88

\$3,309,453.42

NOTE.—Total wages and salaries for the year 1948 amounted to \$2,405,239.15. Of this amount, \$1,322,204.82 is included above, \$746,411.03 is shown in Schedule "2" (expense of Councils, Bureaus, Associations and Special Committees), and the remainder, \$336,623.30, was disbursed in connection with the 18th Edition of the American Medical Directory, now in preparation, and with the printing of books, reprints, pamphlets and printing in process at the close of the year.

EXPENSES OF COUNCILS, BUREAUS AND COMMITTEES

Schedule "2"

FOR THE YEAR ENDED DECEMBER 31, 1948

Salaries and wages.....	\$ 746,411.03
Office printing and binding.....	39,001.83
Office supplies and repairs.....	26,040.51
Express, telephone and telegraph.....	15,289.24
Postage.....	12,317.49
Books and periodical subscriptions.....	3,028.53
Legislative services.....	5,837.26
Statistical data.....	14,419.66
Miscellaneous expense.....	10,510.94
Educational material distributed.....	3,704.29
Staff, officers and special travel.....	83,736.82
Radio broadcasting and electrical transcriptions.....	35,934.23
Inspection of hospitals and medical schools.....	8,914.52
Educational exhibits.....	9,286.96
Trustees' meeting expense.....	16,674.84
Grants, tests and investigations.....	27,222.52
Section secretaries' conference and honorariums.....	3,681.77
State secretaries' conference.....	10,169.77
Council and bureau conferences.....	56,555.76
Sundry committee expenses.....	40,427.55
Total.....	\$1,169,165.52

NOTE.—The above expenses are spread over the following Councils, Bureaus, and Committees as indicated: Association, \$229,273.61; Bureau of Health Education, \$119,153.31; Council on Pharmacy and Chemistry, \$114,012.24; American Medical Association Laboratory, \$42,576.69; Council on Physical Medicine, \$41,831.48; Council on Foods and Nutrition, \$26,214.77; Committee on Therapeutic Research, \$6,416.20; Council on Medical Education and Hospitals, \$136,807.19; Bureau of Legal Medicine and Legislation, \$41,501.47; Bureau of Investigation, \$13,761.18; Bureau of Medical Economic Research, \$97,573.76; Council on Industrial Health, \$49,990.20; Association and Bureau of Exhibits, \$34,973.67; Council on Medical Service, \$129,082.06; Council on National Emergency Medical Services, \$19,616.70; Department of Press and Public Relations, \$66,380.99.

SUPPLEMENTARY REPORT OF
BOARD OF TRUSTEESReport of Committee on Hospitals and the
Practice of Medicine

Dr. Henderson also presented the following report which was referred to the Reference Committee on Legislation and Public Relations but was later taken from that committee and referred to the Reference Committee on Reports of Board of Trustees and Secretary:

Appended as a part of this Report of the Committee on Hospitals and the Practice of Medicine is a Summary of a Study Relating to the Corporate Practice of Medicine in the United States. This study was made and the summary prepared by Mr. E. J. Holman of the Bureau of Legal Medicine and Legislation.

The corporate practice of medicine is distinctly illegal in all of the states in the Union with some minor exceptions. There has been statutory legislation in several states permitting certain modifications of these general laws. These differences are noted in the appended summary.

It is stated in the Principles of Medical Ethics of the American Medical Association, Chapter I, Section 2:

The ethical principles actuating and governing a group or clinic are exactly the same as those applicable to the individual. As a group or clinic is composed of individual doctors, each of whom, whether employer, employee or partner, is subject to the principles of ethics herein elaborated, the uniting into a business or professional organization does not relieve them either individually or as a group from the obligation they assume when entering the profession.

Other sections of the Principles which have distinct bearing on the matters considered by this Committee are as follows:

CHAPTER III, ARTICLE V, SECTION 1.—Whenever there arises between physicians a grave difference of opinion which can not be promptly adjusted, the dispute should be referred for arbitration to a committee of impartial physicians, preferably the Board of Censors of a component county society of the American Medical Association.

CHAPTER III, ARTICLE VI, SECTION 2.—It is unprofessional for a physician to dispose of his services under conditions that make it impossible to render adequate services to his patient or which interfere with reasonable competition among the physicians of a community. To do this is detrimental to the public and to the individual physician, and lowers the dignity of the profession.

CHAPTER III, ARTICLE VI, SECTION 3.—By the term "contract practice" as applied to medicine is meant the carrying out of an agreement between a physician or a group of physicians, as principals or agents, and a corporation, organization, political subdivision or individual, to furnish partial or full medical services to a group or class of individuals on the basis of a fee schedule, or for a salary or a fixed rate per capita.

Contract practice per se is not unethical. However, certain features or conditions if present make a contract unethical, among which are: 1. When there is solicitation of patients, directly or indirectly. 2. When there is underbidding to secure the contract. 3. When the compensation is inadequate to assure good medical service. 4. When there is interference with reasonable competition in a community. 5. When free choice of a physician is prevented. 6. When the conditions of employment make it impossible to render adequate service to the patients. 7. When the contract because of any of its provisions or practical results is contrary to sound public policy. The phrase "free choice of physician," as applied to contract practice, is defined to mean that degree of freedom in choosing a physician which can be exercised under usual conditions of employment between patient and physician when no third party has a valid interest or intervenes. The interjection of a third party who has a valid interest or who intervenes does not per se cause a contract to be unethical. A "valid interest" is one where, by law or necessity, a third party is legally responsible either for cost of care or for indemnity. "Intervention" is the voluntary assumption of partial or full financial responsibility for medical care. Intervention shall not prescribe endeavor by component or constituent medical societies to maintain high quality of service rendered by members serving under approved sickness service agreements between such societies and governmental boards or bureaus and approved by the respective societies.

Each contract should be considered on its own merits and in the light of surrounding conditions. Judgment should not be obscured by immediate, temporary, or local results. The decision as to its ethical or unethical nature must be based on the ultimate effect for good or ill on the people as a whole.

CHAPTER III, ARTICLE VI, SECTION 5.—It is unprofessional for a physician to dispose of his professional attainments or services to any lay body, organization, group or individual, by whatever name called, or however organized, under terms or conditions which permit a direct profit from the fees, salary, or compensation received to accrue to the lay body or individual employing him. Such a procedure is beneath the dignity of professional practice, is unfair competition with the profession at large, is harmful alike to the profession of medicine and the welfare of the people, and is against sound public policy.

CONCLUSION.—While the foregoing statements express in a general way the duty of the physician to his patients, to other members of the profession and to the profession at large, as well as of the profession to the public, it is not to be supposed that they cover the whole field of medical ethics, or that the physician is not under many duties and obligations besides these herein set forth. In a word, it is incumbent on the physician that under all conditions, his bearing toward patients, the public and fellow practitioners should be characterized by a gentlemanly deportment and that he constantly should behave toward others as he desires them to deal with him. Finally, these principles are primarily for the good of the public, and their enforcement should be conducted in such a manner as shall deserve and receive the endorsement of the community.

After consideration of these principles and of the summary, it must be concluded that the over-all policy of the American Medical Association shall be that it is illegal, with the exceptions noted, and unethical for any lay corporation to practice medicine and to furnish medical services for a professional fee which shall be so divided as to produce profit for a lay employer, either individual or institutional (hospitals and medical schools).

Explanation: Therefore, hospitals and medical schools cannot charge patients fees for medical services rendered by physicians even though the physicians are full time employees of an individual or of an institution. However, there can be no objection to the physicians so employed setting the fees for their individual services. These fees may be collected by any agency, the expenses incident to management and development of any physicians' department or of any other departments in the institution may be deducted, but the balance must be paid to the physician. If the physician for any reason wishes to refund to the individual employer, the hospital or the medical school all excess professional fees over and above his salary and the expenses of his department, or any part thereof for the improvement of the facilities for the public benefit of the institution employing him, that is his privilege and no one can object.

Clinics connected with hospitals or medical schools should have identical rights and privileges.

In insurance programs the hospitals that furnish medical services by full time professional employees must work under the identical ethical standards as do independent practitioners working under the fee system in voluntary institutions; namely, Blue Cross should provide only hospital services; Blue Shield should supply all the medical services including pathologic, roentgenologic, anesthesiologic and physiotherapeutic services as well as all other medical services rendered in the hospital or by those hospitals controlled by medical schools. The licensed physician is the only person legally qualified at present to render medical services to any individual.

If this be so, then the medical profession should be dominant in the physician-hospital relationship in all circumstances, but

since the physician and the hospital are completely dependent on each other, it is incumbent on both to be completely interested in all phases of their scientific and financial relationships. This means that the professional staff of the hospital has definite responsibilities not only toward other members of the professional staff, whether active or courtesy, but also toward hospital management. The finances of the institution in which a physician does his professional work are definitely of importance to him and to the professional staff, and the proper consideration must be given to these finances if the hospital is to work efficiently and remain the work shop of the physicians. We must recognize in a general way the two types of hospitals (not government controlled), the so-called closed and the open staff institutions. The situation in the "closed staff" hospital is slightly different from the situation in hospitals with the so-called open staff. However, in practice the results are about the same except that in the open hospital the appointed staff is usually given a preferential rating for private beds. Physicians appointed to active staff duty and given courtesy staff privileges are usually selected by the staff of the institution from legally eligible physicians who have been more or less carefully selected for their ability and ethical conduct. The recommendations of the staff are usually accepted by the management of the hospital through its boards of managers or trustees. It must also be remembered that to be approved by the boards of medical licensure, the American Medical Association and the American College of Surgeons, certain requirements are mandatory to the institution; namely, that it have a full time pathologist and a full time roentgenologist. As a rule, the staff of a hospital elects an executive committee, or works under an appointed executive committee, to advise the lay officers of the institution on purely professional matters and recommends who may or who may not use the institution for their professional work. Unfortunately, in many instances, the financial matters of the lay hospital management have been no affair of the staff or of its professional executive committees. This is wrong and probably the cause of most of the differences of opinion.

Every professional man on the appointed staff should have a voice in the professional management of the institution. The pathologist, roentgenologist, anesthesiologist and the physical therapist, if physicians, as well as the other professional staff members, should have equal standing as active members of the staff, and the executive committee of the general staff should have some say as to who should head any department in the hospital where they work, even if some are salaried employees of the organization in charge of departments. The finances of the hospital are of grave importance to the staff. Without proper facilities the services rendered to the public are in jeopardy and these public services are the all important function of both hospital and staff.

It is therefore the opinion of the committee that most controversies between management and the professional staff, either individually or collectively, should be settled at the local level and the professional opinion should be the deciding factor. If management and staff cannot honestly settle their differences satisfactorily at the institutional level, machinery should be set up by the county medical society to study the problem and an attempt made to settle the dispute. If no results are possible then the matter should be referred and all parties heard by a committee at the state medical association level, and if agreement cannot then be reached between the disputing parties, the matter should be relayed to the Judicial Council of the American Medical Association either as charges by a staff member against the staff or the staff against the hospital or the hospital against the staff, and a decision rendered. This might call for some cooperation between the Judicial Council of the American Medical Association and the American Hospital Association.

Every constituent state and territorial medical association has agreed to help in all of these matters in the foregoing outline of action.

There can be no exploitation of the doctor or of the hospital if all persons concerned in management and on the professional staff will work together to supply the greatest possible good quality medical and hospital service to the public.

Most of these matters can be settled at the hospital or county level. Therefore it is suggested that when resolutions concerning these matters come before the House of Delegates of the

American Medical Association they should be ruled out of order as they consume the valuable time of the House and because the machinery already exists in the Association whereby charges of unethical conduct may be directly referred to the Judicial Council for direct action. It is therefore recommended that after all efforts at the local and state levels have been exhausted, the charges of unethical conduct by either members of the profession or by hospital management should be brought to the Judicial Council for examination. If the Judicial Council, working with a similar committee of the American Hospital Association, cannot adjudicate the specific matter and finds ethical and legal compromise impossible, then suitable action should be taken against the professional men found guilty. The authority for this is found in the Constitution and By-Laws of the American Medical Association as follows:

CHAPTER III—DISCIPLINARY ACTION.—In all controversies between a member and his component society or constituent association, an appeal may be made to the Judicial Council on questions of law and procedure only, but not of fact. The appeal shall be perfected within six months following the date of decision by the constituted authority of the constituent association in question. In addition to such disciplinary action as may be taken under the constitution and by-laws of the component society and constituent association to which the member belongs, the House of Delegates on the recommendation of the Judicial Council and after due notice and hearing may censure, suspend or expel any member for an infraction of the Constitution or these By-Laws or for a violation of the Principles of Medical Ethics. The hearing may be held by the House or by a committee appointed by it for that purpose.

CHAPTER X, SECTION 4—STANDING COMMITTEES.—1. Duties. 2. The Judicial Council.—The judicial power of the Association shall be vested in the Judicial Council, whose decision shall be final.

The Council shall have original jurisdiction in (a) all questions involving Fellowship in the Scientific Assembly or the obligations, rights and privileges of Fellowship; (b) all controversies arising under this Constitution and By-Laws and under the Principles of Medical Ethics to which the American Medical Association is a party, and (c) controversies between two or more constituent associations or their members; between a constituent association and a component society or societies of another constituent association or associations or their members.

The Council shall have appellate jurisdiction in questions of law and procedure but not of fact in all cases which arise between a constituent association and one or more of its component societies, between component societies of the same constituent association, between a member or members and the component society to which said member or members belong or between members of different component societies of the same constituent association. The period of time within which appeal to the Council may be taken shall be limited to the six months immediately following the date of decision by the constituted authority of a constituent association.

The Council shall have jurisdiction on all questions of medical ethics and the interpretation of the laws of the Association.

The Council at its discretion may investigate general professional conditions and all matters pertaining to the relations of physicians to one another and to the public, and may make such recommendations to the House of Delegates or the constituent associations as it deems necessary.

The Council shall have authority to request the President to appoint investigating juries to which it may refer complaints or evidence of unethical conduct which in its judgment are of greater than local concern. Such investigating juries, if probable cause for action be shown, shall submit formal charges to the President, who shall appoint a prosecutor to prosecute such charges against the accused before the Judicial Council in the name and on behalf of the American Medical Association. The Council may acquit, admonish, suspend or expel the accused.

If a hospital or other lay group is found guilty and will not cooperate within ethical and legal limits, it is recommended that the Judicial Council shall order the withdrawal of the Association's approval of that institution. This authority has been given by the By-Laws to the Judicial Council.

This Committee can find no better recommendations to establish principles governing the proper relations between physicians and hospitals than those adopted by the Massachusetts Medical Society, normally called "The McKittrick Report":

1. That the medical costs of hospital care be separated from the non-medical costs, as can be done by existing and accepted methods of cost accounting, and that they appear thus separated on the statement submitted to the patient.

2. That a basic principle in the establishment of charges should be that each department be self supporting. This principle should be so applied that neither the hospital nor the physician rendering the service shall exploit the patient or each other.

3. That fees for medical services which are collected by the hospital be established by joint action of a representative committee of the staff, to include the head of the department, and the administrator and the governing body of the hospital.

4. That the basis of financial arrangement between hospital and physician may be salary, commission, fees, or such other method as will best meet the local situation, with due regard to the needs of the patient, the community, the hospital and the physician.

5. That bills for all medical services be rendered in the name of the physician or physicians performing the services.

It is the opinion of the Committee that acceptance and practice of these principles will clarify the confusion which now exists regarding responsibility for the payment of medical hospital services and non-medical hospital services as defined above, by prepayment and other insurance plans and should be adopted.

Respectfully submitted,

ELMER HESS, Chairman.
WALTER G. PHIPPEN.
JOHN CLINE.
EDWIN S. HAMILTON.
WALTER E. VEST.

SUMMARY OF A STUDY RELATING TO THE CORPORATE PRACTICE OF MEDICINE IN THE UNITED STATES

The House of Delegates of the American Medical Association at its annual session held in Chicago, on June 24, 1948, adopted a Report of the Committee on Hospitals and the Practice of Medicine which contained the following section:

Because of the difference in the laws of the various states, your Committee recommends that the Bureau of Legal Medicine and Legislation of the American Medical Association be instructed immediately to make a study of the various state laws defining the legal status of corporations attempting to practice medicine in the various states, defining in each instance the differences in the various state laws concerned with this problem, and that, if necessary, legislation be prepared by the Bureau of Legal Medicine and Legislation which will define all of these matters so that uniform legislation to simplify legal interpretations may be prepared and supported by the American Medical Association to insure the legality of the action taken.

Pursuant to this request, the Bureau of Legal Medicine and Legislation has made a survey which has included a study of (1) the provisions contained in state medical practice acts and in the state laws under which incorporation can be effected, (2) pertinent court decisions and (3) opinions rendered by state attorneys general.

While consideration has been given to enabling acts under which medical and hospital prepayment plans may be inaugurated, it has been concluded that the inclusion in this study of anything approximating an analysis of such provisions of these acts as may relate, directly or indirectly, to the corporate practice of medicine would unduly extend the report of the survey without supplying any essential data requested in the action taken by the House of Delegates as indicated.

Furthermore, a determination of whether a particular medical or hospital plan does or does not contemplate the corporate practice of medicine or whether particular acts committed by corporations constitute the practice of medicine are questions possibly related to the subject of the study, but answers to which are not essential to the objective of the study as described in the Report of the Committee on Hospitals and the Practice of Medicine; namely, a determination of "the legal status of corporations attempting to practice medicine in the various states."

GENERAL RULE

The general rule with respect to the legality of the corporate practice of medicine is succinctly stated in 13 American Jurisprudence, under the section relating to Corporations, as follows:

Section 837. While a corporation is in some sense a person and for many purposes is so considered, yet, as regards the learned professions which can only be practiced by persons who have received a license to do so after an examination as to their knowledge of the subject, it is recognized that a corporation cannot be licensed to practice such a profession.

A corporation cannot be licensed to carry on the practice of medicine. Nor, as a general rule, can it engage in the practice of medicine, surgery, or dentistry through licensed employees.

Section 739. It is well settled that a corporation has only such powers as are expressly granted in its charter or in the statute under which it is created or such powers as are necessary for the purpose of carrying out its expressed powers and the object of its incorporation.

And again, in 41 American Jurisprudence, under the section dealing with Physicians and Surgeons, the general rule is stated as follows:

Section 20. It is the majority rule that a corporation cannot engage in the practice of medicine, and that neither a corporation nor any other unlicensed person or entity may engage, through licensed employees, in the practice of medicine or surgery, dentistry, or any of the limited healing arts, although, as appears later, some of the courts qualify or disregard the rule in favor of the practice of optometry. A statute permitting corporations for profit to be organized for any lawful purpose does not authorize the organization of corporations to engage in the

practice of medicine where a statute regulating such practice contemplates only the licensing of individuals.

A medical practice act, in so far as it precludes a corporation from practicing medicine through its licensed employees, is not an unreasonable exercise of the police power violative of the constitutional guaranty of due process.

In Volume 1, Fletcher's *Cyclopedia on Corporations*, a recognized authority on corporation law, it is said, on page 339:

A statute authorizing the formation of corporations to carry on any lawful business does not include the work of the learned professions. Such an innovation with the evil results that might follow would require the use of specific language clearly indicating that intention. The reasons lie deeper than lack of statutory sanction for it. Human personal qualifications for such professions cannot be possessed by a corporation. They would inhere in the members as distinct from the corporation, and it could not have the power to do illegally an act requiring a license which only they could obtain. Neither the practice of law nor the practice of medicine or dentistry is a permissible corporate object. This has also been extended to other professions of the healing art which have been given a legal recognition and license.

MEDICAL PRACTICE ACTS GENERALLY

As a general rule, the medical practice acts of the several states contain no provision expressly prescribing the corporate practice of medicine. All of such acts, however, do set up requirements for licensure, such as a preprofessional requirement, a citizenship and a basic science requirement in some states, an age requirement, a requirement of good character, graduation from an accredited medical school, an internship in most states, and the passing of an examination. None of these requirements can be met by a corporation, which is a legal entity, except possibly the age requirement. These medical practice acts, then, by indirection prohibit the corporate practice of medicine in the absence of exceptions that may be contained in them or possibly in the absence of statutory authorization contained in other enactments.

COURT DECISIONS IN GENERAL

In five states (California, Colorado, Illinois, Indiana and South Dakota) and in the District of Columbia, the courts have said that the corporate practice of medicine is illegal, under the facts involved in the particular cases. In Minnesota and Washington the courts have held that the operation of clinics by laymen through the agency of duly licensed doctors of medicine is unlawful and in the Minnesota case the court said that "neither a corporation or lay person can practice medicine by employing a licensed physician."

Additionally, in sixteen states, court decisions have been rendered declaring illegal the corporate practice of allied groups in the field of the healing art (Arizona, Arkansas, Connecticut, Florida, Iowa, Kansas, Kentucky, Massachusetts, Michigan, New Jersey, New York, Ohio, Pennsylvania, South Carolina, Washington and West Virginia). The reasoning pursued by the courts in reaching these decisions may be applied with equal force to the corporate practice of medicine.

In seventeen states, no court decisions have been rendered applicable either specifically to the corporate practice of medicine or to the corporate practice of allied groups of professions (Alabama, Delaware, Idaho, Louisiana, Maine, Mississippi, Montana, North Carolina, Nevada, New Hampshire, New Mexico, North Dakota, Oklahoma, Rhode Island, Tennessee, Vermont and Wyoming). In some of these states, however, as indicated hereinafter, either formal or informal opinions have been rendered by state attorneys general relative to the corporate practice of medicine, including the following states: Louisiana, Oklahoma and Tennessee.

In four states (Missouri, Nebraska, Oregon and Texas) court decisions have been rendered which apparently are in conflict with the general rule, holding either that the corporate practice of medicine generally is lawful or that the particular acts involved in the case, although constituting the practice of medicine as that term is generally understood, do not involve the corporation in the illegal practice of medicine.

A Virginia court decision construing an exemption pertaining to hospitals in the state medical practice act holds that the exemption does not permit a hospital to engage in the practice of medicine within the intent of the broad statutory meaning of that term but only authorizes it to render to its patients such medical care and attention as is customarily engaged in by hospitals in the proper conduct of their businesses.

OPINIONS OF STATE ATTORNEYS GENERAL

Formal opinions of state attorneys general have been rendered in ten states. Eight of these opinions declare the corporate practice of medicine or of allied groups in the field of the healing arts to be contrary to law (California, New York, Ohio, Oklahoma, Pennsylvania, Tennessee, Utah and Washington). Opinions in Nebraska and Texas are to the contrary. A recent New York ruling holds that certain specialties, though the practice of medicine, may be furnished by a hospital service corporation.

In three other states (Florida, Louisiana and Washington), the offices of the attorneys general have declared informally the corporate practice of medicine to be illegal.

A RÉSUMÉ STATE BY STATE

Alabama.—There have been neither court decisions nor opinions from the office of the attorney general bearing directly or indirectly on the legality of the corporate practice of medicine. The medical practice act of the state sets up the customary qualifications to be possessed by those engaging in the practice of medicine, and these requirements cannot be possessed by a corporate entity.

Arizona.—While there is no court decision or opinion from the office of the attorney general dealing specifically with the right of a corporation to practice medicine, there is a court decision declaring illegal the corporate practice of optometry and the reasons advanced by the court in that case are equally applicable to a question involving the corporate practice of medicine.

Arkansas.—There have been no court decisions in Arkansas nor any opinions rendered by the office of the attorney general dealing specifically with the legality of the corporate practice of medicine. A decision of the supreme court of the state, however, has held that under the provisions of the state optometry act, a corporation may not engage in the practice of optometry by hiring optometrists lawfully authorized in their own right to practice.

California.—There is a provision in the medical practice act of California which in effect provides that corporations and other legal entities have no professional rights, privileges or powers under the act.

There have been a number of decisions by the Supreme Court of California involving either directly or indirectly the legality of the corporate practice of medicine. In two cases, the court held specifically that the corporate practice of medicine was illegal. In a third, it was held that the corporate practice of dentistry was illegal and in a fourth, that the corporate practice of chiropractic was illegal.

In a fifth, the court had under consideration the prepayment medical care plan sponsored by the California Medical Association and operated under specific legislative authority. The court in that case, while not referring definitely to the legality of the corporate aspect of the plan, upheld the plan.

An opinion rendered by the office of attorney general of California holds (1) that a hospital organized not for profit may not lawfully engage in the practice of medicine, and (2) that such a hospital that hires physicians on a salary basis and bills the patients for the services of such physicians, the fees being unrelated to the compensation paid to the physician by the hospital, is unlawfully engaged in the practice of medicine.

Colorado.—The medical practice act of this state contains a provision specifically prohibiting the practice of medicine by any person as an employee or agent of a corporation except where such physician renders medical care to employees of that corporation.

There have been seven decisions by the Supreme Court of Colorado holding that the corporate practice of dentistry is illegal. The reasoning, in general, used by the court in reaching its decision in these cases would seem to be applicable to the corporate practice of medicine.

Another decision of the supreme court held that a physician licensed to practice medicine could associate himself with a layman but only to the extent that his activities were covered by the laws regulating the practice of optometry.

Another decision by the supreme court, involving a suit for damages against a hospital and a surgeon who was employed by the hospital, held that the suit against the hospital should be dismissed on the ground that "a hospital, a corporation as here, cannot be licensed to and cannot practice medicine."

A request for information concerning any opinions rendered by the office of the attorney general brought no response.

Connecticut.—This state has a law which proscribes the practice of radiology by any person other than a person holding a license to practice medicine, osteopathy or dentistry or unless such practice is carried on under the prescription, direction or supervision of such practitioners. This law, however, provides that its provisions shall not apply to the use of x-rays for diagnostic purposes. The office of attorney general has rendered no opinion concerning the corporate practice of medicine.

A decision by the Supreme Court of Errors holds that an optometrist may not lawfully engage in the practice as an employee of a corporation which bills the patient for services rendered by the optometrist and where the optometrist is paid a regular salary plus commission by the corporation.

Delaware.—There have been neither court decisions nor opinions from the office of the attorney general bearing directly or indirectly on the legality of the corporate practice of medicine. The medical practice act of the state sets up the customary qualifications to be possessed by those engaging in the practice of medicine, and these requirements cannot be possessed by a corporate entity.

District of Columbia.—The healing arts practice act exempts from its provisions certain clinical and radiographical laboratories in operation at the time of its effective date, Jan. 1, 1928.

A decision by the District Court of the United States for the District of Columbia held that the operation of a prepayment medical care program by a corporation did not constitute the corporate practice of medicine. In the opinion of the court a group of individuals may incorporate themselves for their own mutual benefit and contract with a physician or a group of physicians for a stipulated period at a fixed compensation without violating the healing arts practice act.

Another court decision in the District of Columbia held that the corporate practice of optometry is not illegal for the reason that optometry is not a learned profession as are law and medicine.

Florida.—There are no decisions in this state relating specifically to the corporate practice of medicine. There is a court decision holding that the corporate practice of optometry is illegal.

The office of the attorney general has rendered an informal opinion to the effect that the corporate practice of medicine is not lawful under the laws of the state, that the privilege of practicing medicine is confined to individuals.

Georgia.—A decision of the supreme court holds that the corporate practice of optometry is lawful because such practice is not prohibited by the optometry practice act. Another decision declares unlawful the practice of law by corporations for the reason that such a legal entity as a corporation may not comply with the requirements imposed on applicants for licenses to practice law. The office of attorney general has rendered no opinion bearing on the question of the corporate practice of medicine.

Idaho.—The corporation code specifically provides that no corporation shall be organized to practice any profession with the exception that corporations may be created to erect, own and conduct hospitals and sanatoriums for receiving and caring for patients, their medical, surgical and hygienic treatment.

There are no court decisions or opinions of the office of attorney general bearing directly or indirectly on the legality of the corporate practice of medicine.

Illinois.—The state supreme court has held that a corporation may not be organized to engage in the practice of medicine.

In three other cases, the courts have held that the corporate practice of dentistry constitutes a violation of the dental practice act.

A request for information concerning any opinions rendered by the office of attorney general brought no response.

Indiana.—The supreme court has held that a hospital may not lawfully engage in the practice of medicine nor can physicians practice as agents of such institutions. The office of attorney general has rendered no opinion concerning the legality of the corporate practice of medicine.

In another case, the supreme court held that a corporation all of whose directors were licensed to practice medicine could not lawfully make a contract in its own name purporting to bind it to treat disease because such a contract would be ultra vires unlawful and contrary to public policy.

Iowa.—There are no court decisions relating specifically to the corporate practice of medicine.

One decision by the supreme court holds that the corporate practice of dentistry is illegal for reasons that are equally applicable to the corporate practice of medicine. In two other cases, the corporate practice of optometry was declared to be unlawful.

A request for information concerning any opinions rendered by the office of attorney general brought no response.

Kansas.—The state corporation code provides that corporations may not be formed for purposes of engaging in a learned profession.

The corporate practice of optometry has been declared unlawful by the supreme court for reasons that are equally applicable to the corporate practice of medicine.

No court decisions have been rendered involving specifically the corporate practice of medicine, and a request for information concerning any opinions rendered by the office of attorney general brought no response.

Kentucky.—The medical practice act of Kentucky specifically includes the practice of anesthesiology as including the practice of medicine.

There have been no court decisions concerning the legality of the corporate practice of medicine. Neither has there been any formal opinion from the office of the attorney general.

In a case involving the corporate practice of optometry, the court held that while the word "person" may include a corporation, the latter cannot be licensed to practice a learned profession, which can only be done by an individual who has received a license to do so after proving his qualifications and knowledge of the subject.

Louisiana.—The medical practice act specifically includes, as the practice of medicine, the examination of any material from a person for the purpose of diagnosing, treating or curing disease.

There have been no court decisions or any opinions from the office of the attorney general relating to the corporate practice of medicine either directly or indirectly. It has been reported, however, that the office of the attorney general believes that when the question is presented either to him or to the courts the general rule will be followed.

Maine.—There have been no court decisions bearing directly or indirectly on the legality of the corporate practice of medicine. The medical practice act of the state sets up the customary qualifications to be possessed by those engaging in the practice of medicine and these requirements cannot be possessed by a corporate entity.

A request for information concerning any opinions rendered by the office of attorney general brought no response.

Maryland.—There have been no decisions of the courts or opinions rendered by the office of the attorney general relating definitely to the practice of medicine by corporations.

A court decision does hold that the corporate practice of optometry is not unlawful because of the fact that optometry is not a learned profession.

Massachusetts.—There are no court decisions or opinions rendered by the office of the attorney general relating specifically to the legality of the corporate practice of medicine.

A decision of the Supreme Judicial Court holds that the corporate practice of optometry is unlawful for reasons that are equally applicable to the corporate practice of medicine. Another court decision declares unlawful the corporate practice of law for reasons similar to those advanced in the optometry case.

Michigan.—There are no court decisions or opinions of the office of the attorney general relating to the legality of the corporate practice of medicine.

A decision holds that the optometry practice act does not preclude the operation of an optometric department by a corporation. Another decision holds that one not licensed to practice dentistry cannot operate a dental parlor through the agency of a licensed employee.

Minnesota.—A court decision holds that the science of diagnosing human disease is the practice of medicine and that it is improper and contrary to statute and public policy for a corporation or lay person to practice medicine by employing a licensed physician.

A request for information as to any opinion rendered by the office of the attorney general has brought no response.

Mississippi.—There have been neither court decisions nor opinions from the office of the attorney general bearing directly or indirectly on the legality of the corporate practice of medicine. The medical practice act of the state sets up the customary qualifications to be possessed by those engaging in the practice of medicine and these requirements cannot be possessed by a corporate entity.

Missouri.—A court decision holds that a corporation whose purpose was described as "furnishing treatment for hernia and medical and surgical treatment for all other diseases" may not be restrained from entering into contracts with persons to supply medical treatment or from entering into contracts with physicians to render that medical treatment.

In a more recent decision concerning optometry the aforementioned case was cited with approval by the supreme court when it held in the latter case that a corporation advertising the availability of optical services in its department store and receiving the receipts from the optical department was not unlawfully practicing optometry within the meaning of the optometry practice act.

A request for information as to whether or not any opinion has been rendered by the office of the attorney general brought no response.

Montana.—There have been no court decisions bearing directly or indirectly on the legality of the corporate practice of medicine. The medical practice act of the state sets up the customary qualifications to be possessed by those engaging in the practice of medicine, and these requirements cannot be possessed by a corporate entity.

A request for information concerning any opinions rendered by the office of attorney general brought no response.

Nebraska.—Court decisions have held that while individuals who actually practice medicine must be licensed, nothing in the state medical practice act can be held to prevent licensed practitioners or others from forming a corporation and from contracting with patients in the corporation's name to furnish them medical attention.

A formal opinion of the attorney general follows the ruling of the cases referred to and held that a corporation may lawfully engage in the practice of dentistry.

Nevada.—There have been neither court decisions nor opinions from the office of the attorney general bearing directly or indirectly on the legality of the corporate practice of medicine. The medical practice act of the state sets up the customary qualifications to be possessed by those engaging in the practice of medicine, and these requirements cannot be possessed by a corporate entity.

New Hampshire.—There have been neither court decisions nor opinions from the office of the attorney general bearing directly or indirectly on the legality of the corporate practice of medicine. The medical practice act of the state sets up the customary qualifications to be possessed by those engaging in the practice of medicine, and these requirements cannot be possessed by a corporate entity.

New Jersey.—There are no decisions in this state relating specifically to the corporate practice of medicine. There is a court decision holding that the corporate practice of optometry is illegal because statutory provisions in this state provide for

the issuance of a license to practice optometry only to those who have met certain qualifications and corporations cannot possess those qualifications.

A request for information concerning any opinions rendered by the office of the attorney general brought no response.

New Mexico.—There have been neither court decisions nor opinions from the office of the attorney general bearing directly or indirectly on the legality of the corporate practice of medicine. The medical practice act of the state sets up the customary qualifications to be possessed by those engaging in the practice of medicine and these requirements cannot be possessed by a corporate entity.

New York.—The medical practice act contains a section which provides that the act shall not be construed to prevent a corporation organized under section 9c of the insurance law (authorizing medical service plans) from employing duly licensed physicians or from entering into contracts with duly licensed physicians or with groups or partnerships of duly licensed physicians to practice medicine on its behalf for persons insured under its contracts.

Three court decisions have said respectively (1) that under a section of the state membership corporation law enacted in 1895 (subsequently modified) hospitals may lawfully practice medicine through a staff of licensed physicians; (2) that a tax supported, municipally operated public hospital by virtue of the city code of ordinances may include in its bill for hospital services charges for medical services performed by members of its staff and, by virtue of the city code, does not violate the law by practicing medicine through the agency of natural persons who are licensed, and (3) that a proprietary hospital is a place where the sick or infirm may be treated by physicians expressly or impliedly employed by them and that such a hospital, on the contrary, not having the benefit of legislative exemption, may not collect from patients for medical or surgical services performed therein.

In other court decisions relating to the corporate practice of allied groups in the field of the healing art it has been held respectively (1) that a corporation cannot lawfully practice dentistry in the state by employing a licensed dentist to do the work; (2) that the Secretary of State correctly refused to issue a certificate of incorporation to a group whose proposed purpose among others was to "transact and carry on the optical business . . . provided it employed only licensed optometrists to do the work," and (3) that a corporation may lawfully employ a licensed chiropodist because between him and those whom he treats there is no confidential and trust relationship such as exists between physician and patient.

There are three opinions that have been rendered by the office of the attorney general relating to the corporate practice of medicine. One, rendered in 1929, held that a corporation may not be permitted under the provisions of the medical practice act to employ specialists to make physical examinations of persons as such acts would amount to the practice of medicine. The second, rendered in 1935, holds that a business corporation may not be organized to contract with individuals to obtain medical service for them and to contract with physicians to treat and care for such individuals. An opinion of the attorney general dated Sept. 14, 1948, holds that a hospital service corporation organized and operating under Article 9c of the insurance law may furnish to subscribers radiology, pathology, anesthesiology and physical therapy as a part of hospital service and for the purpose of the opinion it is accepted that radiology, pathology, anesthesiology and physical therapy are medical services and the practice of medicine.

North Carolina.—The medical practice act provides specifically that the practice of radiology constitutes the practice of medicine. There are no court decisions relating to the corporate practice of medicine.

The medical practice act sets up the customary qualifications to be possessed by those engaging in the practice of medicine, and these requirements cannot be possessed by a corporate entity.

A request for information concerning any opinions rendered by the office of the attorney general brought no response.

North Dakota.—There have been no court decisions bearing directly or indirectly on the legality of the corporate practice of

medicine. The medical practice act of the state sets up the customary qualifications to be possessed by those engaging in the practice of medicine, and these requirements cannot be possessed by a corporate entity.

A request for information concerning any opinions rendered by the office of the attorney general brought no response.

Ohio.—The supreme court has held in one case that the Secretary of State rightly refused to accept the application for a charter of a group desiring to incorporate to practice optometry, and in another case that a corporation may not directly or indirectly engage in the practice of optometry.

The attorney general has ruled that the corporate practice of dentistry is unlawful.

Oklahoma.—There are no court decisions relating specifically to the corporate practice of medicine. The medical practice act contains a section which sets out certain duties of "all firms, associations or corporations engaged in the practice of medicine" with the clause that "nothing in this section shall operate or be construed to waive the requirements that each and every member of such firm, association or corporation so practicing medicine or surgery thereunder shall be duly licensed to practice medicine and surgery in this state."

An opinion of the attorney general holds that a doctor of medicine employed to have charge of and to perform optometric services in the optometric department of a corporation is guilty of a misdemeanor and the optical company is unlawfully engaged in the practice of optometry "and probably constitutes the unlawful practice thereby of a branch or phase of medicine."

Oregon.—The medical practice act exempts from its provisions the practice of electrotherapy carried on by or under the direction of duly licensed practitioners of medicine.

The Supreme Court of Oregon has held that in view of the exception of the practice of electrotherapy from the state medical practice act it is competent for parties (duly licensed doctors of medicine in this case) to incorporate and for the corporation to carry on the business of using x-ray or electrotherapy or roentgenology. In another case the supreme court held that a corporation, furnishing medical service under a provision of the insurance code, through the agency of licensed physicians employed by it on a salary basis was liable for the negligence of the employed physicians under the doctrine of respondeat superior.

In a case holding the corporate practice of optometry unlawful, decided in 1947, the supreme court said that the optometry practice act, which imposes on optometrists standards of qualifications similar to those required of physicians, would be rendered ineffective if corporations were permitted to furnish optometric services through salaried employees who are licensed optometrists. The reasoning advanced by the court in this case seems equally applicable to a question involving the corporate practice of medicine not specifically permitted by statute.

A request for information concerning any opinions rendered by the office of the attorney general brought no response.

Pennsylvania.—There are no decisions in this state relating specifically to the corporate practice of medicine. There is a court decision holding that the corporate practice of optometry is illegal because a corporation cannot obtain a license to practice optometry and may not engage in such practice through licensed agents.

The office of the attorney general has rendered formal opinions holding respectively (1) that there is no statutory authority for granting a charter to a corporation for the practice of medicine; (2) that no one whether acting for himself or under employment by a corporation can practice medicine without full compliance with the medical practice act, and (3) that an application for a certificate of incorporation for the purpose of establishing and maintaining a clinic for the diagnosis and treatment of disease where medical and surgical treatment would be provided would include the practice of medicine by the corporation and the application should be disapproved.

Rhode Island.—There have neither been court decisions nor opinions from the office of the attorney general bearing directly

or indirectly on the legality of the corporate practice of medicine. The medical practice act of the state sets up the customary qualifications to be possessed by those engaging in the practice of medicine, and these requirements cannot be possessed by a corporate entity.

South Carolina.—There are no court decisions dealing specifically with the legality of the corporate practice of medicine. A decision of the supreme court of the state, however, has held that a corporation may not engage in the practice of optometry by hiring optometrists lawfully authorized in their own right to practice.

A request for information concerning any opinions rendered by the office of the attorney general brought no response.

South Dakota.—The supreme court has stated that it is convinced that the practice of learned professions by a profit corporation tends to the commercialization and debasement of those professions and held that such a mode of conducting the practice of medicine is in contravention of the public interest, is against public policy and is unlawful. There have been no opinions rendered by the office of attorney general concerning this question.

Tennessee.—There are no decisions in this state relating specifically to the corporate practice of medicine.

The office of the attorney general rendered an opinion, in 1931, to the effect that the Secretary of State should not issue articles of incorporation to a group whose proposed purpose was "to conduct, carry on and manage the business of procuring for and rendering to natural persons, with whom the corporation may enter into contract for that purpose, certain limited professional medical benefits, attention and service to be administered by a licensed doctor or doctors."

The attorney for the regulatory boards of the state advised the executive office of the licensing board for the healing arts, in 1948, that "private laboratories operating under the direction of lay individuals, who hold themselves out as pathologists and who make diagnoses of cancer" do so in violation of the law.

Texas.—The corporation code of the state authorizes the formation of corporations for the "erection and maintenance of sanatoria."

The supreme court of the state has held that the aforementioned statute reasonably implies authority in such a corporation to provide medical treatment for its patients and to employ for that purpose persons duly licensed to practice medicine.

In a more recent case the supreme court said: "It may be said that the general rule is that a corporation organized for profit cannot practice medicine. Obviously under the medical practice act . . . a license to practice medicine can be issued only to a natural person. . . ." The court continued, citing with approval the above decision, to the effect that the corporation law had implied authorization, as part of a corporate function, on the part of a corporation organized under that law to furnish medical treatment.

The attorney general has advised the secretary of the state board of medical examiners that a corporation operating a private or nonprofit hospital does not violate the medical practice act of the state by entering into a contract with a physician under which the physician will perform professional services in the hospital on a percentage basis for the hospital corporation and the corporation in turn billing the patient for the professional services rendered by the physician. In a formal opinion previously rendered the attorney general said, "We find nothing in the medical practice act which prevents a hospital from hiring one or more physicians to perform professional services for its patients."

Utah.—There are no court decisions in this state relating specifically to the corporate practice of medicine. A decision of the supreme court held that the corporate practice of optometry is lawful because such practice is not prohibited by the optometry practice act.

An opinion rendered by the office of attorney general subsequent to the aforementioned case holds that the word "person" as used in the dental practice act does not include "corporation"

and that a licensed dentist may not be employed by and practice dentistry for a corporation which may not be licensed. The attorney general in his opinion stated that he believed that the court decision referred to is limited to an interpretation of the statute defining the practice of optometry.

Vermont.—There have been no court decisions bearing directly or indirectly on the legality of the corporate practice of medicine. The medical practice act of the state sets up the customary qualifications to be possessed by those engaging in the practice of medicine, and these requirements cannot be possessed by a corporate entity.

A request for information concerning any opinions rendered by the office of the attorney general brought no response.

Virginia.—The medical practice act defines practice of medicine and concludes its definition with the statement: "This section shall also apply to corporations." Another section of the medical practice act states, "This chapter shall not affect any person while engaged in conducting a hospital now established, if there be a licensed practitioner resident or practicing therein." The office of attorney general has rendered no opinion bearing on the corporate practice of medicine.

The Supreme Court of Appeals in construing the exemption referred to held that such exemption does not permit a hospital to engage in the practice of medicine within the intent of the broad statutory meaning of that term but only authorizes it to render to its patients such medical care and attention as is customarily engaged in by hospitals in the proper conduct of their businesses.

Washington.—A decision of the supreme court holds that a contract between a medical institute, owned, operated and managed by an unlicensed individual, and a person desiring medical treatment was void as against public policy. In a case involving the corporate practice of optometry the supreme court stated that the case mentioned follows the rule that an unlicensed person may not engage in the practice of medicine by employing a licensed agent and held that the practice of optometry by a corporation employing registered optometrists is unlawful as being against public policy.

A formal opinion of the attorney general holds that a corporation cannot practice optometry through the agency of licensed employees. An informal opinion of the attorney general holds that the corporate practice of medicine would be unlawful.

West Virginia.—There are no decisions in this state relating specifically to the corporate practice of medicine. There is a court decision holding that the corporate practice of optometry through licensed optometrists is unlawful. The reasons advanced by the court in reaching its decision seems applicable to a question pertaining to the legality of the corporate practice of medicine.

There have been on opinions rendered by the office of the attorney general concerning the corporate practice of medicine.

Wisconsin.—The supreme court has held that optometry is a skilled calling, not a profession, and may lawfully be practiced by a corporation employing licensed optometrists. In another case, the supreme court has held that the method of operating a dental corporation is a proper subject of regulation by the state, but did not decide whether or not a corporation could practice dentistry, that question not being at issue.

A request for information concerning any opinions rendered by the office of the attorney general brought no direct response.

Wyoming.—There have been no court decisions bearing directly or indirectly on the legality of the corporate practice of medicine. The medical practice act of the state sets up the customary qualifications to be possessed by those engaging in the practice of medicine, and these requirements cannot be possessed by a corporate entity.

A request for information concerning any opinions rendered by the office of the attorney general brought no direct response.

CONCLUSION

Because the majority of court decisions concerning the corporate practice of medicine, dentistry, optometry and law support the general rule that a corporation may not practice such profession directly, or indirectly through the employment

of licensed personnel; because medical practice acts seem definitely to preclude the licensing of any other than a natural person to practice medicine, and because court decisions seemingly opposed to the general rule actually find real or fancied exceptions to the general rule rather than deny it, it is not believed that legislation to simplify legal interpretations is necessary at the present time.

Proposed Code of Ethics of World Medical Association

There was presented to the House by Dr. Henderson the following proposed Code of Ethics of the World Medical Association, which was referred to the Reference Committee on Legislation and Public Relations:

In every country of the civilized world doctors constitute, not a class, still less a caste, but rather a social body distinct from the other professions. There is in this statement, no idea of precedence, hierarchy or aristocracy. It is a simple observation, explained naturally by the very special nature of the profession.

The doctor is called on to enter intimately into various situations of which he scrutinizes the physical, transient or chronic defects. The confidence which is necessarily placed in him in the ordinary course of his professional life makes him, often—very often—a moral confidant, and many opinions and counsels are daily demanded of him which have only distant bearing or no bearing at all on disease and its treatment.

A true physician, whatever may be his particular field in medicine, must have a refined sense of psychology, exceptional tact, indispensable moral qualities and, in practice, some general directing rules, the most necessary of which are recognized in all countries.

So, there are several national professional associations which have recognized the necessity of codifying these general rules, and the national codes of ethics are numerous. Some include developments of a secondary nature connected with certain special customs of the specific country.

Just as a number of national associations have done, our World Association ought to attempt to condense in a brief and concise text the general rules, the observation of which are desirable or necessary in every country, deliberately omitting the question of, on the one hand, secondary matters, and, on the other hand, discipline for infractions which can be carried out only by a national organization on a national basis.

The idea of drafting in a code, rules for medical ethics on a world scale is not new. The A. P. I. M. developed an International Code in November 1935. (*Rev. internat. de méd. profess. et sociale* 8:32-47 [Nov.] 1935). The work of the A. P. I. M. ought to represent for us who are studying the question, a rough draft from which we can embroider clearly the principles on which agreement should be obtained for a world plan.

Already our World Medical Association has accomplished one single and important thing. This is the Declaration of Geneva, on which discussions in the Council and in the General Assembly at Geneva permitted all ideas to be expressed, discussed and understood.

In an international association, the difficulty is in understanding one another, because words do not always have the same emphasis or the same meaning when they are literally translated into another language.

At Geneva we have, with general good will and an acute sense of our responsibilities, conquered all obstacles, and our theme, which has already gone around the world, includes the most incontestable principles, which ought to record the conscience of the doctor in all areas of the world.

We hope that in a very short time this text will become the solemn promise given by all doctors of the world at the start of their careers.

This declaration has already been adopted by Le Conseil National de l'Ordre des Médecins Français, the Alpha Omega Alpha Fraternity of the United States and the Canadian Medical Association.

No preface to a study on medical ethics would be as pertinent as the text of the Declaration of Geneva, which is given here:

DECLARATION OF GENEVA

Adopted by the General Assembly of The World Medical Association at Geneva, Switzerland, September 1948.

At the time of being admitted as Member of the Medical Profession I solemnly pledge myself to consecrate my life to the service of humanity.

I will give to my teachers the respect and gratitude which is their due;
I will practice my profession with conscience and dignity;
The health of my patient will be my first consideration;
I will respect the secrets which are confided in me;
I will maintain by all the means in my power, the honor and the noble traditions of the medical profession;
My colleagues will be my brothers;
I will not permit considerations of religion, nationality, race, party politics or social standing to intervene between my duty and my patient;
I will maintain the utmost respect for human life, from the time of conception; even under threat, I will not use my medical knowledge contrary to the laws of humanity.
I make these promises solemnly, freely and upon my honor.

In this very concise résumé and of which the Medical Code will be for the most part only an amplification, a development or explanation, we wish to add the short introduction of the Code of Ethics of the Canadian Medical Association.

Our Canadian confreres have, in a few very high sounding and dignified phrases, defined what a code of ethics should contain and what it should only contain.

INTRODUCTORY

"As ye would that men should do to you, do ye even so to them" is a Golden Rule for all men. A code of ethics for physicians can only amplify or focus this and other golden rules and precepts to the special relations of practice. As a stream cannot rise above its source, so a code cannot change a low grade man into a high grade doctor, but it can help a good man to be a better man and a more enlightened doctor. It can quicken and inform a conscience, but not create one. Only in a few things can it decree "thou shalt" or "thou shalt not," but in many things it can urge "thou shouldst" or "thou shouldst not." While the highest service they can give to humanity is the only worth while aim for those of any profession, it is so in a special sense for physicians, since their services concern immediately and directly the health of the bodies and minds of men.

Here is the text proposed for your study, subject to such changes and additions as may be made by the committee, and which will be studied by the Council at Madrid. The text decided at Madrid will be that submitted to the General Assembly at London in October.

The General Assembly at Geneva in September 1948 adopted a general classification of the work which should be presented to you: (a) duties of doctors in general; (b) duties of doctors to the sick, and (c) duties of doctors to one another.

DUTIES OF DOCTORS IN GENERAL

A doctor must always maintain the highest standards of professional conduct.

A doctor must not allow himself to be influenced merely by motives of profit.

The following practices are deemed unethical: (a) any self advertisement except such as is expressly authorized by the national code of medical ethics; (b) taking part in any plan of medical care in which the doctor does not have complete professional independence; (c) to receive any money in connection with services rendered to a patient other than the acceptance of a proper professional fee, or to pay any money in the same circumstances without the knowledge of the patient.

Under no circumstances is a doctor permitted to do anything that would weaken the physical or mental resistance of a human being except from strictly professional reasons in the interest of his patient.

A doctor is advised to use great caution in publishing discoveries. The same applies to methods of treatment whose value is not recognized by the profession.

When a doctor is called on to give evidence or a certificate he should only state that which he can verify.

DUTIES OF DOCTORS TO THE SICK

A doctor must always bear in mind the importance of preserving human life from conception. Therapeutic abortion may

be performed only if the conscience of the doctor and the national laws permit.

A doctor owes to his patient complete loyalty and all the resources of his science. Whenever an examination or treatment is beyond his capacity he should summon another doctor who has the necessary ability.

A doctor owes to his patient absolute secrecy on all which has been confided to him or which he knows because of the confidence entrusted to him.

A doctor must give the necessary treatment in emergency, unless he is assured that it can and will be given by others.

DUTIES OF DOCTORS TO ONE ANOTHER

A doctor ought to behave to his colleagues as he would have them behave to him.

A doctor must not entice patients from his colleagues.

A doctor must observe the principles of "The Declaration of Geneva" approved by The World Medical Association.

Report of Council on Industrial Health

Dr. Henderson also presented the following report, which was referred to the Reference Committee on Industrial Health, after a motion had been made by Dr. Mather Pfeifferberger, Illinois, seconded by Dr. Charles H. Phifer, Illinois, and carried, to have it mimeographed:

The eleventh plank in the American Medical Association's platform for the advancement of medicine and public health calls for greater emphasis on the program of industrial medicine with increased safeguards against industrial hazards and prevention of accidents occurring on the highway, in the home and on the farm. The Council on Industrial Health has long felt that a constructive program, placing primary emphasis on preventive medicine and positive health promotion, would represent a greater contribution to the health of working people than a sickness insurance program alone. The Ninth Annual Congress on Industrial Health, held in January 1949, was designed to discover additional acceptable ways of extending the usefulness and influence of industrial physicians and hygienists as important factors in the developing patterns of community health and medical service. This supplementary report summarizes briefly the major recommendations arising out of that Congress in a form that may serve as a practical implementation of the industrial medical segment of the American Medical Association's broad program.

Public Relations.—Progress in industrial medicine and hygiene depends fundamentally on good understanding of objectives by all concerned. The Council on Industrial Health, after consultation with other affected departments in the American Medical Association, has taken steps to set up a permanent conference group with labor and management. This is intended to replace previous informal and irregular contacts with periodic meetings (1) to discuss ways and means for the extension of industrial medicine, industrial hygiene, accident prevention and health education of workers, (2) to clarify the status of physicians and medical organizations in relation to the entire range of industrial health activity and (3) to provide a method for the consideration of other aspects of medical service having industrial application. Recommendations of the conference will be subject to ratification by the participating organizations. It is anticipated that similar conference arrangements can be set up in the major industrial states and communities.

Professional Relations.—Progress also depends on effective professional teamwork expressed in several major directions:

1. Between private physicians, industrial physicians and public health agencies, based on a broadening concept of function, tempered by ethical considerations and local needs. This desirable relationship can best be stimulated by a revitalization of the committees on industrial health in the principal industrial state and local medical societies and in the organizations of specialists.

2. Between medicine and the other professional groups involved—nurses, engineers, hygienists, dentists, specialists in accident prevention and others, through a formalized liaison committee intended to promote integration and cooperation.

Professional Education.—As industrial medicine expands, so must facilities for professional training keep pace in the form of introductory or refresher postgraduate courses, as residencies and fellowships, and as a certifying program or appropriate modification thereof. Industrial medicine, to compete on reasonably equal terms for medical talent, must become attractive as a rewarding career, professionally and financially.

Scientific Development.—Panels of experts set up during the last Congress on Industrial Health, dealing with atmospheric pollution, toxic chemicals, hazardous physical agents, harmful biologic exposures and the medical aspects of human relations in business and industry, have requested some official status and an opportunity for continued growth and development. If agreeable to the Board of Trustees and the House of Delegates, and as rapidly as time, personnel and the budget permit, these groups will be invited to act as regularly appointed consulting committees to the Council on Industrial Health, capable of organized programs of professional education, research and administration.

Workmen's Compensation, Unemployment Compensation and Rehabilitation.—These closely related social developments have extraordinary significance in the relations of medicine to management and to working people. The Council on Medical Service has paid particular attention to compensation for unemployment due to sickness of nonindustrial origin. Since medicine is of basic importance in the administration of workmen's compensation and the employment phases of rehabilitation, the Council on Industrial Health has appointed advisers representing legal, administrative and technical points of view to assist it in the consideration of pertinent aspects of these related activities.

All constituent medical societies and industrial commissions have been notified of these expanded services and have been invited to use them. As policies are formulated they will be submitted as special reports through regular channels for consideration and adoption.

Industrial Medicine and Medical Care Plans.—Many existing medical care plans are industrial in origin. Physicians in industry are frequently in excellent position to evaluate the health needs of employed groups and to determine ways of meeting them. Conferences with the Council on Medical Service have confirmed this view to mutual advantage. Industrial medicine, with its primary interest in the promotion of individual effectiveness through preventive medicine and health conservation and with its roots deep in clinical medicine, performs its best function by narrowing the gap between the two. Certainly as good medical standards and resources in industry improve they can be of great service in maintaining independence and self determination and in counteracting tendencies toward centralization and control.

The American Medical Association Program

Dr. Henderson submitted the following program of the American Medical Association, which was referred to the Reference Committee on Reports of Board of Trustees and Secretary:

The American Medical Association in February, 1949, issued a revised 12 Point Program for the Advancement of Medicine and Public Health. This program was a statement of principles only. Considerable study has been given to this program. The Board of Trustees feels that these 12 points cover all the essential principles necessary for a satisfactory program. It believes, however, that these 12 points need further elaboration as to detail so that the implementation of them may be more clearly understood. Hence, the Board submits to the House of Delegates, for its consideration, the following statement consisting of an elaboration of the 12 points, together with a brief statement of the Board's stand on certain legislative proposals:

1. A FEDERAL DEPARTMENT OF HEALTH: Creation of a Federal Department of Health of Cabinet Status with a Secretary Who Is a Doctor of Medicine, and the Coordination and Integration of All Federal Health Activities Under This Department, Except for the Military Activities of the Medical Services of the Armed Forces.

Since 1884, the American Medical Association has demanded a Federal Department of Health with a Secretary who is a physician in charge.

At present the various agencies concerned with health are distributed in various government departments. It would be in the interest of efficiency and economy to have them under one head to avoid duplication of effort and diversion of activity.

Various suggestions have been made to establish a Department of Welfare, a Department of Education, Health and Welfare and an Independent Health Agency. The health of the people is certainly important enough to warrant an independent agency, in accordance with the recommendations of the Hoover Commission. The argument has been made that it is not the policy of our government to have an expert in charge of a department, but that the experts should be subservient to the chief of the department. In answer to this, the American Medical Association feels that no other government department is so closely concerned with the individual as would be a Department of Health. Other departments deal as a rule with the population as a group. Matters of health are often individual and no one could be better qualified to superintend matters of individual health than a physician. At this time we urge support of the report of the Hoover Commission on this subject, which recommends an Independent Health Agency under which will be assembled all activities concerned with health except those of the armed forces and Veterans Administration.

2. MEDICAL RESEARCH: Promotion of Medical Research Through a National Science Foundation with Grants to Private Institutions Which Have Facilities and Personnel Sufficient to Carry on Qualified Research.

The Steelman Report states that \$110,000,000 is now spent for medical research; \$55,000,000 of this comes from industry and the balance from the government and from private foundations. These funds are not adequate and further funds for research are difficult to obtain. Bills are now in Congress to establish a National Science Foundation, to facilitate coordination of research and make available funds for research in medical and other sciences. The American Medical Association recognizes that research is the basis of medical progress. We urge the establishment of a National Science Foundation with appropriate federal support.

3. VOLUNTARY INSURANCE: Further Development and Wider Coverage by Voluntary Hospital and Medical Care Plans to Meet the Costs of Illness, with Extension as Rapidly as Possible into Rural Areas. Aid Through the States to the Indigent and Medically Indigent by the Utilization of Voluntary Hospital and Medical Care Plans with Local Administration and Local Determination of Needs.

The voluntary hospital and medical care insurance development in the United States has been the most rapidly growing insurance project in the history of the country. The movement started slowly. At the end of the first seven years of voluntary hospital insurance under the Blue Cross, only 2,870,000 subscribers were enrolled. Now after about sixteen years there are 32,500,000 enrolled in the Blue Cross and over 20,000,000 enrolled in industrial and commercial types of plans and all three types are continuing their rapid growth. Medical care insurance developed about five years after the Blue Cross hospital insurance began. After the first seven years, there were only 2,845,000 enrolled in nonprofit plans. Now six years later, there are over 11,000,000 enrolled in these plans and 26,000,000 others enrolled in commercial and industrial plans. These plans likewise are growing at a rapid rate. Besides these plans there are cooperative and special health plans of labor. For the protection of the public the American Medical Association has aided in the development of standards for voluntary insurance plans. The association is conducting a campaign to educate both the public and the profession on the value of voluntary medical care plans, recognizing that serious illness is a financial handicap to millions of Americans. It is making every effort to assist in extending the coverage and distribution of these plans, particularly in those rural areas now lacking them. The association has recognized the desirability of a

National Voluntary Enrolment agency for the nonprofit plans to facilitate interchange and enrolment of companies with national payrolls. It is believed that at least 80,000,000 will be enrolled within a reasonable time in voluntary hospital and medical care plans. When we add this number to the 24,000,000 now receiving their medical care in whole or in part from the government, the industrial workers covered by established health plans and the approximately 5,000,000 indigent, it will be seen that a greater portion of the population will be provided for than by any other means suggested.

4. MEDICAL CARE AUTHORITY WITH CONSUMER REPRESENTATION: Establishment in Each State of a Medical Care Authority to Receive and Administer Funds with Proper Representation of Medical and Consumer Interest.

It would be advisable to have in each state an authority to receive, administer and distribute funds from government sources to prevent duplication of effort and to insure that all needs will be met. Such an authority should have representation of all groups concerned including both the distributors and the consumers of medical care.

5. NEW FACILITIES: Encouragement of Prompt Development of Diagnostic Facilities, Health Centers and Hospital Services, Locally Originated, for Rural and Other Areas in Which the Need Can Be Shown and with Local Administration and Control as Provided by the National Hospital Survey and Construction Act or by Suitable Private Agencies.

The American Medical Association supported the passage of the National Hospital Survey and Construction Act (Hill-Burton bill). Bills are now in Congress to extend the life of this act and to double the funds available. The American Medical Association supports such legislation with proper controls to insure local origination of demands and demonstration of need. Extension of hospital and diagnostic facilities in areas now lacking them will help solve the problem of a better distribution of physicians.

6. PUBLIC HEALTH: Establishment of Local Public Health Units and Services and Incorporation in Health Centers and Local Public Health Units of Such Services as Communicable Disease Control, Vital Statistics, Environmental Sanitation, Control of Venereal Diseases, Maternal and Child Hygiene and Public Health Laboratory Services. Remuneration of Health Officials Commensurate with Their Responsibility.

The American Medical Association regards this item in its program as highly important. Large areas of the country are without proper public health service and many of these areas cannot afford such service. Prevention of disease at the source will decrease the need for medical care. There are bills now in Congress to extend federal aid to communities needing it for this purpose. We support legislation which will permit aid to local communities where suitable organizations have been developed for the administration as suggested in item 4 (Medical Care Authority) and where public health agencies are limited to the field of public health. There is a shortage of qualified public health officials, and the public health schools are graduating too few students. The reasons for this are largely monetary and political. Public health officials are often not paid in accordance with the scale of pay of other government officials with like or even less responsibility. Often public health officials are subject to political control, making their tenure of office uncertain and efficient service impossible.

7. MENTAL HYGIENE: The Development of a Program of Mental Hygiene with Aid to Mental Hygiene Clinics in Suitable Areas.

Mental hygiene is becoming increasingly important. This field is being invaded by charlatans, and the public is being done a disservice. More adequate state controls are needed to protect the public against unqualified practitioners. State medical societies should sponsor the development of suitable mental hygiene clinics where they are needed. The American Medical Association stands ready to assist state societies and other recognized scientific bodies in developing a suitable program of mental hygiene. Although bills have been introduced into Congress on this subject far more consideration and study must be given before any program is enacted.

8. HEALTH EDUCATION: Health Education Programs Administered Through Suitable State and Local Health and Medical Agencies to Inform the People of the Available Facilities and of Their Own Responsibilities in Health Care.

The success of any medical care program in the United States depends on public cooperation and keeping the people informed. Through its Bureau of Health Education the American Medical Association sponsors radio broadcasts, prepares pamphlets for distribution, exhibits on health and arranges for lectures. This is insufficient and each state and county society is urged to develop a Bureau of Health Education for the public, so that the latter may be kept informed not only of facilities available, but of progress in medicine.

9. CHRONIC DISEASES AND THE AGED: Provision of Facilities for Care and Rehabilitation of the Aged and Those with Chronic Disease and Various Other Groups Not Covered by Existing Proposals.

The care of the aged and the chronic invalid will henceforth be an increasing problem. This is because the increased span of life brought about by the decrease in infant mortality and decrease in mortality from infectious disease has resulted in more persons living to the age at which they are subject to the degenerative diseases of middle and old age. Since 1900 the population of the country has doubled, but the number of people over 64 has quadrupled. Paradoxical as it may sound, the reason we have an increasing number of chronic invalids is because these people have received good medical care in youth. The American people need greater provision for the care of chronic illness, but the buildings required need not be on as expensive a scale as those necessary for the care of acute illness. The American Medical Association, the American Public Health Association, the American Hospital Association and the American Public Welfare Association have jointly created a Commission on Chronic Illness which hopes to stimulate the establishment of a program in each state so that the status of the chronically ill may be improved and the continued loss to society because of chronic illness may be prevented.

10. VETERANS' MEDICAL CARE: Maintenance of Existing High Standards of Medical Care for Veterans Including Extension of Facilities Where Need Can Be Shown Where Practical, Care of the Veteran Should Be in His Own Community by a Physician of His Own Choice.

The American Medical Association desires that every citizen receive the highest quality of medical care and recognizes the special consideration owed to the veteran. The American Medical Association is concerned that the veteran receive the highest quality of medical care and believes that he can usually be taken care of to his satisfaction in his own community by a physician of his choice.

11. INDUSTRIAL MEDICINE: Greater Emphasis on the Program of Industrial Medicine, with Increased Safeguards Against Industrial Hazards and Prevention of Accidents Occurring on the Highways, at Home and on the Farm.

The American Medical Association approves the expansion of service in the field of industrial medicine. It invites attention to the fact that accidents are fourth in the list of the causes of death and that automobile accidents are fourth in the list of accidental deaths. It is ready to cooperate with the National Safety Council and other organizations to find means of reducing deaths from accidents.

The Council on Industrial Health of the American Medical Association has set up a permanent conference group with labor and management, to discuss ways and means of extending industrial medicine, accident prevention and health education of workers; to clarify the status of physicians and medical organizations in relation to the entire range of industrial health activity, and to provide a method for the consideration of other aspects of medical service having industrial application.

Professional relations have been established with all the various professional groups involved in accident prevention.

Expanded service has been developed with workmen's compensation, unemployment compensation and rehabilitation.

Industrial medical care plans are increasing; as good medical standards and resources in industry improve they can be of great service in maintaining independence and self determination and in counteracting tendencies toward centralization and control.

12. MEDICAL EDUCATION AND PERSONNEL: Adequate Support with Funds Free from Political Control and Regulation of the Medical and Allied Professional Schools.

Some medical schools are finding it difficult to secure sufficient funds to maintain their standards of training. The American Medical Association would prefer to see medical schools receive the support they require from private philanthropy or local public funds. Unless and until such support is provided, it may be necessary for some medical schools to accept financial aid from the federal government. Such aid, however, must carry with it the assurance of freedom from political control and regulation.

To preserve the freedom and independence of the medical schools it is important that the responsibility for determining which schools may qualify for federal aid should reside in the states. This can be satisfactorily accomplished if the legislation provides that any medical school shall be eligible for financial aid if three fourths of the states through their medical licensing authorities judge the school to be conducting an educational program of sufficiently high quality to warrant the admission of its graduates to their state examinations for medical licensure.

To encourage continued local support of medical education from public and private funds, the formula for allocating federal aid should provide only a limited portion of a school's total budget.

Since medical schools are already increasing enrolments as rapidly as they can expand their facilities, the provision of a relatively large financial premium which might induce certain schools to enroll more students than they could properly accommodate should be avoided.

The formulas for the allocation of all funds should be simple in principle and written into the law. The responsibility and authority of the officials administering the program should be limited to an audit to determine that the funds are employed for the general purposes for which they were granted.

Any federal scholarship program should leave the medical schools entirely free in the selection of their students and should avoid the regimentation of the future careers of the recipients.

It is not the function of the federal government to build and operate medical schools.

The American Medical Association is firmly opposed to the medical care section of S. 1679 and certain other sections of the bill, the reasons for opposition to which have been cited, and to any other bill which lodges primary initiative and control of medical care in a federal bureaucracy or which contains uniform and compulsory features to be established nationally and imposes a direct federal tax on every worker to finance the program. Such plans concentrate further power in the central government. They absorb functions which are much better retained at the local level, and they greatly increase the over-all cost of providing health services. Most important, existing evidence establishes the fact that such plans lead to a widespread and serious deterioration of the quality of medical care.

Government is unable to deliver the services that are promised and which would be paid by the plan set forth in S. 1679; the proposal constitutes an extreme example of compulsory paternalism, impossible of practical operation, and contrary to the principles of American democracy.

The Council on Medical Service of the American Medical Association is holding conferences with cooperatives and various other farm and labor groups. As a result of these conferences progress is definitely being made.

The American Medical Association, through its Board of Trustees, has taken steps toward a conference of representatives of interested groups to consider this program and such elaboration as may seem indicated in the public interest.

To summarize, the American Medical Association supports:

1. The establishment of an independent national health agency with a physician in charge.

2. The establishment of a National Science Foundation.

3. Rapid extension of voluntary hospital and medical care insurance.

4. The establishment of a medical care authority in each state to administer and distribute government funds with adequate representation of interested groups.

5. Extension of hospital and diagnostic facilities under suitable control.

6. Provision for establishment of complete public health coverage for the country with federal aid where the need can be shown with proper remuneration of public health officers and insuring them freedom from political control.

7. Increased safeguards for the public against charlatans in the field of mental hygiene and establishment of necessary mental hygiene clinics.

8. Continued and expanded public health education by the American Medical Association, state and county societies.

9. Furtherance of the care of the chronically ill through support of the Commission on Chronic Illness.

10. Protection of the veteran in his rights to medical care of the highest quality.

11. Continuation of the activities of the Council on Industrial Health and cooperation with the National Safety Council and other organizations in an effort to reduce accidents.

12. Encouragement of local and private support of medical education and use of government aid only if shown absolutely essential and then under suitable controls to protect the independence of medical education.

Finally, opposition to any plan of government controlled medical care compulsory in nature and supported by payroll taxation, with inevitable deterioration of the quality of medical care.

Activities of the Editor

Dr. Henderson presented the following report, which was referred to the Reference Committee on Reports of Board of Trustees and Secretary:

The Board of Trustees is aware of the criticism of the Editor coming from within and from without the profession. The Board recognizes that the public has come to believe that the Editor is spokesman of the Association. The membership undoubtedly wishes the elected officials to speak authoritatively on all matters of medical policy.

Against the time when the Editor retires Dr. Austin Smith has for some months been in training as the Assistant Editor and the talent of the Editor will be retained for the present under the control of the Board of Trustees.

In view of the increasing responsibility of the Editor and reorganization of the department, the Board of Trustees has decided on the following points:

1. The Editor will completely eliminate speaking on all controversial subjects both by platform and by radio. Approval of all speaking engagements will be made by the Executive Committee.

2. Elimination of all interviews, including press conferences, and statements by Dr. Fishbein except on scientific subjects.

3. Editorials on controversial subjects will be supervised by the Executive Committee.

4. Complete information as to these activities will be reported to the members of the House of Delegates.

5. There will be permanent elimination of the diary in Tonics and Sedatives.

6. Plans for the training of a new Editor in an orderly manner, including the retirement of the present Editor, will be formulated.

The Board of Trustees of the American Medical Association announces that plans have been formulated for the retirement of Dr. Morris Fishbein as Editor of THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION at an appropriate time. For thirty-seven years Dr. Fishbein has served the American Medical Association well and faithfully. THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION is an enduring monument to his genius and devotion. His activities have extended far beyond his immediate duties as an editor, and the Board desires to pay tribute to his many accomplishments in other fields.

The Board finds that serious dislocation would result from any sudden replacement. With this in mind a reorganization of the editorial staff is under way so that his retirement, when consummated, will not result unfavorably for ventures of the Association.

Respectfully submitted,

ELMER L. HENDERSON, Chairman.
EDWIN S. HAMILTON, Secretary.
LOUIS H. BAUER.
JOHN H. FITZGIBBON.
JAMES R. MILLER.
WALTER B. MARTIN.
DWIGHT H. MURRAY.
EDWARD J. MCCORMICK.
GUNNAR GUNDERSEN.

(To be continued)

Commission on Chronic Illness

FIRST MEETING HELD IN CHICAGO

The groundwork for a concentrated attack for the first time on all aspects of the problem of chronic illness was laid with the creation in Chicago of a national Commission on Chronic Illness. Organized in the course of a series of meetings and conferences on May 19-20 in the Hotel Sheraton in that city, the new body represents the culmination of a year's work on the part of four national voluntary associations in the medical, public health, hospital and welfare fields to carry out one of the major recommendations made by the National Health Assembly, held in Washington, D. C., in May 1948.

Officers of the new commission are: Leonard W. Mayo, vice president of Western Reserve University in Cleveland, who will serve as chairman; Dr. James R. Miller, a practicing physician in Hartford, Conn., and a member of the Board of Trustees of the American Medical Association, vice chairman, and J. Douglas Colman, executive director of the Maryland Hospital Service in Baltimore, secretary-treasurer.

The work of the group will be guided, between sessions of the full commission, by an executive committee of five members. Members of this committee include, in addition to the officers of the Commission, Dr. Thomas Parran, dean of the School of Public Health of the University of Pittsburgh, and Mrs. Joseph T. Ryerson, who has been an active participant in civic affairs in Chicago for many years.

When its membership is complete, the Commission on Chronic Illness will consist of thirty persons. Up to the present time, twenty-six persons have been designated as members of the group. All of them are prominent citizens, representing broad fields of interest, experience and knowledge, as well as the major geographic sections of the nation.

Included on the present membership roster of the commission, besides Mr. Mayo, Dr. Miller, Mr. Colman, Dr. Parran and Mrs. Ryerson, are: Dr. Creighton Barker, executive secretary, Connecticut State Medical Society, New Haven, Conn.; S. Bruce Black, president of the Liberty Mutual Insurance Company, Boston; Miss Sarah Blanding, president of Vassar College, Poughkeepsie, N. Y.; S. DeWitt Clough, chairman of the Board of Governors, Chicago Heart Association; Dr. Ward Darley, dean of the School of Medicine of the University of Colorado, Denver; Joseph W. Fichter, master of the Ohio State Grange, Columbus; Charles H. Houston, Washington, D. C.; Mrs. R. L. Ireland, former president of the Board of Directors of the Benjamin Rose Institute, Cleveland; Dr. Andrew C. Ivy, vice president of the Chicago Professional Colleges, University of Illinois, Chicago; Dr. Theodore G. Klumpp, president, Winthrop-Stearns, Inc., New York City; Samuel L. Latimer Jr., editor, *Columbia Record* and *Columbia State*, Columbia, S. C.; Dr. Thomas A. McGoldrick, Brooklyn; Karl P. Meister, executive secretary, Board of Hospitals and Homes of the Methodist Church, Chicago; Peter Odegard, chairman of the Department of Political Science of the University of California, Berkeley; Dr. Ellen C. Potter, Deputy Commissioner for Welfare, State Department of Institutions and

Agencies, Trenton, N. J.; Walter Reuther, president, United Automobile Workers of America (C. I. O.), Detroit; Dr. Dean W. Roberts, chief, Bureau of Medical Services, Maryland State Health Department, Baltimore; Dr. Edward S. Rogers, dean of the School of Public Health of the University of California, Berkeley; Mrs. Lucille M. Smith, United States Public Health Service, Washington, D. C.; Dr. Albert W. Snoke, director, Grace-New Haven Community Hospital, New Haven, Conn., and Judge Thomas S. Waxter, director, Department of Public Welfare, Baltimore.

The objectives of the new commission have not been fully formulated. An outline of objectives which had been suggested by the Interim Commission was discussed, and in the light of advice by the technical experts a prospectus of the commission will be issued and will be ready in the near future. A report of the deliberations of the expert advisers and of the commission at its meeting will also be available.

Most of this material will probably be provided by the organization's technical advisors—a group of thirty-two experts selected on the basis of their experience and achievements in fields related to the care of the chronically ill. It will be the function of these persons to advise the commission on professional and technical matters.

On May 19 these technicians assembled in Chicago to engage in preparatory discussions on the commission's aims and activities. They were divided into five groups which met simultaneously throughout the day and explored the areas of activity considered most pertinent to the commission's future work. These areas are: clinical problems (including prevention and research), institutional care (including hospitals and nursing homes), noninstitutional care, rehabilitation and convalescence, and community problems (including organization and administration, provision of services and conducting of studies and investigations).

Discussions of the five technical committees were led, respectively, by Dr. Ernst Boas, specialist in internal medicine, New York; Dr. Jack Masur, director of the projected Clinical Center of the National Institutes of Health, Bethesda, Md.; Dr. Martin Cherkasky, director of the Home Care Program, Montefiore Hospital for Chronic Diseases, New York; Dr. Howard A. Rusk, director of the New York University and Bellevue Hospital rehabilitation centers in New York and associate editor of the *New York Times*, and Dr. Lester Breslow, chief of the Chronic Disease Division, California State Department of Health.

After their committee meetings, the technical advisors met in joint session to consolidate their findings. On May 20, the reports of the technical committees were delivered to the organizing conference by the respective chairmen, after which they were submitted to the commission for consideration. It is on the basis of these reports that the acting executive secretary of the commission will prepare a report on the group's projected activities.

It is expected that, when finally published, the goals of the commission will be broadly similar to the tentative ones listed by the interim group, representing the American Hospital Association, the American Medical Association, the American Public Health Association, and the American Public Welfare Association, that planned and organized the Commission on Chronic Illness.

Briefly stated, these goals are as follows: (1) to modify the prevailing attitude of society that chronic illness is hopeless; to substitute for the prevailing overconcentration on the provision of institutional care, a dynamic program designed as far as possible to prevent chronic illness, to minimize its disabling effects and to restore its victims to a socially useful and economically productive place in the community; (2) to define the problems arising from chronic illness among all age groups, with full realization of its social as well as medical aspects; (3) to coordinate separate programs for specific diseases with a general program designed to meet more effectively the needs common to all chronically ill persons; (4) to clarify relationships among professional groups and agencies working in the field of chronic illness, and (5) to stimulate adoption in every state and community of a well rounded plan for prevention and

control of chronic illness and for the care and rehabilitation of the chronically ill.

Organized as a nonprofit corporation under the laws of Illinois, the Commission on Chronic Illness is appealing to foundations, professional societies and other voluntary national organizations and individuals for funds with which to carry on its work. It has already received donations amounting to \$25,000 in cash—\$20,000 from the American Medical Association and \$2,500 each from the National Society for Crippled Children and Adults and the New York Foundation. Of the other groups which have already been approached for contributions, eight have referred the question to their boards of directors and four have as yet taken no action on the matter.

Besides making a cash contribution to the commission, the American Medical Association has agreed to furnish it with office space in the Association's Chicago headquarters, as well as furniture and equipment, for five years. The National Society for Crippled Children and Adults has offered certain staff services to the commission.

The United States Public Health Service, which has no official connection with the commission, has shown its interest in the work of the body by assigning a member of its staff to serve in the capacity of executive secretary of the commission until such time as the permanent staff director assumes office.

Dr. Leonard A. Scheele, Surgeon General of the Public Health Service, was the featured speaker at a luncheon which took place during the conference on May 20. Pointing out that "everyone has a stake" in the commission's program, he maintained that the federal government's interest in the new organization was a particularly keen one.

He stressed, however, the "voluntary origin" and "democratic structure" of the commission, declaring that the attitude of the Public Health Service toward it could best be expressed in the phrase: "What can we do to help?"

Chronic illness is the nation's "daily disaster," he asserted, and its magnitude, complexity and universal scope make it a problem requiring solution on a public as well as an individual basis.

Society has, up to now, "failed to take enough responsibility for this problem," he declared, adding that implementation of future programs proposed by the commission "undoubtedly will require greater governmental participation." But he emphasized that it will be the commission's function to advise government at all levels "how and to what extent" it should deal with chronic illness.

Earlier in the day on May 20, the conference heard representatives of the four national associations that had been instrumental in organizing the commission describe the stake of their respective organizations in its program. These organizations—the American Hospital Association, the American Medical Association, the American Public Health Association and the American Public Welfare Association—first undertook the steps that eventually led to formation of the commission when they cooperated in setting up a Joint Committee on Chronic Disease late in 1946.

With Dr. Ellen C. Potter, representing the American Public Welfare Association, as chairman, the joint committee did much to stimulate both professional and public interests in the chronic disease problem by publishing, in October 1947, a statement on this subject entitled "Planning for the Chronically Ill." The Committee was staffed, during its two year period of existence, by the American Public Health Association.

Subsequently, at the National Health Assembly in May 1948, the recommendation was made that the joint committee be expanded in membership and geographic representation and that it explore the possibilities of constituting itself a national Commission on Chronic Illness.

In the fall of 1948, the joint committee became an Interim Commission on Chronic Illness, although its membership remained limited to representatives of the four sponsoring organizations. Under the chairmanship of Dr. James R. Miller, the interim commission formulated the plans which led to the conference in Chicago and to creation of the permanent Commission on Chronic Illness.

Besides Dr. Miller, who described the American Medical Association's reasons for welcoming establishment of the com-

mission, the other speakers at the Friday morning session were Dr. Ellen C. Potter, representing the American Public Welfare Association, Dr. Edward S. Rogers, representing the American Public Health Association, and Dr. Albert W. Snoke, representing the American Hospital Association. All four had also been members of the interim commission, and all but Dr. Snoke had represented their organizations on the original Joint Committee on Chronic Disease.

After Dr. Scheele's address at the luncheon meeting on May 20 and the formal installation of Mr. Mayo as chairman of the commission, members of the body and its technical advisors held a closed business meeting, after which the conference adjourned.

At this session, the executive committee of the organization was elected and the budget for the first year's operations approved. Other matters discussed included selection of additional commission members, fund raising, staff needs and plans, and proposed objectives and activities. Deliberations on this last point revolved around the recommendations submitted by the technical advisory groups.

The following persons have been appointed as technical advisors to the Commission on Chronic Illness: Dr. Donald B. Armstrong, second vice president, Health and Welfare, Metropolitan Life Insurance Company, New York; Dr. Daniel G. Blain, medical director, American Psychiatric Association, Washington, D. C.; Dr. E. M. Bluestone, director, Montefiore Hospital for Chronic Diseases, New York; Dr. Boas; Dr. Breslow; Dr. Charles Cameron, medical and scientific director, American Cancer Society, Inc., New York; Dr. Cherkasky; Miss Eleanor Cockerill, associate professor of social case work, School of Applied Social Sciences, University of Pittsburgh; Dr. Nila Covalt, State Veterans Home and Hospital, Rocky Hill, Connecticut; Dr. Thomas D. Dublin, executive director, National Health Council, New York; Miss Ruth Freeman, administrator of nursing, American National Red Cross, Washington, D. C.; Dr. Vlado A. Getting, Massachusetts Commissioner of Health, Boston; Eli Ginzberg, Columbia University, New York; Miss Bell Greve, executive secretary, Cleveland Rehabilitation Center; Miss Ruth Hubbard, president, National Organization for Public Health Nursing, Inc., Philadelphia; Miss Mary Jarrett, New York; Dr. T. Duckett Jones, medical director, Helen Hay Whitney Foundation, New York; Dr. Albert Kaiser, health officer, Department of Public Safety, Health Bureau, Rochester, N. Y.; Dr. Frode Jensen, assistant professor of medicine, University of Colorado Medical School, Denver; Dr. A. B. C. Knudson, chief, Physical Medicine, Rehabilitation Division, Veterans Administration, Washington, D. C.; Dr. Marcus D. Kogel, Commissioner of Hospitals, New York; Dr. William B. Kountz, Division of Gerontology, School of Medicine, Washington University, St. Louis; Dr. Masur; Dr. H. B. Mulholland, Department of Internal Medicine, University of Virginia Hospital, Charlottesville, Va.; Miss Edna Nicholson, director, Central Service for the Chronically Ill, Chicago; Dr. James E. Perkins, managing director, National Tuberculosis Association, New York; George St. J. Perrott, chief, Division of Public Health Methods, United States Public Health Service, Washington, D. C.; Miss Marian Randall, executive director, Visiting Nurse Service of New York; Miss Ollie Randall, consultant on services for the aged, Community Service Society, New York; Dr. Rusk; Dr. Edward S. Stieglitz, Washington, D. C., and Dr. Hart E. Van Riper, medical director, National Foundation for Infantile Paralysis, Inc., New York.

Coming Medical Meetings

- American Association of Railway Surgeons, Chicago, Drake Hotel, June 30-July 2. Dr. Chester C. Guy, 5800 Stony Island Ave., Chicago 37, Secretary.
- Idaho State Medical Association, Sun Valley, June 20-23. Dr. Alfred M. Popma, 220 N. First St., Boise, Secretary.
- Maine Medical Association, Poland Spring, Poland Spring House, June 19-21. Dr. Frederick R. Carter, 142 High St., Portland 3, Secretary.
- Montana State Medical Association, Butte, Aug. 1-4. Dr. Herbert T. Caraway, 115 N. 28th St., Billings, Secretary.
- West Virginia State Medical Association, White Sulphur Springs, The Greenbrier, Aug. 4-6. Mr. Charles Lively, 1031 Quarrier St., Charleston, Executive Secretary.

Washington Letter

(From a Special Correspondent)

June 13, 1949.

Aid to Medical Education Conditionally Approved

During the week ended June 11, public hearings before both the House and Senate subcommittees on health legislation were devoted mainly to testimony by spokesmen for education in medicine and the allied sciences. Among the witnesses were Drs. Joseph C. Hinsy, Herman G. Weiskotten, Harvey B. Stone, James S. Simmons, Gaylord Anderson, Donald G. Anderson, Dean F. Smiley, William Harvey Perkins, Carlyle Jacobsen, Ira Hiscock, Ward Darley, George P. Berry, Victor Johnson and Walter A. Bloedorn.

The gist of their presentations was that, while federal financial aid to professional education is not something to be desired, the worsening economic plight of training institutions leaves little choice; hence such assistance would be acceptable provided that academic freedom and other safeguards are guaranteed by legislation.

"There is a definite need now for federal aid to medical education provided that the educational and administrative policies can continue to rest in the hands of the medical colleges without political inference and with the maintenance of academic freedom," said Dr. Hinsy, testifying as chairman of the executive council, Association of American Medical Colleges.

Points stressed by Drs. Weiskotten and Donald G. Anderson, representing the American Medical Association Council on Medical Education and Hospitals, were: Insufficiency of present production of physicians has been exaggerated in many quarters; medical colleges need additional funds to expand faculties, raise salaries of their members and improve physical facilities; outside interference must be guarded against. "While additional funds could be put to good use by all medical schools and are urgently needed by some, all medical educators are agreed that the sacrifice of academic freedom would be too high a price to pay for such funds. Although many improvements are possible in medical education, the standards of medical education in the United States today are high. Furthermore, medical education is in safe hands. No other professional group has assumed responsibility more effectively in the education of its members than have the physicians of our nation. Medical educators have emphatically indicated that they do not wish federal support, if federal officials are to be empowered to regulate, directly or indirectly, the curriculum, the administration or the admission policies of the medical schools."

New Bill on Federal Chiropractors

The chiropractic lobby always sees to it that in every session of Congress there is at least one bill furthering their interests introduced in both Senate and House. The latest to be filed is S. 2025, sponsored by Senator Pepper of Florida. It would authorize appointment of chiropractors in the Veterans Administration. It was introduced June 8 and referred to the Labor and Public Welfare Committee for consideration by the health subcommittee headed by Senator Murray. That it will be pigeonholed may be regarded as virtually certain. A similar measure, sponsored by Representative Huber, of Ohio, has been sidetracked by the House Veterans Committee.

Keefe Describes Socialistic Pattern of Health Insurance

The floor of the House of Representatives was the scene on June 2 of a fervent address by Representative Keefe of Wisconsin in which he quoted from writings by J. Donald Kingsley, Assistant Federal Security Administrator, to show the socialistic influence on the campaign for national compulsory health insurance. Representative Keefe said that Mr. Kingsley, in his book "Strategy for Democracy," published in 1942 with David W. Petegorsky as co-author, wrote:

"We can therefore do little more now than to take effective steps to recruit and train a sufficient number (of doctors and nurses) and to assure them through socialized medicine a career."

"Is it not perfectly clear," the Wisconsin Republican stated on the House floor, "therefore, that in line with the whole grad-

ualist policy of social revolution expounded by the authors in this book that they seek not to prevent ultimate socialization of medicine, and nationalization of hospital facilities, but in reality seek by this first step to achieve their ultimate goal. It therefore seems to me to be quite important in view of the past record and background of those who are behind the scenes in developing these various and sundry programs that we make thorough inquiry into their past advocacy and relationships in order to determine whether or not this first step is in reality another movement in the direction of a pure socialist state."

Socialized Medicine Fiercely Debated on House Floor

A heated debate, strongly along partisan lines, on the subject of President Truman's proposed compulsory health insurance program took place on the House floor on May 27. Principal participants were House Majority Leader McCormack and Representative Biemiller, Democrats, and Representatives Keefe and Hoffman (Michigan), Republicans. The debate was precipitated by a speech by Representative Biemiller in which he cited testimony presented at the health bill hearings as evidence that the President does not intend to socialize American medicine.

When Representative Keefe voiced exception, the majority leader observed that the late Senator Robert M. La Follette was branded as a sinister figure because of the social reforms he advocated. Representative Hoffman, a strong opponent of most Truman policies, interjected the opinion that if there are so many Americans who cannot afford adequate medical care it is because of the "Democratic-New Deal Party."

Keefe's implication that the Administration seeks nationalization of hospitals and socialization of medicine brought a retort by McCormack that "these are coined phrases for the purpose of deceiving the people and creating an impression that something sinister, something inimical to the best interests of the people is involved in the recommendations made by President Truman." The Democratic leader said he respects the position taken by opponents of compulsory health insurance, adding: "But when they try to impugn the motives of those who honestly are endeavoring to seek a solution . . . there is no contribution being made."

Antivivisectionists Oppose Experimentation Bill

National attention was focused on public hearings conducted May 24 and 25 before a special Senate committee on S. 1703, which would authorize transfer of unclaimed animals from the District of Columbia dog pound to medical schools and other institutions. Among those appearing to support passage of the bill were Dr. Alfred Blalock, of Baltimore; Dr. George C. Ruhland, District of Columbia health officer; Representative A. L. Miller (Republican, Nebraska), who is a doctor of medicine; Dr. Charles F. Morgan, of Georgetown University School of Medicine, and Dr. Norman H. Topping, assistant director of the National Institutes of Health. Individuals and representatives of various societies urged defeat of the bill on the ground that it condones cruelty to animals.

National Science Foundation Bill Advances

The Priest subcommittee of the House has favorably reported a slightly revised National Science Foundation bill, which is expected to be approved by the House Interstate and Foreign Commerce Committee early in June and then forwarded to the floor for final action. The new measure, formally introduced May 24 as H. R. 4846, differs only in minor details from the bill that has already passed the Senate. It provides for establishment of four divisions within the foundation: Medical Research; Mathematical, Physical and Engineering Sciences; Biological Sciences, and Scientific Personnel and Education. Establishment of special commissions, as for poliomyelitis, is left to the discretion and judgment of the foundation.

Bill Authorizes Medical Aid for Veterans' Children

Children—regardless of age—of World War II veterans who died of service-connected injury or disease would be made eligible for government medical, dental, hospital and domiciliary care under provisions of a bill that has been introduced in the House by Representative Hagen of Minnesota. The measure was referred to the Veterans Committee.

GOVERNMENT SERVICES

SECRETARY OF DEFENSE

APPOINTMENT OF DRS. RAYMOND ALLEN AND RICHARD MEILING

Secretary of Defense Johnson has announced the appointment of Dr. Raymond B. Allen, President of the University of Washington, Seattle, as Director of Medical Services for the National Military Establishment, and of Dr. Richard L. Meiling of Columbus, Ohio, as Deputy Director. They will assume their duties in the Office of the Secretary of Defense about July 1. In announcing the appointments, Secretary Johnson said, "I am confident that with a Director and Deputy Director of such high caliber and with the aid and counsel of the Armed Forces Medical Advisory Committee, great progress will be made toward the objectives of a more unified and effective medical service for the Armed Forces."

Dr. Allen will continue as Director of Medical Services for three months to initiate organization of the recently formed National Military Establishment Medical Services Division, which will coordinate operation of the medical services of the three military departments and related National Military Establishment agencies. On October 1 he will return to the University of Washington, and Dr. Meiling will be appointed Director of Medical Services.

Dr. Allen was one of the original members of the Armed Forces Medical Advisory Committee when it was formed last December. He also was a member of the National Security Organization of the Commission on Organization of the Executive Branch of the Government (Hoover Commission), which made an intensive study of the military medical services and recommended establishment of a Medical Advisory Board in the Office of the Secretary of Defense. In addition, he is Chairman of the Special Committee on Civil Defense of the Research and Development Board.

He was born in North Dakota and from 1928 to 1930 was in general medical practice in Minot. He was a fellow of the

Mayo Foundation, 1930-1933; associate dean in charge of graduate studies, College of Physicians and Surgeons, Columbia University, 1934-1936; associate director, New York Post-Graduate Medical School and Hospital, Columbia University, 1933-1936; dean, Wayne University College of Medicine, 1936-1939; executive dean, Chicago Colleges of the University of Illinois (medicine, dentistry and pharmacy), September 1930-1946; dean, College of Medicine, University of Illinois, September 1943-1946.

Dr. Meiling was the Air Evacuation Officer, Headquarters, Army Air Force, in 1942. He then had charge of planning, organization and administration for air evacuation of patients from battlefields and stations to hospitals in the United States. He was born in Springfield, Ohio, and has been assistant professor, Department of Obstetrics and Gynecology, College of Medicine, Ohio State University, Columbus. He was graduated from the Army-Air Force School of Aviation Medicine and from the Command and General Staff School in 1942. He is a specialist certified by the American Board of Obstetrics and Gynecology and a member of the Aero Medical Association, the Royal Society of Medicine, London, England, the Association for Study of Internal Secretion, the American Medical Association, the Columbus Surgical Society, and the Columbus Obstetric and Gynecologic Society.

The duties of the Director of Medical Services are: 1. Establishment and control of general policies, standards and programs for the medical services of the three military departments and appropriate agencies of the National Military Establishment. 2. Exercise general direction, authority, and control over administration and utilization of personnel and facilities of the medical services of such departments and agencies through the heads thereof. 3. Such other duties with respect to the medical services of the National Military Establishment as the Secretary of Defense may direct.

ARMY

AVAILABILITY OF MEDICAL RESERVES BEING DETERMINED

Reserve officers of the Army Medical Corps have been asked by Major General R. W. Bliss, the Surgeon General of the Army, to signify their availability for short periods of service ranging from one to twenty-nine days a month, in order to help relieve the critical shortages of professional personnel.

If response to the questionnaires is sufficiently encouraging, reserve officers may volunteer for such short terms of service and perform professional duties at hospitals and medical installations located in their geographic areas.

"The Army Medical Department is faced with an unparalleled peacetime emergency in carrying out our medical requirements satisfactorily," General Bliss stated. "In time of military emergency, it is the reserve officer upon whom the great burden of effort and sacrifice has fallen. Today, we are again turning to reserve officers of the Medical Department for help."

INVITATIONS TO MEDICAL STUDENTS

The Surgeon General has sent letters to about 6,000 junior medical students telling them of the opportunities for internships in the Army Medical Department and inviting them to visit Army general hospitals this summer in anticipation of applying for internships for training beginning July 1, 1950.

Each year the Army Medical Department offers internships to about three hundred graduates of approved medical schools. The selected candidates are commissioned in the Medical Reserve Corps, called to active duty and assigned to Army general hospitals for a one year rotating internship commencing each July 1. Each applicant must be a man not less than 21 nor more than 32 years of age, must meet the physical require-

ments and be a citizen of the United States. Applications must be received October 18-25, 1949, in order to receive consideration, and must be forwarded through the dean of the applicant's medical school. Selections will be announced by telegram, Nov. 15, 1949. Complete information may be secured from the medical professor of military science and tactics at the nearest medical school having a Medical Reserve Officers Training Corps unit, or by writing direct to the Surgeon General, Washington, D. C.

SURVEY OF RESERVE OFFICERS

The Surgeon General has sent a questionnaire to reserve Army medical officers to determine their availability for short periods of duty ranging from one to twenty-nine days a month and for longer duty tours. Their response to the questionnaires will determine the number of physicians available for short or longer periods of duty to relieve the Army's critical shortage occasioned by the imminent separation of medical officers trained under the Army Specialized Training Program. The Surgeon General stated, "The Army Medical Department is faced with an unparalleled peacetime emergency in carrying out medical requirements satisfactorily. We are again turning to Reserve Officers of the Medical Department for help."

PERSONAL

Majors Walton M. Edwards and Loren F. Parmley Jr. and Capt. John W. Sumner of the Medical Corps have been selected for advanced training at the University of Colorado (problems of newborn infants), University of Wisconsin (internal medicine) and University of Illinois, Chicago (electroencephalography), respectively.

Medical News

(Physicians will confer a favor by sending for this department items of news of general interest: such as relate to society activities, new hospitals, education and public health. Programs should be received at least two weeks before the date of meeting.)

ALABAMA

Hospital News.—Ground breaking ceremonies were held June 4 for the new 80 bed annex of St. Vincent's Hospital in Birmingham, which will be constructed under the Hill-Burton Act. St. Jude's Hospital, a 152 bed general hospital for Negroes in Montgomery; a 50 bed general facility, DeKalb County Hospital at Ft. Payne; Etowah County Health Center at Gadsden, and the 24 bed general Perry County Hospital in Marion are expected to get under way in June.

University Retirements.—The Medical College of Alabama will lose three of its faculty members because they have reached the retirement age. Following June graduation exercises, Drs. James S. McLester and James M. Mason, professors of medicine and surgery, respectively, both of Birmingham, and Dr. Stuart Graves, Tuscaloosa, dean emeritus and director of admissions for the school will retire. Dr. McLester has served as professor since 1920. Dr. Mason was named professor of surgery in 1945. Dr. Graves was dean of the two year school at Tuscaloosa for six years; when the school was moved to Birmingham in 1945 and offered a four year curriculum, he became director of admissions.

FLORIDA

State Medical Election.—Officers of the Florida Medical Association for the coming year are: Drs. Walter C. Payne, Pensacola, president; Herbert E. White, St. Augustine, president elect, and Robert B. McIver, Jacksonville, secretary-treasurer.

County Society Establishes Registry.—Physicians of the Hillsborough County Medical Society have established a registry to enable callers to locate physicians for emergency duty or to find their own doctors when they are not available at usual places. It will give twenty-four hour service.

ILLINOIS

Dr. Steffen to Lecture in Europe.—Dr. Curt Steffen, Rockford, has accepted invitations to give a series of lectures on American medicine at the University of Cologne and the University of Hamburg in the British zone of Germany. He will also speak on "The Health Policy in the United States" at the annual assembly of medical sociologists and professors from German universities in Cologne the first part of July. Dr. Steffen formerly was connected with the university in Hamburg.

Illinois Association of Medical Health Officers.—The full time medical health officers in Illinois, at the April meeting of the Illinois Public Health Association, reactivated the Illinois Association of Medical Health Officers, which had been discontinued some years ago after it merged with the Illinois Public Health Association. The association makes eligible for membership all full time medical health officers, school health physicians, professors of public health and preventive medicine, and other medical men with public health occupation. The following officers were elected: Drs. Winston H. Tucker, Evanston, president; Samuel N. Mallison, Champaign, vice president, and Norman J. Rose, Highland, secretary-treasurer. Drs. Arlington Ailes, LaSalle; Albert C. Baxter, Springfield, and Pierre A. Steele, Decatur, were elected to the executive committee.

Chicago

St. Luke's, Alumni Day.—The annual Staff and Intern Alumni Day of St. Luke's Hospital medical staff will be held June 22 at the Lake Geneva Country Club. Golf, tennis and boating will be enjoyed. For reservations, telephone Dr. Willis G. Diefenbaugh, secretary of the alumni association, at Harrison 7-5000 or Harrison 7-1500.

Borden Undergraduate Award.—Edward H. Lanphier of Dixon, a senior at the University of Illinois College of Medicine, has been named winner of the Borden Undergraduate Research Award for 1949. The award represents a gift of \$500. Originality and thoroughness of research are of primary consideration in selecting the winner for the award established by the Borden Company Foundation, Inc. Mr. Lanphier, who will receive his Doctor of Medicine degree from the University of Illinois this month, has been doing research in the department of pharmacology since 1946.

Grant for Virus Studies.—The board of directors of the Hektoen Institute for Medical Research of the Cook County Hospital has announced the receipt of a grant of \$13,800 from the Dr. Leonard H. and Louis Weissman Medical Research Foundation on June 1, to be used for special virus studies, conducted under the supervision of Dr. Oscar Felsenfeld, director of bacteriology and virology.

KENTUCKY

Mental Hospital Building Campaign.—Solicitation of additional funds amounting to \$1,000,000 for Our Lady of Peace Hospital, Louisville, has been started. The bed capacity of the hospital for mental and nervous diseases has been increased from 108 to 150. The total cost of the hospital now under construction will be about \$2,100,000, \$682,734 of which has been allocated by the federal government.

Poliomyelitis Hospital Committee.—A subcommittee to the Permanent Planning Poliomyelitis Committee has been appointed to work out a plan to take care of the hospital facilities for any possible epidemic of poliomyelitis. Dr. Charles F. Wood, Louisville, director of poliomyelitis clinics in the state, heads this subcommittee. Hospital space will be allotted according to areas, and the committee will decide which hospitals should receive the overflow after certain ones have reached their capacities. Other members of the committee are Dr. Alexander J. Alexander, Lexington, representing pediatricians, and Dr. Tracy Jones, Harlan, representing the state health department.

LOUISIANA

Society News.—The New Orleans Graduate Medical Assembly installed Dr. Curtis H. Tyrone as president and chose Drs. Edwin H. Lawson president elect, Woodard D. Beacham secretary and H. Ashton Thomas treasurer. The 1950 meeting will be held March 6-9 at the Municipal Auditorium.

State Medical Election.—Louisiana State Medical Society officers for the coming year, selected at the annual meeting May 5-7 are: Drs. Edwin H. Lawson, New Orleans, president, and George W. Wright, Monroe, president elect. Dr. James Q. Graves, Monroe, was selected delegate to the American Medical Association, 1950-1951, with Dr. Arthur A. Herold, Shreveport, as alternate. Baton Rouge was chosen as the 1950 meeting place.

NEW JERSEY

Society News.—The New Jersey Proctologic Society has chosen the following officers: Dr. Julius E. Gerendasy, Elizabeth, president; Dr. Urban R. Finnerty, Montclair, secretary, and Dr. Saul Zager, Newark, treasurer.

State Medical Election.—The Medical Society of New Jersey at its annual meeting in April installed Dr. James F. Norton, Jersey City, as president, Drs. Aldrich C. Crowe, Ocean City, president elect, Earl L. Wood, Newark, secretary, and George J. Young, Morristown, treasurer.

Foundation Honors 50 Year Practitioner.—The associates and friends of Dr. Max Danzis, Newark, have established the Max Danzis Medical Education Foundation in honor of his fiftieth year of practice. The foundation will create scholarships to enable deserving persons to further their medical knowledge and skill, establish residencies and provide for research problems and related projects. The officers of the foundation are Drs. Charles M. Robbins, Newark, president; Julius Newman, Newark, secretary, and Herman S. Nash, Newark, treasurer.

NEW YORK

Conference on Public Health.—Lake Placid has been chosen by the state department of health and the State Health Officers Association as the location for the Annual Conference of Health Officers and Public Health Nurses, June 20-23. The Association of School Physicians will hold its annual meeting on the opening day, in conjunction with the general conference of public health administrators.

Child Guidance Clinic Teams.—Two new child guidance clinic teams will be set up by the New York State Department of Mental Hygiene. The team operating in Suffolk County was scheduled to begin work June 1 under the direction of Dr. Joseph W. Haley, formerly supervising psychiatrist at Kings Park State Hospital. The Nassau County team, to begin operation September 1, will be under the supervision of Dr. Paul G. Edgar, senior psychiatrist at Manhattan State Hospital. The state department at present has eight traveling child guidance clinic teams, each consisting of a psychiatrist, a psychologist and a psychiatric social worker. The clinic teams, operating

under the department's Division of Prevention, maintain regular schedules in designated cities and towns. During the past year more than 7,000 children were served through over 1,000 child guidance clinics held in 132 communities. The Suffolk County child guidance team has established headquarters at Riverhead in a suite of rooms furnished by the Suffolk County Health Department. Clinics will be held every Tuesday. Clinics will be held each Monday at Toaz Junior High School in Huntington, each Wednesday at Our Lady of Perpetual Help School at Lindenhurst. On the first and third Thursday of each month a clinic will be conducted in rooms furnished by the County Department of Health at Islip, and on the second and fourth Thursday at the River Avenue School in Patchogue. The department is currently engaged in a survey which aims to locate and evaluate these services on a statewide basis.

Community Nutrition Institute.—The third Community Nutrition Institute sponsored by the New York State Department of Health and the College of Home Economics, Syracuse University, will be held on the University Campus, July 5-16. It is open to physicians, nutritionists, public health nurses and college teachers of nutrition. The subjects for discussions are What a Community Expects of the Nutritionist, Services of the Nutritionist to the Community, Nutrition Surveys, Role of Emotions in the Maintenance of Health, Method of Teaching Nutrition to Children, Advances in the Role of Fat and Carbohydrate and Protein in Nutrition, and Diabetes and Care of the Diabetic Patient. Total cost of the institute including board and room will be \$100. Address inquiries to Dr. Anne Bourquin, College of Home Economics, Syracuse University, Syracuse, N. Y.

New York City

Kings County Hospital.—Cornerstone ceremonies for the ten story 570 bed Kings County Tuberculosis and Chronic Disease Hospital in Brooklyn, a part of the Kings County Hospital Medical Center, were held June 10 with Mayor William O'Dwyer as principal speaker. The hospital, estimated to cost \$7,300,000 and scheduled for completion in the summer of 1950, is one of the several municipal hospital projects now under construction. The others are the Francis Delafield Hospital, the James Ewing Hospital and the Bird S. Coler Chronic Disease Hospital and Home.

Cardiac Clinic for Industry.—The cardiac clinic of the New York University-Bellevue Medical Center has set up a work classification unit to determine the type of occupation persons with heart disease may safely hold in business and industry. The survey, which will take more than a year, will be conducted among the outpatients attending the Bellevue Hospital Thursday Night Cardiac Clinic. The unit is under the direction of Dr. Leonard J. Goldwater, and the work is being underwritten by the New York Heart Association. Physicians representing two leading business firms are contributing their time: Drs. John H. Iselin Jr., of Consolidated Edison and the Chase National Bank, and Sigmund Falk, New York, of the Emerson Radio Corporation.

Increase in New Tuberculosis Cases.—According to the statistician for the New York Tuberculosis and Health Association, health department figures for the first three months of 1949 show a 26 per cent increase in the number of new cases of tuberculosis reported over the same three periods of 1948. There were 2,476 new cases reported this year up to April 1 as compared with 1,959 for the first three months last year. There was, however, for the first quarter of this year, a decrease in the number of deaths from tuberculosis. In Manhattan, the most crowded borough, the rise in tuberculosis was at a greater rate than for the city as a whole, more than half of the new cases being reported from that borough. On April 1 of this year there were 6,165 patients in the city's tuberculosis hospitals compared with 5,236 on the same day a year ago, an increase of 18 per cent. Tuberculosis clinics likewise report a 12 per cent increase in the number of patients treated.

NORTH CAROLINA

State Medical Election.—The Medical Society of the State of North Carolina at its annual meeting installed Dr. G. Westbrook Murphy, Asheville, as president, and elected Drs. Roscoe D. McMillan, Red Springs, president elect and Millard D. Hill, Raleigh, secretary-treasurer.

State Heart Association.—Dr. Robert L. McMillan, associate professor of clinical medicine, Bowman Gray School of Medicine of Wake Forest College, Winston-Salem, was elected president of the North Carolina Heart Association at a recent organizational meeting in Pinehurst. Dr. George T. Harrell Jr., head of the department of internal medicine, was named secretary. The association will sponsor a symposium on heart disease for doctors and laymen at the school in the fall.

Funds for Local Health Work.—The North Carolina State Board of Health has allocated the \$800,000 annual fund to aid local health work as follows: \$3,000 a year to each of the state's 100 counties; \$500 in addition for each county conducting a twenty week oral hygiene program; \$250 for each county conducting a ten week oral hygiene program and 40 cents for each school child, based on average daily attendance in each health unit. It was decided that the \$175,000 venereal diseases fund will be apportioned as in the past, but an additional fund will be allocated on the basis of population. This will amount to about 5 to 8 cents per capita.

OHIO

Personals.—Dr. Allyn B. Choate of Charlotte recently became president of the North Carolina Mental Hygiene Society for a two year term.—Dr. Everett F. Conlogue, superintendent since 1943 of the Stillwater Sanatorium, Dayton, is the newly elected president of the Ohio Tuberculosis Hospital Association.

Gift to Western Reserve.—The Louis D. Beaumont Foundation, Cleveland, has made a gift of \$100,000 to Western Reserve University School of Medicine, Cleveland, with no restriction on its use. According to Dr. Joseph T. Wearn, dean, the money will be used to pay better salaries to faculty members.

PENNSYLVANIA

Joint Meeting.—The Reading Eye, Ear, Nose and Throat Society held a joint meeting with the Reading Dental Society May 18. Dr. S. Gordon Castigliano, Philadelphia, spoke on the "Oral Cavity—the Physician and the Dentist," and Dr. Benjamin F. Souders, Reading, on "Ocular Manifestations of Tropical Diseases and Their Treatment."

Honor Secretary for Long Service.—The Bradford County Medical Society presented Dr. Stanley D. Conklin, Sayre, Pa., with a gold watch and chain properly inscribed in appreciation of twenty-five years of service as society secretary. The Medical Society of the State of Pennsylvania sent congratulations.

Philadelphia

Assistance for Tuberculosis Patients.—The William B. Lake Foundation has been established to provide assistance to citizens of Philadelphia and its environs who are suffering from pulmonary tuberculosis. Applicants must be deserving members of the "upper middle class" of society who do not normally receive aid and who are not able to pay the cost of proper hospitalization and care. Physicians should make application for their patients to the William B. Lake Foundation, Ralph D. Strong, secretary, 135 B. Broad Street, Philadelphia 9.

Alumni Seminar.—The annual Alumni Postgraduate Seminar of the Hahnemann Medical College and Hospital will be held June 22-23. On Wednesday morning the discussions will be limited to obstetrics and gynecology; in the afternoon to pediatrics. In the evening the main address will be given by Dr. Pascal F. Lucchesi, medical director of the Philadelphia General Hospital. On Thursday the morning sessions will be devoted to problems of general surgery and the afternoon sessions to those of internal medicine. The Alumni Banquet will be held that evening at 7 p. m. in the Benjamin Franklin Hotel.

Personals.—Carl D. Anderson, Ph.D., scientist and president of the Society of Sigma Xi, and Dr. William T. Taltafiero of the University of Chicago, will be the recipients of the honorary degree of Doctor of Laws at ceremonies attending the installation of the hundred and second chapter of Sigma Xi at Temple University on April 28.—Dr. John Yeatts Howson of Wayne is the recipient of the first annual citation given by the Philadelphia Division of the American Cancer Society for outstanding work in cancer control. The citation was "for outstanding leadership in organizing and conducting the Committee on Diagnostic Delay in Pelvic Cancer," which was established by the Obstetrical Society of Philadelphia and the Philadelphia County Medical Society in 1945.

New Heart Clinic.—A gift of \$250,000 for the construction of a new heart clinic and an additional \$25,000 to extend for two years an original grant made in 1940 for cancer research have been presented to the University of Pennsylvania by the Penn Mutual Life Insurance Company. The new clinic, to be known as the Penn Mutual Heart Clinic for the Study and Treatment of Cardiovascular Diseases, will be part of the outpatient building of the Thomas Sovereign Gates Memorial Pavilion in the university's proposed new medical center. The late Dr. Gates served as president of the university and was a trustee of Penn Mutual for more than twenty-two years before his death in 1948. The clinic will consist of one half floor in the center, a total of twenty-nine rooms which will provide enlarged facilities for both treatment and research.

Pittsburgh

New Graduate School Appointments.—The Graduate School of Public Health, University of Pittsburgh, has announced the following faculty appointments:

Dr. James A. Crabtree, a member of the U. S. Public Health Service since 1938, has been named head of the department of public health practice. He was in public health work in Tennessee from 1926 to 1934, when he became associate director of health, Tennessee Valley Authority. He served with the U. S. Public Health Service initially as epidemiologist in the National Cancer Institute; subsequently as executive assistant to the Surgeon General, executive secretary of the Health and Medical Committee of the Council of National Defense, consultant to the War Production Board and to the Office of Lend-Lease Administration, acting director of health for the United Nations Relief and Rehabilitation Association, Deputy Surgeon General and director of the Medical Division, National Security Resources Board.

Antonio Ciocco, D.Sc., also of the U. S. Public Health Service, has been appointed head of the department of biostatistics. Dr. Ciocco, a graduate of the University of Naples and of Johns Hopkins University, Baltimore, was associate in otology, Johns Hopkins School of Medicine 1930-1936, and associate in biology at the school of Hygiene and Public Health 1937-1939. Since then he has been biometrician, public health administrator and deputy chief of the Division of Public Health Methods, U. S. Public Health Service.

Other appointments include Theodore F. Hatch, research director, Industrial Hygiene Foundation, Pittsburgh, professor of industrial health engineering, and Paul M. Densen, D.Sc., chief of medical research statistics Division, Department of Medicine and Surgery, Veterans Administration, associate professor of biostatistics.

TENNESSEE

Fifty Year Practitioners.—Certificates and fifty year buttons for a half century of service were presented last month to 13 physicians at a meeting of the Nashville Academy of Medicine. Presentations were made by Dr. Nathaniel S. Shofner, president of the Tennessee State Medical Association.

Cancer Finding Program.—The State Public Health Council on May 12 appointed a committee to work out details of a new cancer finding program of the Tennessee Department of Public Health. The state legislature has appropriated \$50,000 a year for the program; \$56,000 of additional federal funds are reported available also. The committee will recommend a method of paying for services for the cancer detection program and recommend the location of clinics. Drs. Robert N. Buchanan Jr., Nashville; Cecil B. Tucker, Nashville, and Robert H. Hutcheson, Nashville, state department commissioner, were named to the committee which will work with the Tennessee Division of the American Cancer Society. Plans will deal with the establishment of a cancer service within the Division of Preventable Diseases on July 1.

TEXAS

University Appointment.—Dr. Joe C. Rude, of the Veterans Administration Hospital, Oklahoma City, has accepted appointment as professor of radiology at the University of Texas Medical Branch, Galveston.

Gorgas Memorial Plaque.—A memorial plaque honoring Major General William C. Gorgas, pioneer fighter against yellow fever, was unveiled recently in Brownsville by the general's granddaughter, Mrs. P. A. Hofheinz, Houston. The plaque, presented by the Brownsville Historical Association, will be installed in the Brownsville Junior College Administration Building, which was formerly the hospital for Fort Brown, where Gorgas was an Army physician in 1880.

Industry Builds a Hospital.—A million dollar general hospital built by a nonprofit corporation founded by local industries was opened May 7 in Lufkin. More than \$1,000,000 was contributed by fourteen business firms and industries. The 102 bed hospital will serve 4,000 employees of the sponsoring companies for whom it is primarily intended, although it can accommodate the citizens of Angelina County during normal times. Only unusual circumstances will necessitate giving preference to employees of the companies. Governor Beauford Jester gave the dedicatory address. Dr. U. Gail Medford, Lufkin, will be chief of staff.

Ashbel Smith, M.D.—1805-1886.—A feature of the Graduation Exercises of the University of Texas Medical Branch, Galveston, June 10, was the unveiling of a bronze head of Ashbel Smith, M.D. (1805-1886), Surgeon General of the Republic of Texas and first chairman of the Board of

Regents of the University of Texas. Dr. Smith received his M.D. degree from Yale in 1825 and studied in Paris. He rendered heroic service in the yellow fever epidemic in Galveston in 1839, established the first hospital in Houston in Texas during the war for independence, and was the first Minister of the Republic of Texas to England and France. During the Civil War Dr. Smith raised the Second Texas Infantry and was its commander. He was a member of the state legislature and arranged for the establishment of the University of Texas and served as dean of Texas Medical College in Galveston before the establishment of the Medical Branch.

VERMONT

Medical History Club.—A history club has been organized by students and faculty of the University of Vermont College of Medicine at Burlington. Two meetings have been held this year. The name adopted was "Surgeons of the Short and Long Robe." Four meetings are planned for the academic year 1949-1950. There is a backlog of available papers and an apparent enthusiasm on the part of both students and faculty.

VIRGINIA

County Health Service Endowed.—A privately endowed county health service was launched at Victoria May 21. Governor Tuck and Colgate W. Darden Jr., president of the University of Virginia, were the principal speakers. The two story colonial brick building which will house the Lunenburg Health Service, Inc., is financed by a \$250,000 trust fund created by Robert Miles Williams, owner of the Victoria Supply Company and a victim of infantile paralysis. The nonprofit corporation will complement the work of the state public health unit to be established in Lunenburg County July 1. The structure includes clinic rooms, laboratory and rooms for emergency patients furnished by private citizens in the county and given to the foundation. The clinics will have services of three physicians and two dentists.

WASHINGTON

Community Observes Dr. Hood Day.—The town of Ferndale paid its respects to Dr. Charles S. Hood May 10. The observance took the form of an open house at his home in the afternoon and a dinner sponsored by the Lions Club in the evening. The high school band serenaded Dr. Hood, who has been Ferndale's physician for forty-seven years.

Dr. Ripley Heads Psychiatric Department.—First head of the new psychiatric department of the University of Washington School of Medicine, Seattle, is Dr. Herbert S. Ripley. He has been an assistant professor of psychiatry at Cornell University Medical College, New York. A graduate of Harvard Medical School, Boston, 1933, Dr. Ripley has taught at Cornell University since 1935 except for the war years, when he was a consulting psychiatrist in the South Pacific with the rank of lieutenant colonel.

HAWAII

Returns as Chief of Tuberculosis Control.—Dr. Robert H. Marks has returned to his position as head of the Bureau of Tuberculosis Control of the Territorial Department of Health after a year's absence. He has been serving as director of the Jefferson Tuberculosis Sanatorium in Birmingham, Ala. Dr. Maurice L. Brodsky, acting chief of the bureau, who was on loan to the territory from the U. S. Public Health Service, returned to the mainland April 21.

Hawaii Proposed as Clearing House on Epidemiology.—A formal proposal to make Honolulu the "intelligence center" for epidemiologic information for the Pacific area has been advanced by Karl F. Meyer, Ph.D., director of the Hooper Foundation of San Francisco, affiliated with the University of California. Dr. Meyer offered a resolution to this effect at the Pacific Science Congress at Auckland, New Zealand, earlier this year. It was approved and has been referred to the Pacific Science Board for consideration. In a stop-off at Honolulu Dr. Meyer discussed the idea with officials of the Territorial Health Department. "With existing fast transportation," he said, "the disease of one area in the Pacific can become the epidemic of another area within a few days. Hawaii, strategically located, should be the clearing house for information on epidemiology, as Singapore was before the war under the League of Nations." He suggested, however, that the present proposal be strictly a Pacific matter, not affiliated with the United Nations. Among the outstanding problems cited by Dr. Meyer as requiring attention were tuberculosis among all the natives, filarial infections in Samoa and the Fijis, leprosy in New Caledonia and widespread tooth decay. He suggested as one project for the center the standardization of leprosy treatment.

GENERAL

International Meeting on Ophthalmology.—The Pan-American Association of Ophthalmology and the National Society for the Prevention of Blindness will hold a joint meeting at the Floridian Hotel, Miami Beach, Fla., March 26-30, 1950. It will be the annual meeting of the national society and an interim meeting for the Pan-American association.

Diabetes Detection Drive.—The American Diabetes Association reports that the diabetes detection drive, inaugurated by the association during Diabetes Week, December 6-12, 1948, covered 145,960 patients including 37,243 children. The program is continuing. Local committees of doctors from county medical societies provided for free testing of urine of patients either in the doctors' offices or in the detection centers.

American Board Meeting.—The American Board of Obstetrics and Gynecology at its annual session in Chicago May 8-14 elected Drs. Walter T. Dannreuther, New York, president; Paul Titus, Pittsburgh, secretary-treasurer, and Robert L. Faulkner, Cleveland, assistant secretary. At this examination meeting 236 candidates were certified. The next annual examination meeting will be held at the Hotel Shelburne in Atlantic City, N. J., May 21-28, 1950, immediately following the International Congress on Obstetrics and Gynecology in New York.

Journal on Fertility and Sterility.—The American Society for the Study of Sterility will publish a new journal, *Fertility and Sterility*, to be devoted to original articles, reviews and abstracts. Dr. Pendleton Tompkins, San Francisco, is editor, and Dr. Abner I. Weisman, New York, managing editor. The advisory board comprises twenty distinguished authorities. Original papers on relevant topics should be addressed to Dr. Tompkins, 450 Sutter Street, San Francisco 8. Subscriptions will be \$7.50 a year and should be sent to Paul B. Hoeber, Inc., 49 East 33 Street, New York 16.

German Medical and Dental Periodicals.—An Interim Checklist of Holdings of 168 German Medical and Dental Periodicals, 1939-1948, in 38 libraries of the United States and Canada, has been compiled by the Committee on Periodicals and Serial Publications of the Medical Library Association. The number of copies to be published will be based on the number of orders received by July 15, 1949. To assure receipt of a copy, an order accompanied by remittance of \$1 should be sent before that date to Mrs. Edith Denehl, Marquette University Medical Library, 561 North 15th Street, Milwaukee 3, Wis.

Hoffeimer Research Award.—At the 1949 convention of the American Psychiatric Association Dr. Benjamin Pasamanick, in charge of the Children's Service of the Division of Psychiatry, Kings County Hospital, Brooklyn, and associate in psychiatry at the Long Island College of Medicine, Brooklyn, received the first Lester N. Hoffeimer Research Award of \$1,500. The award is offered to the psychiatrist under 40 who has published the best research in the preceding three years. The work for his paper, "A Comparative Study of the Behavioral Development of Negro Infants" was done at the Yale Clinic of Child Development and appeared in the *Journal of Genetic Psychology* (69: 3-44, 1946).

Study of Visits to Family Physicians.—A study completed by Columbia University's School of Public Health, reveals that in two comparable industrial plants in New York City the plant which maintains an industrial physician had more than twice as many of its employees visiting family physicians during a year's time as did the plant which does not keep a doctor on its rolls. Conducted by a group of investigators headed by Drs. Leonard J. Goldwater, New York, and Meyer Rosenblum, Brooklyn, the study shows that the plant with a physician in attendance referred to family doctors 17 per cent of the plant personnel, as contrasted with the non-medical-service factory, in which only 7.3 per cent of its employees visited their doctors. The employees numbered about 1,000 at each plant.

Polio myelitis Report.—According to the U. S. Public Health Service, 155 cases of polio myelitis were reported during the week ending May 28 as compared with 101 the previous week, 138 for the corresponding week last year and a five year median of 44 cases for the week. The current increase was accounted for almost entirely by the increase in Texas (from 42 to 72), California (from 11 to 18), Arkansas (from 2 to 9), Oklahoma (from 3 to 7) and Florida (from 3 to 7). No other state reported more than 5 cases currently. The cumulative total to date is 1,619 cases, as compared with 1,077 last year and a five year median of 888 for the same period. Of the current total California has reported 378 cases and Texas 291. The total since the average seasonal low point of the disease is 696, as compared with 729 last year and a five year median of 343 for the corresponding period.

First Medical Exchange Students Arrive.—The first two foreign medical students coming here under the Medical Student Exchange Program of the Association of Internes and Medical Students arrived May 24 from Denmark. They will be followed by medical student representatives from France, England, Czechoslovakia and Norway. Exchange facilities for clinical clerkships have been prepared by the association at Yale University School of Medicine, New Haven, Conn., and the University of Pennsylvania School of Medicine and Woman's Medical College in Philadelphia. The Medical Student Exchange program has been arranged by the Association of Internes and Medical Students and the Medical Student Unions in various countries through the facilities of the International Union of Students. Thirty American medical students will travel to Europe this summer to study at medical centers in Denmark, France, Czechoslovakia and England.

Tuberculosis Culture Bank Affiliates with International Group.—An invitation to the Culture Bank of Tubercle Bacilli, Trudeau, N. Y., to affiliate with the International Federation of Culture Collections of Micro-Organisms at Lausanne, Switzerland, has been accepted by the National Tuberculosis Association, which maintains the Trudeau bank. The invitation to become a member of the International Federation is recognition of the value of the service the culture bank has performed and offers an opportunity for more extensive service, said Dr. Esmond R. Long, Philadelphia, director of the association's medical research. About eighty laboratories with culture collections of various types of micro-organisms are members of the International Federation under the direction of Professor Paul Hauduroy. Member laboratories, on request, can obtain cultures of any micro-organisms grown by other member laboratories.

Northwestern Medical Association.—A group of 45 skiing physicians from all parts of the United States have formed the Northwestern Medical Association, primarily to study winter sports from the medical point of view. They will meet each year at Sun Valley to discuss skiing safety, snow blindness, frost bite, treatment of fractures, high altitude and winter diseases. At their first meeting the physicians and dentists, who are associate members, elected Dr. L. Henry Garland, San Francisco, as their first president and Dr. Vernon D. Smith, St. Paul, secretary-treasurer. The physicians adopted a constitution that names the purposes of their new organization as the "advancement of the science and art of medicine and the betterment of public health especially as it relates to winter climates." The major function of the group will be that of an advisory counsel, and recommendations will be made in connection with all safety aspects of skiing.

Society Elections.—The American Orthopedic Association at its recent annual meeting in Colorado Springs installed Dr. Robert W. Johnson Jr., Baltimore, as president, and J. Spencer Speed, Memphis, Tenn., president elect. The American Proctologic Society at its meeting May 31 to June 4 in Columbus, Ohio, installed Dr. Louis E. Moon, Omaha, Neb., as president, and elected Drs. Hoyt R. Allen, Little Rock, Ark., president elect; Wendell W. Green, Toledo, Ohio, secretary and Rufus Alley, Lexington, Ky., treasurer. The North Pacific Society of Neurology and Psychiatry at its annual meeting in Portland, April 7-9 installed Drs. H. Ryle Lewis of Spokane, Wash., president, and chose Charles P. Larson, Tacoma, Wash., president elect. Gerhard B. Haugen, Portland, Ore., was reelected secretary-treasurer. The next annual meeting will be held in Spokane in 1950.

Marriages

JOHN C. SOUDERS JR., Rock Island, Ill., to Miss Louise Aileen Padburg of Oklahoma City in Evanston, Ill., February 26.

GLENN CLAIRE HALL, Pulaski, Va., to Miss Frances Elizabeth Palmer of South Boston, at Charlottesville, May 21.

LAWRENCE LEE WASHBURN, Louisville, Ky., to Miss Alice Howison Brown in Greeneville, Tenn., May 21.

ROBERT DELL HAYS, Brady, Texas, to Miss Mary Lou Holland of Van Buren, Ark., in New Orleans, May 15.

MEYER IRVING KRISCHER, Norfolk, Va., to Miss Helen Virginia Green in Ingleside, May 20.

JIM C. BARNETT JR., Dallas, Texas, to Miss Ann Fairly Wilson of Hazlehurst, Miss., June 14.

JOHN EDGAR CAMPBELL JR., Knoxville, Tenn., to Miss Bobbie Jean Darby of Atlanta, May 21.

Deaths

Howard Canning Taylor * New York; born in Green's Farms, Conn., in 1868; Columbia University College of Physicians and Surgeons, New York, 1891; formerly on the faculty of his alma mater; an Associate Fellow of the American Medical Association; specialist certified by the American Board of Obstetrics and Gynecology; past president of the American Society for the Control of Cancer; member of the American Gynecological Society, of which he had been president, and the Association for the Study of Internal Secretions; fellow of the American College of Surgeons; affiliated with the Tarrytown (N. Y.) Hospital, Elizabeth A. Horton Memorial Hospital in Middletown, N. Y., Greenwich (Conn.) Hospital, Sharon (Conn.) Hospital, Stamford (Conn.) Hospital, Roosevelt Hospital and the Sloane Hospital for Women; died March 26, aged 80.

Frederick Robert Driesbach, Dansville, N. Y.; born in South Dansville, N. Y., May 31, 1865; College of Physicians and Surgeons, medical department of Columbia College, New York, 1889; member of the American Medical Association; for many years county coroner; formerly member and president of the board of pension examiners; served as director and president of the Merchants and Farmers National Bank; formerly surgeon for the Lackawanna Railroad; a founder, from 1927 to 1946 president, president emeritus from 1946 to 1948, when he became honorary president and formerly chief of staff, Dansville General Hospital, now known as the Dansville Memorial Hospital, where he died April 25, aged 83, of pneumonia.

Harry Monroe Hendershott * Portland, Ore.; born in 1879; University of Oregon Medical School, Portland, 1908; associate professor emeritus of ophthalmology at his alma mater; specialist certified by the American Board of Ophthalmology and American Board of Otolaryngology; member of the Pacific Coast Oto-Ophthalmological Society; served during World War I; in recognition of his services during World War II received a medal and citation for his work in the selective service system; affiliated with Shriners Hospital for Crippled Children and the Physicians and Surgeons Hospital, where he died March 26, aged 69, of cerebral sclerosis.

Edward Pennington Allen, Oklahoma City; University of Texas School of Medicine, Galveston, 1911; emeritus professor of obstetrics at the University of Oklahoma School of Medicine; member of the American Medical Association; member and formerly vice president of the Central Association of Obstetricians and Gynecologists; served during World War I; affiliated with St. Anthony and University hospitals; died March 25, aged 65, of coronary occlusion.

Solomon Ben-Asher * Jersey City, N. J.; University and Bellevue Hospital Medical College, New York, 1923; specialist certified by the American Board of Internal Medicine; member of the National Gastroenterological Association; served during World War I; on the staffs of the Jersey City Medical Center, Fairmount Hospital and the Greenville Hospital; died April 27, aged 54, of coronary occlusion with myocardial infarction.

William John Bingham, Denver; Colorado School of Medicine, Boulder, 1904; member of the American Medical Association; also a minister; formerly a missionary; at one time in charge of the Hospital Americano-Latino, Pueblo, Mexico; died April 25, aged 76, of cerebral vascular accident and cardiovascular renal disease.

Jonas Borak * New York; Medizinische Fakultät der Universität, Wien, Austria, 1921; specialist certified by the American Board of Radiology, Inc.; on the staff of the City Hospital; died April 4, aged 56, of coronary thrombosis.

Alexander Moultrie Brailsford * Major, U. S. Army, retired, Camden, S. C.; Medical College of the State of South Carolina, Charleston, 1897; formerly member of the state board of medical examiners; served in France during World War I; entered the medical corps of the U. S. Army in 1920 and retired June 30, 1934 for disability in line of duty; died April 6, aged 77, of coronary thrombosis.

Paul Albert Brehm, Madison, Wis.; University of Nebraska College of Medicine, Omaha, 1925; member of the American Medical Association; director of the industrial hygiene division of the state board of health; formerly chairman of the National Conference of Governmental Industrial Hygienists; affiliated with Columbia and Johnston Emergency hospitals; died April 29, aged 48, of acute coronary occlusion.

Jephth Latamore Brock, Franklinton, La.; Medical Department of Tulane University of Louisiana, New Orleans, 1903; served as parish coroner and sheriff; died April 7, aged 69, of cerebral hemorrhage and uremia.

George Clay Campbell, Anadarko, Okla.; Kansas City (Mo.) Medical College, 1899; served during World War I; died April 18, aged 73, of carcinoma.

Charles F. Childs, Quincy, Ill.; Kentucky School of Medicine, Louisville, 1892; served during World War I; died April 1, aged 76.

George C. Clisby, Kinsman, Ohio; Western Reserve University Medical Department, Cleveland, 1900; served during the Spanish-American War; died April 19, aged 76, of chronic myocarditis and cerebral hemorrhage.

Oliver Warren Cobb * Florence, Mass.; University of Virginia Department of Medicine, Charlottesville, 1897; an Associate Fellow of the American Medical Association; died in Northampton, April 6, aged 90, of arteriosclerosis.

David Young Cohill, Marblehead, Mass.; Boston University School of Medicine, 1896; died April 9, aged 84.

Jesse F. Conrad, Magnetic Springs, Ohio; Eclectic Medical Institute, Cincinnati, 1901; died April 21, aged 76, of cerebral hemorrhage.

Matthias W. Conrow, Springfield, Mass.; New York Homeopathic Medical College and Hospital, New York, 1905; fellow of the American College of Surgeons; on the staff of Wesson Memorial Hospital; died April 14, aged 70, of coronary thrombosis.

Floyd Harrison Cook, Akron, Ohio; Syracuse University College of Medicine, 1907; on the staff of City Hospital; for many years eye surgeon for the Erie Railroad; died April 12, aged 67, of subarachnoid hemorrhage.

Emelyn Lincoln Coolidge, New York; Cornell University Medical College, New York, 1900; formerly affiliated with the Babies Hospital and the Lying-In Hospital; author of numerous books; died April 14, aged 75, of arteriosclerosis and hypertension.

Charles Elihue Copeland * Charleston, W. Va.; College of Physicians and Surgeons, Baltimore, 1893; an Associate Fellow of the American Medical Association; past president of the Kanawha Medical Society; served during World War I; on the staff of Mountain State Memorial Hospital; died April 20, aged 81.

Hiram Thomas Coulter, Rockdale, Texas; Bellevue Hospital Medical College, New York, 1898; member of the American Medical Association; served during World War I; on the school board; died in a hospital at Temple recently, aged 75, of cerebral hemorrhage.

Thomas E. Craig, Charlotte, N. C.; Knoxville (Tenn.) Medical College, 1904; died April 12, aged 79, of uremia.

Howard Cone Curtis * Moorestown, N. J.; Columbia University College of Physicians and Surgeons, New York, 1922; formerly secretary of the Burlington County Medical Society; affiliated with the Burlington County Hospital, Mount Holly, where he died April 7, aged 56, of rupture of the aorta.

Hugh Alexander Cuthbertson * St. Petersburg, Fla.; University of Toronto Faculty of Medicine, 1894; an Associate Fellow of the American Medical Association; died April 21, aged 79, of myocardial infarction.

William Minor Dabney * Ruxton, Md.; University of Virginia Department of Medicine, Charlottesville, 1896; died April 20, aged 75.

Eric Jacob Danek, Chicago; Dearborn Medical College, Chicago, 1906; died April 16, aged 68, of diabetes mellitus and chronic interstitial nephritis.

Frederick Bond Dart, Niantic, Conn.; University of Maryland School of Medicine and College of Physicians and Surgeons, Baltimore, 1923; member of the American Medical Association; medical examiner at East Lyme for many years; served during World War I; at one time health officer at large with the state department of health in Baltimore; died April 24, aged 57.

Virginia M. Davies, Congers, N. Y.; Woman's Medical College of the New York Infirmary for Women and Children, New York, 1886; died April 21, aged 87, of thrombosis.

Robert Jerome Day, Imperial, Neb.; University of Nebraska College of Medicine, Omaha, 1940; member of the American Medical Association; served during World War II; died April 14, aged 32, of carcinoma of the colon.

Michael Patrick DeVito, Washington, D. C.; Georgetown University School of Medicine, Washington, 1932; member of the American Medical Association; assistant professor of surgery in plastic and reconstructive surgery at his alma mater; served during World War II; affiliated with Georgetown, Emergency, Children's, Gallinger and Providence hospitals; died in Pinehurst, N. C., April 18, aged 43, of coronary occlusion.

Foreign Letters

PARIS

(From Our Regular Correspondent)

April 15, 1949.

Polychemotherapy

By the administration of several sulfonamide compounds in a mixture, untoward effects are less frequent than when treatment is undertaken with a single sulfonamide drug. The size of the dose for the mixture is the same as that for the single product. S. Lewi (in charge of consultation at the Rothschild Hospital), who in 75 cases in which this method of treatment was used observed no accident, has been trying since 1948 to apply the polychemotherapy method to the arsenical treatment of syphilis. He has used a mixture (0.075 Gm. neoarsphenamine, 0.03 Gm. sulfarsphenamine and 0.02 Gm. dichlorophenarsine hydrochloride) freshly prepared in distilled water in the same syringe; the solution is injected slowly into the vein. The injections are repeated for twenty consecutive days. So far, this intensive treatment has not produced any reaction except for some nausea, more rarely vomiting. There have been no transient cephalgia, medicamentous fever, rashes or serious accidents. In his communication of Feb. 18, 1949, to the Society of the Paris Hospitals, the author did not discuss the therapeutic value of this method, as the limited number of cases in which the treatment was used consisted almost entirely of old cases with irreducible serologic reaction. However, in 1 case of previously untreated syphilis, of one year's duration, he noted the development of an almost completely negative serologic reaction (the only Kolmer reaction being dubious) after a single treatment of twenty injections. In another case of secondary syphilis, six injections of polyarsenotherapy caused all lesions to disappear. The author at present is trying this treatment on a larger scale for recently acquired syphilis and, to diminish the dose of the various arsenicals, has added a small dose of oxophenarsine hydrochloride. He has also drawn attention, in *Le Médecin Français* of April 10, to his first trials of anti-thyroidic polychemotherapy consisting in a mixture, at equal doses, of aminothiazole, thiouracil and methylthiouracil. After an initial treatment of a daily dose of 0.20 Gm. for the average case, signs of hyperthyroidism rapidly retrogressed and the daily doses could be progressively lessened until the patients were given minimum doses as a maintenance treatment. In 1 patient excellent therapeutic results were obtained with the administration of a mixture of aminothiazole, thiouracil and its methyl and propyl derivatives. Up to the present no accident with this method has been observed. The patients receive weekly hematologic examinations. Dr. Lewi also has stressed that polychemotherapy may permit the studying of other drug modifications; for instance, sulfones (interesting in experimental tuberculosis), the toxicity of which has not yet allowed their use at therapeutic doses on more than an experimental scale in human beings.

Increase of Antibiotic Pot

on

Exchange of Dialyzable Substances by Crossed Circulation

Bessis's ingenious exchange transfusion technic is being used more widely; for example, in serious intoxications with uremia. In collaboration with P. Freixa, the author has just perfected a new technic of crossed circulation between two organisms. This technic, the use of which is limited to known or unknown dialyzable products, is intended to rid an organism of an excess of dialyzable products or to introduce into it those that are missing. In their experiments on dogs and goats, the authors have noted the innocuity of such an intervention, even between two different species. They now are considering the possibility of applying this method to human therapy; for example, in cases of acute uremia.

THE NETHERLANDS

(From Our Regular Correspondent)

AMSTERDAM, May 23, 1949.

Influenza Research

The Netherlands Government is engaged in making plans for the fight against influenza. Four laboratories are acting as working units, three of which belong to the University of Leyden, the fourth being in the Institute of Preventive Medicine, also at Leyden. A special government commission has been set up to organize the plan of campaign against the disease. A biologic concern has also been incorporated to manufacture vaccine.

At present the collective Leyden laboratories form at the same time the regional laboratory for the Netherlands under Prof. J. Mulder, who for many years, formerly at Groningen, during the last few years at Leyden, has been doing outstanding research work on influenza in this country. They act in the service of the London Influenza Centre of the World Health Organization under Dr. C. H. Andrewes. The organization comprises: (1) a reporting service of clinical influenza and influenzal pneumonia, distributed over the country, but chiefly localized in the towns near the frontiers and in harbor towns; (2) the equipment of a team to collect material on the spot; (3) the evolving of a rapid virologic diagnosis and the determination of the serologic strain type; (4) a unit for studying the fight against influenzal pneumonia by means of antibiotics, especially penicillin; (5) a unit for the study of vaccination problems; (6) the development of knowledge about the statistics of influenzal morbidity and mortality in Holland, the figures being obtained from the Netherlands Central Institute of Statistics (The Hague), which possesses accurate data from the year 1902 onward.

The greatest anxiety for Holland is caused by the necessity to build up an adequate stock of penicillin which must be present in case of a severe influenza epidemic, so that every patient with influenzal pneumonia can be treated. It is expected that export from America would be suspended if such an epidemic should make its appearance. At present Holland produces more penicillin than the quantity necessary for normal use. The of an adequate stock is estimated to take two years

Myron Robinson Jackson, Oyster Bay, N. Y.; Cornell University Medical College, New York, 1923; member of the American Medical Association; fellow of the American College of Surgeons; member of the school board; affiliated with North Country Community Hospital in Glen Cove and Meadowbrook Hospital in Hempstead; died April 15, aged 54, of coronary occlusion.

George Abraham Jett, Chicago; Rush Medical College, Chicago, 1893; died April 9, aged 77, of carcinoma of the colon.

Joseph Henry Shaver Johnson, Chicago; College of Physicians and Surgeons, Homeopathic, Buffalo, 1883; the Hahnemann Medical College and Hospital, Chicago, 1884; died April 5, aged 92, of cerebral hemorrhage.

James Alba Johnston, Byron, Ill.; Omaha Medical College, 1894; member of the American Medical Association; died April 6, aged 89, of coronary heart disease.

Thomas Henry Johnston, Alhambra, Calif.; Queen's University Faculty of Medicine, Kingston, Ontario, Canada, 1900; at one time practiced in Spencer, Iowa; past president of the Clay County (Ia.) Medical Society; served on Selective Service Examining Board for World Wars I and II; died April 10, aged 77, of Parkinson's disease.

Percival Milton Kerr Ⓢ Wilkes-Barre, Pa.; Temple University School of Medicine, Philadelphia, 1906; on the staff of Nesbitt Memorial Hospital, Kingston, where he died April 11, aged 63, of cerebral thrombosis and arteriosclerosis.

Phyllis Schuyler Kerr Ⓢ White Plains, N. Y.; Rush Medical College, Chicago, 1928; specialist certified by the American Board of Dermatology and Syphilology; affiliated with the Tarrytown (N. Y.) Hospital, Lawrence Hospital in Bronxville, White Plains (N. Y.) Hospital and Westchester Division-New York Hospital; died in the Doctors Hospital, New York, April 12, aged 54, of carcinoma.

Louis Kimmelman, Philadelphia; University of Pennsylvania School of Medicine, Philadelphia, 1910; affiliated with the Temple University Hospital; died March 20, aged 62, of thrombosis.

Edgar Coote Lee, San Diego, Calif.; Rush Medical College, Chicago, 1904; specialist certified by the American Board of Urology; served on the staffs of Scripps Memorial Hospital, La Jolla and Mercy Hospital; died April 11, aged 67, of hemorrhage and duodenal ulcer.

Leslie Clifford Love, Montclair, N. J.; Columbia University College of Physicians and Surgeons, New York, 1900; served as a member of the board of health, board of education and medical milk commission; formerly on the staff of Mountainside Hospital, where he died April 3, aged 75, of carcinoma.

Frank Allemang Lupton, Birmingham, Ala.; Johns Hopkins University School of Medicine, Baltimore, 1899; member of the American Medical Association and the Southern Surgical Association; died April 14, aged 76.

Harmar Hendrix McConkey, Canton, Ohio; Jefferson Medical College of Philadelphia, 1934; member of the American Medical Association; served during World War II; on the staff of Aultman Hospital; died April 14, aged 39, of coronary occlusion.

Carleton Buel McCulloch Ⓢ Indianapolis; Chicago Homeopathic Medical College, 1895; an Associate Fellow of the American Medical Association; fellow of the American College of Surgeons; vice president and medical director of the State Life Insurance Company; received the French Croix de Guerre for his bravery during World War I; died in Methodist Hospital April 5, aged 77, of coronary heart disease.

John Joseph McMahon Ⓢ New York; Trinity Medical College, Toronto, Canada, 1899; specialist certified by the American Board of Obstetrics and Gynecology; fellow of the American College of Surgeons; served on the staffs of the St. John's Long Island City Hospital in Long Island City, Misericordia Hospital and St. Clare's Hospital, where he died April 13, aged 71, of acute coronary occlusion.

Francis Aloysius Mahoney, Brookline, Mass.; Tufts College Medical School, Boston, 1906; affiliated with Brooks Hospital; died April 6, aged 67, of coronary thrombosis.

Edward Allan Mednick, New York; New York University College of Medicine, 1938; specialist certified by the American Board of Radiology; member of the Radiological Society of North America and the American College of Radiology; affiliated with the Veterans Administration Hospital; died April 6, aged 34, of coronary heart disease.

Christian Nysewander, Des Moines; Starling Medical College, Columbus, 1879; member of the American Medical Association; died April 8, aged 94, of carcinoma of the rectum.

Richard Michael Raymond, Framingham, Mass.; Bellevue Hospital Medical College, New York, 1891; died recently, aged 78, of carcinoma.

Edward Combs Redmon, Louisville, Ky.; University of Louisville (Ky.) Medical Department, 1905; on the staff of Samaritan Hospital, where he died March 24, aged 63.

Henry James Reynolds, Chicago; Bellevue Hospital Medical College, New York, 1875; died in the Illinois Masonic Hospital April 13, aged 96, of chronic myocarditis and arteriosclerosis.

Dutch Kilgo Robison, Rocksprings, Texas; Memphis (Tenn.) Hospital Medical College, 1899; member of the American Medical Association; served during World War I; received the Selective Service Medal for his work during World War II; died in Del Rio February 20, aged 71, of diabetes mellitus.

John Clayton Rogers, Louisville, Ky.; Kentucky University Medical Department, Louisville, 1903; served during the Spanish-American War and World War I; on the medical advisory board, state selective service during World War II; formerly clinical director of the U. S. Veterans Hospital in Waukesha, Wis.; on the staff of Western State Hospital; died in the Nichols Hospital March 25, aged 69, of arteriosclerotic heart disease.

Edward Harry Rosenzweig Ⓢ Chicago; Loyola University School of Medicine, Chicago, 1922; died March 17, aged 52.

Emanuel Salwen Ⓢ Brooklyn; Columbia University College of Physicians and Surgeons, New York, 1917; specialist certified by the American Board of Urology; member of the American Urological Association; fellow of the American College of Surgeons; served during World War I; at one time instructor in anatomy at the Long Island College of Medicine; on the staffs of the Maimonides and the Coney Island hospitals; died April 4, aged 55, of hypertensive vascular disease and cerebral hemorrhage.

Allen Sather, Fosston, Minn.; State University of Iowa College of Medicine, Iowa City, 1908; member of the American Medical Association; served as mayor of Fosston; director and past president of the Farmers State Bank; died February 14, aged 67, of femoral thrombosis, arteriosclerosis and hypertension.

Herbert Philander Sawyer, Goodhue, Minn.; University of Minnesota College of Medicine and Surgery, Minneapolis, 1895; died in Red Wing March 10, aged 78, of coronary heart disease.

Ethan Allen Sherrill Sr., Houston, Texas; University of Tennessee Medical Department, Nashville, 1899; member of the American Medical Association; died recently, aged 71, of ruptured esophageal varices.

Charles M. Spicer Ⓢ Denver; University Medical College of Kansas City, Mo., 1905; affiliated with Denver General Hospital, Mercy Hospital and St. Anthony's Hospital, where he died February 13, aged 66, following an operation for carcinoma.

Samuel Page Stubbs, Fort Smith, Ark.; Kansas City (Mo.) College of Medicine and Surgery, 1918; past president of the county board of health; member of the American Medical Association; died March 23, aged 68, of brain tumor.

Ellis Hall Tade, Bicknell, Ind.; Medical College of Indiana, Indianapolis, 1905; died February 24, aged 70, of heart disease.

Herbert Ellery Thompson Ⓢ Bangor, Me.; Medical School of Maine, Portland, 1909; past president of the Penobscot County Medical Association; fellow of the American Society of Clinical Pathologists; formerly pathologist for the state board of health; served on the staffs of State Hospital, Worcester (Mass.) State Hospital and the Eastern Maine General Hospital; died March 29, aged 71.

Walter Earnest White, Ipswich, S. D.; Northwestern University Medical School, Chicago, 1914; member of the American Medical Association; superintendent of county board of health; died recently, aged 64, of heart disease.

Daniel Dodson Willcox, Petersburg, Va.; University College of Medicine, Richmond, 1901; member of the American Medical Association; on the staff of Petersburg Hospital, where he died April 18, aged 71.

Homer Holsinger Wolfe Ⓢ Fort Bragg, Calif.; Cooper Medical College, San Francisco, 1909; died March 3, aged 64.

Amos Monroe Wooten, Pinetops, N. C.; University of North Carolina School of Medicine, Chapel Hill, 1910; member of the American Medical Association; a member of the county board of health; president of the Pinetops Building and Loan Association; died in the Edgecombe General Hospital, Tarboro, April 15, aged 64, of pneumonia.

L. James Dixon, Denver; St. Louis College of Physicians and Surgeons, 1922; died in the Mercy Hospital April 20, aged 54.

Joseph Murray Doyle, Chicago; Victoria University Medical Department, Coburg, Ontario, Canada, 1893; died April 28, aged 83, of cerebral hemorrhage and carcinoma.

Richard Alvin Drake, Medford, Mass.; Harvard Medical School, Boston, 1902; member of the American Medical Association; formerly city physician and member of the local board of health; on the staff of the Lawrence Memorial Hospital; died April 8, aged 70.

Floyd Ernest Duncan © Rushville, Ill.; St. Louis College of Physicians and Surgeons, 1922; affiliated with Schmitt Memorial Hospital in Beardstown; died in Green Bay, Wis., April 10, aged 48.

Robert Wirt Dunham, Elkins, W. Va.; College of Physicians and Surgeons, Baltimore, 1908; died April 23, aged 67.

Thomas Martin Egan, Chicago; Bennett Medical College, Chicago, 1915; member of the American Medical Association; on the staff of Illinois Central Hospital, where he died April 10, aged 62, of cerebral hemorrhage and hemiplegia.

James Claude Elsom, Madison, Wis.; Medical College of Virginia, Richmond, 1886; member of the American Medical Association; emeritus professor of physical therapy at the University of Wisconsin Medical School; professor of physical culture and director of gymnasium at the University of Wisconsin from 1894 to 1936; served during World War I; formerly on the staffs of the University and Wisconsin General hospitals; died April 11, aged 82, of heart disease.

James Ernest Fox © Hopkinsville, Ky.; Hospital College of Medicine, Louisville, 1904; member of the Southern Psychiatric Association and the American Psychiatric Association; formerly health officer of Paducah; at one time superintendent of Central State Hospital in Lakeland; served on the staff of the Western State Hospital; died in the Riverside Hospital, Louisville, April 7, aged 71, of diabetes mellitus.

George W. Fredendall, Lexington, Mo.; Chicago Medical College, 1886; died March 29, aged 85.

Karl Friedbacher, West Allis, Wis.; University of Pennsylvania School of Medicine, Philadelphia, 1925; member of the American Medical Association; fellow of the College of Surgeons; died in Naples, Fla., May 10, aged 48, of bronchogenic carcinoma.

John Henry Frost, Stanton, Mich.; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1894; died April 7, aged 82, of intestinal hemorrhage and gangrene of the left foot.

Silvies S. Fuller, La Mesa, Calif.; Kansas City Hahnemann Medical College, Kansas City, Mo., 1903; died April 12, aged 74.

James John Galman © Sheldon, Iowa; Detroit College of Medicine, 1897; affiliated with St. Joseph Hospital; died in Sioux City April 1, aged 76, of uremia.

Ralph English Garnhart, Milan, Ohio; Ohio Medical University, Columbus, 1904; also a registered pharmacist; member of the American Medical Association; died April 7, aged 73, of coronary occlusion.

Shaul George © Pittsburgh; Northwestern University Medical School, Chicago, 1904; fellow of the American College of Physicians; served during World War I; for many years affiliated with Pittsburgh Hospital, where he died April 14, aged 75, of carcinoma of the bladder.

Michael Gradess, Philadelphia; Temple University School of Medicine, Philadelphia, 1906; died April 2, aged 73, of heart disease.

John Bagg Griggs, New York; Yale University School of Medicine, New Haven, 1897; served during World War I; at one time practiced in Hartford, Conn., where he was on the staff of the Hartford Hospital; died in St. Clare's Hospital April 7, aged 79.

Charles Lee Harding, Bellevue, Ohio; Eclectic Medical Institute, Cincinnati, 1896; served during World War I; on the school and library boards; died April 1, aged 74, of Hodgkin's disease.

Harry B. Harris, Dayton, Ohio; University of Pennsylvania Department of Medicine, Philadelphia, 1894; member of the American Academy of Ophthalmology and Otolaryngology; fellow of the American College of Surgeons; served on the staff of Miami Valley Hospital, where he died February 16, aged 82, of leukemia.

Agnes Barlow Harrison, Eastsound, Wash.; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1881; died April 24, aged 89, of coronary thrombosis.

Alma Fife Heath © George Washington University School of Medicine, 1931; associate in medicine and member of the board of directors of the National Homeopathic Hospital, where he died April 13, aged 46, of gastric ulcer with hemorrhage.

David Aloysius Heffernan © Boston; Harvard Medical School, Boston, 1902; served during World War I; formerly an officer in the regular navy; member of the staffs of the Massachusetts Eye and Ear Infirmary in Boston and the Brooks Hospital, Brookline, where he died April 18, aged 68.

Harold Heller, Galveston, Texas; Emory University School of Medicine, Atlanta, 1934; served during World War II; chief of the eye, ear, nose and throat service at the U. S. Marine Hospital; died March 20, aged 41, of coronary thrombosis.

William Thornton Henshaw, Charleston, W. Va.; University of the City of New York Medical Department, New York, 1889; medical director of the Workmen's Compensation Fund; served during the Spanish-American War; for many years state health commissioner; formerly mayor and member of the house of delegates; died in St. Francis Hospital April 13, aged 80.

Charles Edgar Hill, Belleville, Ill.; Marion-Sims-Beaumont Medical College, St. Louis, 1902; member of the American Medical Association; died April 21, aged 72, of arteriosclerotic cardiovascular renal disease.

Whittaker R. Hill, Toledo, Ohio; University of Louisville (Ky.) School of Medicine, 1925; member of the American Medical Association; affiliated with Flower Hospital; accidentally drowned in an undertow at Sarasota, Fla., April 13, aged 52.

Willard Kenneth Hills © Colorado Springs, Colo.; University of Colorado School of Medicine, Denver, 1911; served during World War I; died April 13, aged 62, of carcinoma of the stomach.

Edward Horgan, Philadelphia; University of Pennsylvania Department of Medicine, Philadelphia, 1893; member of the American Medical Association; died April 10, aged 79.

John Horni © Brooklyn; Columbia University College of Physicians and Surgeons, New York, 1896; fellow of the American College of Surgeons; on the staffs of the Wyckoff Heights, Bethany Deaconess and Beth Moses hospitals; died April 17, aged 75.

Harry L. Houston, Portland, Ore.; University of Oregon Medical School, Portland, 1904; died in the Portland General Hospital April 14, aged 73.

Theodore Gilman Howe, Berkeley, Calif.; Georgetown University School of Medicine, Washington, D. C., 1903; served during World War I; formerly associated with the Veterans Administration; died in Oakland, April 7, aged 70.

Clinton Luman Hoy © Major, U. S. Army, retired, San Francisco; Rush Medical College, Chicago, 1906; served overseas during World War I; entered the medical corps of the U. S. Army on Sept. 9, 1920 as a major; retired Oct. 31, 1930 for disability in line of duty; died April 14, aged 72, of coronary thrombosis.

Oscar Wilhelm Hubbard, Batavia, Ill.; Illinois Medical College, Chicago, 1898; for many years served on the school board; died April 8, aged 84, of pulmonary tuberculosis and chronic nephritis.

Otis Talmage Hudson © Mounds, Ill.; Barnes Medical College, St. Louis, 1909; chief of staff, St. Mary's Hospital in Cairo; president of the First State Bank; died April 12, aged 61, of coronary occlusion.

William E. Hurley, New York City; Long Island College Hospital, Brooklyn, 1920; died in St. Vincent's Hospital April 4, aged 52, of gangrene of the intestine and acute peritonitis.

John M. Hutchings, Clifton Heights, Pa.; Hahnemann Medical College and Hospital, Philadelphia, 1911; member of the American Medical Association; died in the Delaware County Hospital, Drexel Hill, April 26, aged 63, of coronary thrombosis.

Abraham Hymanson © New York; University of the City of New York Medical Department, 1892; consultant at Beth David Hospital and Beth Israel Hospital, where he died April 24, aged 80, of arteriosclerosis.

Oliver Kingsley Isham, Hartford, Conn.; University of the City of New York Medical Department, New York, 1889; died in Hartford Hospital March 21, aged 83, of cerebral hemorrhage.

Myron Robinson Jackson, Oyster Bay, N. Y.; Cornell University Medical College, New York, 1923; member of the American Medical Association; fellow of the American College of Surgeons; member of the school board; affiliated with North Country Community Hospital in Glen Cove and Meadowbrook Hospital in Hempstead; died April 15, aged 54, of coronary occlusion.

George Abraham Jett, Chicago; Rush Medical College, Chicago, 1893; died April 9, aged 77, of carcinoma of the colon.

Joseph Henry Shaver Johnson, Chicago; College of Physicians and Surgeons, Homeopathic, Buffalo, 1883; the Hahnemann Medical College and Hospital, Chicago, 1884; died April 5, aged 92, of cerebral hemorrhage.

James Alba Johnston, Byron, Ill.; Omaha Medical College, 1894; member of the American Medical Association; died April 6, aged 89, of coronary heart disease.

Thomas Henry Johnston, Alhambra, Calif.; Queen's University Faculty of Medicine, Kingston, Ontario, Canada, 1900; at one time practiced in Spencer, Iowa; past president of the Clay County (Ia.) Medical Society; served on Selective Service Examining Board for World Wars I and II; died April 10, aged 77, of Parkinson's disease.

Percival Milton Kerr * Wilkes-Barre, Pa.; Temple University School of Medicine, Philadelphia, 1906; on the staff of Nesbitt Memorial Hospital, Kingston, where he died April 11, aged 63, of cerebral thrombosis and arteriosclerosis.

Phyllis Schuyler Kerr * White Plains, N. Y.; Rush Medical College, Chicago, 1928; specialist certified by the American Board of Dermatology and Syphilology; affiliated with the Tarrytown (N. Y.) Hospital, Lawrence Hospital in Bronxville, White Plains (N. Y.) Hospital and Westchester Division-New York Hospital; died in the Doctors Hospital, New York, April 12, aged 54, of carcinoma.

Louis Kimmelman, Philadelphia; University of Pennsylvania School of Medicine, Philadelphia, 1910; affiliated with the Temple University Hospital; died March 20, aged 62, of thrombosis.

Edgar Coote Lee, San Diego, Calif.; Rush Medical College, Chicago, 1904; specialist certified by the American Board of Urology; served on the staffs of Scripps Memorial Hospital, LaJolla and Mercy Hospital; died April 11, aged 67, of hemorrhage and duodenal ulcer.

Leslie Clifford Love, Montclair, N. J.; Columbia University College of Physicians and Surgeons, New York, 1900; served as a member of the board of health, board of education and medical milk commission; formerly on the staff of Mountainside Hospital, where he died April 3, aged 75, of carcinoma.

Frank Allemang Lupton, Birmingham, Ala.; Johns Hopkins University School of Medicine, Baltimore, 1899; member of the American Medical Association and the Southern Surgical Association; died April 14, aged 76.

Harmar Hendrix McConkey, Canton, Ohio; Jefferson Medical College of Philadelphia, 1934; member of the American Medical Association; served during World War II; on the staff of Aultman Hospital; died April 14, aged 39, of coronary occlusion.

Carleton Buel McCulloch * Indianapolis; Chicago Homeopathic Medical College, 1895; an Associate Fellow of the American Medical Association; fellow of the American College of Surgeons; vice president and medical director of the State Life Insurance Company; received the French Croix de Guerre for his bravery during World War I; died in Methodist Hospital April 5, aged 77, of coronary heart disease.

John Joseph McMahon * New York; Trinity Medical College, Toronto, Canada, 1899; specialist certified by the American Board of Obstetrics and Gynecology; fellow of the American College of Surgeons; served on the staffs of the St. John's Long Island City Hospital in Long Island City, Misericordia Hospital and St. Clare's Hospital, where he died April 13, aged 71, of acute coronary occlusion.

Francis Aloysius Mahoney, Brookline, Mass.; Tufts College Medical School, Boston, 1906; affiliated with Brooks Hospital; died April 6, aged 67, of coronary thrombosis.

Edward Allan Mednick, New York; New York University College of Medicine, 1938; specialist certified by the American Board of Radiology; member of the Radiological Society of North America and the American College of Radiology; affiliated with the Veterans Administration Hospital; died April 6, aged 34, of coronary heart disease.

Christian Nysewander, Des Moines; Starling Medical College, Columbus, 1879; member of the American Medical Association; died April 8, aged 94, of carcinoma of the rectum.

Richard Michael Raymond, Framingham, Mass.; Bellevue Hospital Medical College, New York, 1891; died recently, aged 78, of carcinoma.

Edward Combs Redmon, Louisville, Ky.; University of Louisville (Ky.) Medical Department, 1905; on the staff of Samaritan Hospital, where he died March 24, aged 63.

Henry James Reynolds, Chicago; Bellevue Hospital Medical College, New York, 1875; died in the Illinois Masonic Hospital April 13, aged 96, of chronic myocarditis and arteriosclerosis.

Dutch Kilgo Robison, Rocksprings, Texas; Memphis (Tenn.) Hospital Medical College, 1899; member of the American Medical Association; served during World War I; received the Selective Service Medal for his work during World War II; died in Del Rio February 20, aged 71, of diabetes mellitus.

John Clayton Rogers, Louisville, Ky.; Kentucky University Medical Department, Louisville, 1903; served during the Spanish-American War and World War I; on the medical advisory board, state selective service during World War II; formerly clinical director of the U. S. Veterans Hospital in Waukesha, Wis.; on the staff of Western State Hospital; died in the Nichols Hospital March 25, aged 69, of arteriosclerotic heart disease.

Edward Harry Rosenzweig * Chicago; Loyola University School of Medicine, Chicago, 1922; died March 17, aged 52.

Emanuel Salwen * Brooklyn; Columbia University College of Physicians and Surgeons, New York, 1917; specialist certified by the American Board of Urology; member of the American Urological Association; fellow of the American College of Surgeons; served during World War I; at one time instructor in anatomy at the Long Island College of Medicine; on the staffs of the Maimonides and the Coney Island hospitals; died April 4, aged 55, of hypertensive vascular disease and cerebral hemorrhage.

Allen Sather, Fosston, Minn.; State University of Iowa College of Medicine, Iowa City, 1908; member of the American Medical Association; served as mayor of Fosston; director and past president of the Farmers State Bank; died February 14, aged 67, of femoral thrombosis, arteriosclerosis and hypertension.

Herbert Philander Sawyer, Goodhue, Minn.; University of Minnesota College of Medicine and Surgery, Minneapolis, 1895; died in Red Wing March 10, aged 78, of coronary heart disease.

Ethan Allen Sherrill Sr., Houston, Texas; University of Tennessee Medical Department, Nashville, 1899; member of the American Medical Association; died recently, aged 71, of ruptured esophageal varices.

Charles M. Spicer * Denver; University Medical College of Kansas City, Mo., 1905; affiliated with Denver General Hospital, Mercy Hospital and St. Anthony's Hospital, where he died February 13, aged 66, following an operation for carcinoma.

Samuel Page Stubbs, Fort Smith, Ark.; Kansas City (Mo.) College of Medicine and Surgery, 1918; past president of the county board of health; member of the American Medical Association; died March 23, aged 68, of brain tumor.

Ellis Hall Tade, Bicknell, Ind.; Medical College of Indiana, Indianapolis, 1905; died February 24, aged 70, of heart disease.

Herbert Ellery Thompson * Bangor, Me.; Medical School of Maine, Portland, 1909; past president of the Penobscot County Medical Association; fellow of the American Society of Clinical Pathologists; formerly pathologist for the state board of health; served on the staffs of State Hospital, Worcester (Mass.) State Hospital and the Eastern Maine General Hospital; died March 29, aged 71.

Walter Earnest White, Ipswich, S. D.; Northwestern University Medical School, Chicago, 1914; member of the American Medical Association; superintendent of county board of health; died recently, aged 64, of heart disease.

Daniel Dodson Willcox, Petersburg, Va.; University College of Medicine, Richmond, 1901; member of the American Medical Association; on the staff of Petersburg Hospital, where he died April 18, aged 71.

Homer Holsinger Wolfe * Fort Bragg, Calif.; Cooper Medical College, San Francisco, 1909; died March 3, aged 64.

Amos Monroe Wooten, Pinetops, N. C.; University of North Carolina School of Medicine, Chapel Hill, 1910; member of the American Medical Association; a member of the county board of health; president of the Pinetops Building and Loan Association; died in the Edgecombe General Hospital, Tarboro, April 15, aged 64, of pneumonia.

Foreign Letters

PARIS

(From Our Regular Correspondent)

April 15, 1949.

Polychemotherapy

By the administration of several sulfonamide compounds in a mixture, untoward effects are less frequent than when treatment is undertaken with a single sulfonamide drug. The size of the dose for the mixture is the same as that for the single product. S. Lewi (in charge of consultation at the Rothschild Hospital), who in 75 cases in which this method of treatment was used observed no accident, has been trying since 1948 to apply the polychemotherapy method to the arsenical treatment of syphilis. He has used a mixture (0.075 Gm. neoarsphenamine, 0.03 Gm. sulfarsphenamine and 0.02 Gm. dichlorophenarsine hydrochloride) freshly prepared in distilled water in the same syringe; the solution is injected slowly into the vein. The injections are repeated for twenty consecutive days. So far, this intensive treatment has not produced any reaction except for some nausea, more rarely vomiting. There have been no transient cephalaea, medicamentous fever, rashes or serious accidents. In his communication of Feb. 18, 1949, to the Society of the Paris Hospitals, the author did not discuss the therapeutic value of this method, as the limited number of cases in which the treatment was used consisted almost entirely of old cases with irreducible serologic reaction. However, in 1 case of previously untreated syphilis, of one year's duration, he noted the development of an almost completely negative serologic reaction (the only Kolmer reaction being dubious) after a single treatment of twenty injections. In another case of secondary syphilis, six injections of polyarsenotherapy caused all lesions to disappear. The author at present is trying this treatment on a larger scale for recently acquired syphilis and, to diminish the dose of the various arsenicals, has added a small dose of oxophenarsine hydrochloride. He has also drawn attention, in *Le Médecin Français* of April 10, to his first trials of antithyroidic polychemotherapy consisting in a mixture, at equal doses, of aminothiazole, thiouracil and methylthiouracil. After an initial treatment of a daily dose of 0.20 Gm. for the average case, signs of hyperthyroidism rapidly retrogressed and the daily doses could be progressively lessened until the patients were given minimum doses as a maintenance treatment. In 1 patient excellent therapeutic results were obtained with the administration of a mixture of aminothiazole, thiouracil and its methyl and propyl derivatives. Up to the present no accident with this method has been observed. The patients receive weekly hematologic examinations. Dr. Lewi also has stressed that polychemotherapy may permit the studying of other drug modifications; for instance, sulfones (interesting in experimental tuberculosis), the toxicity of which has not yet allowed their use at therapeutic doses on more than an experimental scale in human beings.

Increase of Antibiotic Potency by Distillation or Concentration

J. Solomides (Paris Pasteur Institute), after noting the remarkable effect of cod liver oil distillate on burns, eczema and certain dermatoses of microbiologic origin, has studied the bactericidal properties of distillates of other oils. The first results show that completely disacroleined castor oil distillate possesses potent bactericidal properties against the tubercle bacillus, non-acid-resisting gram-positive and gram-negative germs and fungi. Distilled peanut oil is much less active. The author believes that oils, and especially the glycerides they contain, are, through a still unknown mechanism, submitted during their distillation to modifications which are responsible for the antibiotic potency of these distillates.

Exchange of Dialyzable Substances by Crossed Circulation

Bessis's ingenious exchange transfusion technic is being used more widely; for example, in serious intoxications with uremia. In collaboration with P. Freixa, the author has just perfected a new technic of crossed circulation between two organisms. This technic, the use of which is limited to known or unknown dialyzable products, is intended to rid an organism of an excess of dialyzable products or to introduce into it those that are missing. In their experiments on dogs and goats, the authors have noted the innocuity of such an intervention, even between two different species. They now are considering the possibility of applying this method to human therapy; for example, in cases of acute uremia.

THE NETHERLANDS

(From Our Regular Correspondent)

AMSTERDAM, May 23, 1949.

Influenza Research

The Netherlands Government is engaged in making plans for the fight against influenza. Four laboratories are acting as working units, three of which belong to the University of Leyden, the fourth being in the Institute of Preventive Medicine, also at Leyden. A special government commission has been set up to organize the plan of campaign against the disease. A biologic concern has also been incorporated to manufacture vaccine.

At present the collective Leyden laboratories form at the same time the regional laboratory for the Netherlands under Prof. J. Mulder, who for many years, formerly at Groningen, during the last few years at Leyden, has been doing outstanding research work on influenza in this country. They act in the service of the London Influenza Centre of the World Health Organization under Dr. C. H. Andrewes. The organization comprises: (1) a reporting service of clinical influenza and influenzal pneumonia, distributed over the country, but chiefly localized in the towns near the frontiers and in harbor towns; (2) the equipment of a team to collect material on the spot; (3) the evolving of a rapid virologic diagnosis and the determination of the serologic strain type; (4) a unit for studying the fight against influenzal pneumonia by means of antibiotics, especially penicillin; (5) a unit for the study of vaccination problems; (6) the development of knowledge about the statistics of influenzal morbidity and mortality in Holland, the figures being obtained from the Netherlands Central Institute of Statistics (The Hague), which possesses accurate data from the year 1902 onward.

The greatest anxiety for Holland is caused by the necessity to build up an adequate stock of penicillin which must be present in case of a severe influenza epidemic, so that every patient with influenzal pneumonia can be treated. It is expected that export from America would be suspended if such an epidemic should make its appearance. At present Holland produces more penicillin than the quantity necessary for normal use. The building up of an adequate stock is estimated to take two years of production.

The 1949 influenza epidemic on the Continent, starting in Italy early in December 1948, reached Holland (via Belgium) between Dec. 25, 1948 and Jan. 1, 1949. The attack rate was about 7 per cent of the population. At present the mortality is estimated at about 2,000 persons (i. e., approximately 0.3 per cent). The age distribution is not yet known, but it was chiefly the older persons who died.

In this epidemic, too, *Staphylococcus aureus* made the largest number of victims. To combat the fulminating *Staphylococcus tracheobronchopneumonia* it was considered necessary to administer 4 to 6 $\times 10^6$ units of penicillin every twenty-four hours.

(irrespective of the sensitivity of the infecting strains), on account of the extensive necrosis and hemorrhage in the air passages and lungs, and on account of the early and serious toxemia. A rapid virologic diagnosis of the isolated virus strains was developed by Prof. J. Mulder in the virus laboratory of the Clinic of Internal Medicine of Leyden University. Use was made of ferret serums against the strains WS (England, 1933), PR8 (United States, 1934), A (Holland, 1941), Rhodes (United States, 1947) and Barratt (England, 1947), the non-specific inhibition having been eliminated with cholera enzyme. In this way the positive amniotic fluids from the first egg passages could serve in the serum neutralization experiments according to Hirst, and the diagnosis of influenza A with the subgroup could usually be made three days after the inoculation of the first eggs. Serums of ferrets inoculated with sputum or throat garglings could be used after eight days, and indicated the serologic pattern more clearly than the strains themselves. All the isolated strains were closely related to the A¹ group, which was already found in Holland in 1947, probably as an offshoot of the then prevailing large epidemic in Sweden. A large proportion of the patients' serums in the acute stage showed no basic immunity against the new strain, in contrast to the strain PR8; the latter could be ascertained by applying cholera enzyme to the patients' serums. The pneumotropic properties of the strain seem to have been slight for human beings, although four virus strains were isolated from ground lung tissue from patients dying of staphylococcic tracheobronchopneumonia. A rapid diagnosis of influenzal pneumonia at autopsy, in the Pathological Institute of Leyden University, was obtained from the cytologic picture in slide preparations of the epithelium of the trachea; there was necrosis of ciliated and goblet cell epithelium, which had sometimes entirely disappeared; the basal cells were normal.

Vaccination experiments were carried out on a small scale, the results of which are not yet available.

BUENOS AIRES

(From Our Regular Correspondent)

May 5, 1949.

Treatment of Some Forms of Retinitis with Melanophorous Hormone

In 1937 Prof. Dr. J. C. Mussio Fournier, director of the Institute of Endocrinology, Hospital Pasteur, in Montevideo, and the chemist O. Conti studied the effect of the melanophorous hormone in the treatment of vitiligo and albinism (Mussio Fournier and others: *Bull. Acad. de Méd.*, Paris 120: 770, 1938; *Endocrinology* 28: 513, 1941; *J. Clin. Endocrinol.* 3: 353, 1943). The extract of the melanophorous hormone, as prepared by chemist O. Conti, is made from the posterior and intermediate lobes of the hypophysis of cattle. It is standardized in frog units (*Leptodactylus ocellatus* L.) and may be administered by injection. Later the ophthalmologists F. González Vanrell and P. Carriguiry treated patients with retinitis pigmentosa with injections of the melanophorous hormone, with favorable results (*Día méd. d. Uruguay* 15: 982, 1948). The most significant case was of a patient, 55 years old, whose vision was reduced to perceiving movements of fingers at 30 cm.; ten weeks after starting the treatment the visual acuity increased to 0.2, being actually 0.5. Recently the four authors mentioned published new cases of retinitis pigmentosa treated with good results (*Bull. et mém. Soc. méd. d. hôp. de Paris* 65: 12, 1949). In another recent paper Mussio Fournier and collaborators review the good results obtained by instilling the melanophorous hormone in the conjunctiva of patients with retinitis pigmentosa and also the favorable effects obtained on the photophobia of five albinos and on the visual capacity of

three of them. Furthermore, they claim (J. G. Mussio Fournier, O. Conti, F. González Vanrell and P. Carriguiry, *Día méd. d. Uruguay* 16: 257, 1949) favorable effects on patients with diabetic retinosis, hypertensive retinopathy and grave myopia with alterations of the eye grounds. The most significant case is of a diabetic man, 78 years old, in whom the eye ground could not be observed, the corpus vitreum being so turbid that his vision was reduced to counting fingers at a distance of some 20 cm. Six hours after instillation the patient could leave his guide; three days afterward, the visual capacity was 0.1. In most cases improvement has been observed within thirty to sixty minutes after the instillation. The authors believe that the hormone has a stimulant action on the function of the retina, but that it provides only symptomatic treatment, there being no effect on the course of pathologic changes. The Institute of Endocrinology has sent the extract of melanophorous hormone to different scientific centers to carry out controlled investigations. According to a personal communication from Dr. Mussio Fournier, some ophthalmologists of Buenos Aires already have confirmed the results described in some cases.

Diabetes and Thiouracil

Drs. B. A. Houssay and C. Martínez have found that pre-treatment with thiouracil, thiothymine or cysteine causes a delay and lessened incidence of the appearance of diabetes in rats with subtotal extirpation of the pancreas (95 per cent). BAL and methionine do not show such a preventive action. Thiouracil produces remission of the hyperglycemia of some rats with light diabetes and improves, temporarily, severe diabetes of other rats. In animals thus protected, besides return of the glycemia to normal, the beta cells are found normal or only slightly altered, while the test animals show serious lesions. Further studies on rats with subtotal pancreatectomy showed that a diet which contains much pig's fat had an unfavorable effect on the diabetes, while coconut oil seemed to protect some of the animals. However, the undesirable influence of pig's fat could be corrected by treatment with thiouracil, but not with coconut oil or methionine. Thiouracil treatment of rats fed large amounts of pig's fat distinctly augmented the sulfhydryl radical of the liver.

Intraspinal Injection of Epinephrine

Dr. M. P. Collado Storni reported to the subsection of anesthesiology of the Argentine Society of Surgeons his study of anesthetized dogs which received intraspinally relatively large amounts of epinephrine (0.25 to 0.35 mg. per kilogram). The dose necessary for elevating the blood pressure is larger than when it is administered intravenously, but the effect is of greater duration, probably because of the relatively slow rhythm of destruction of epinephrine in the spinal canal. Lesions of the medulla have not been observed. The minimum dose for provoking a pharmacologic effect has been studied by the effect on glycemia, which provides a more reliable test than blood pressure. Suprarenalectomy does not modify the results found in the normal animal.

Congress of Neurosurgery

The third South American Congress on Neurosurgery was held in Buenos Aires, under the auspices of the Argentine Government and the chairmanship of Prof. Dr. Ramón Carrillo, Argentine Minister of Health and professor of neurosurgery at the Medical Faculty of Buenos Aires. The first congress was held in Montevideo (Uruguay) in 1945 and the second in Santiago de Chile in 1947. Besides numerous delegates from many Latin American countries and the United States (Earl Walter, James Poppen, Tracy Putnam, Charles Burlingame), there were many representatives from European countries. The

official subjects included surgical treatment of epilepsy, hemostasis in neurosurgery, and lobotomy. Eighty-five of the other one hundred and fifty-five papers presented were read to subcommittees. Many neurosurgical operations were carried out, some by foreign surgeons. The fourth congress will be held in 1951, in Rio de Janeiro.

Brief Items

The first Argentine Congress of Medico-Social Assistance to the neuropsychiatric patient will be held during the latter part of September in Buenos Aires. It is organized by the Ministry of Health, but specialists of different countries will participate. This congress will study modern ways of care for neuropsychiatric patients and the necessary organization to undertake it.

The Mariano R. Castex prize for Internal Medicine of the National Academy of Medicine in Buenos Aires has been given to Drs. E. S. Mazzei, D. Taylor Gorostiaga and Elyeser Magalhaes for their work on pulmonary embolism.

Prof. Dr. Pedro de Eliza'de, well known Argentine pediatricist, died suddenly in Buenos Aires.

Prof. Dr. Pedro L. Balaña, for many years professor of Dermatology and Venereal Diseases, known through his investigations on leprosy, has died.

Correspondence

ARMED FORCES' NEED FOR PHYSICIANS

To the Editor:—Until recently we, the undersigned civilian doctors, had our doubts about the need of the Army for additional Medical Corps officers at the present time. We wondered whether perhaps the Army had not overestimated its needs as a peacetime organization and set its quota on the basis of wartime conditions. We felt that the pre-World War II idea of more than six medical officers to one thousand troop personnel was absurd overstaffing for actual medical needs of a peacetime army—even as an occupation force. We had heard that there were nearly four doctors per thousand soldiers in the European Command, and to us this seemed an excessive number for healthy men when some parts of the United States had less than one doctor per thousand population. Indeed we hardly saw the need for former A.S.T.P. students or other doctors to volunteer now for military service.

Within the past month, however, we have had the opportunity, in the capacity of civilian medical consultants, to visit all the general, station and field hospitals maintained by the United States in the American zones of Germany and Austria. What we have observed as civilian doctors convinces us that the serious lack of trained personnel for medical care is an injustice to the armed forces, their dependents and other American civilians on duty in this command. We feel that the present situation and the predictable future outlook here for medical care should be called to the attention of the members of the American Medical Association in the hopes of stimulating more younger doctors to volunteer at this time for military service.

At the moment, the situation is particularly acute, since so many medical officers have completed their tour of duty and are going home within the next three months. The number of replacements is only about one half of those leaving. We have seen evidence of overstaffing with the present setup and what we have observed was due merely to replacements arriving a few weeks in advance of the departure of the group going back to the states. Many installations are understaffed already for an average census of patients.

What has distressed us most is the fact that German and Austrian civilian doctors are necessarily being called on to fill the places left by inadequate replacements. Nearly every hospital is endeavoring to indoctrinate these foreign physicians in American methods of the practice of medicine, and although a few are well trained or are learning our ways quickly, the vast majority do not seem to us to be up to the American standards, aside from language difficulties. Furthermore, these men naturally do not inspire the confidence in their American patients that American doctors do. Since there is no alternative, they must be employed until American doctors volunteer adequately to do the job.

Doctors who have been in the armed services during the recent war will obviously ask whether the medical officers are being used in a professional capacity only. We can speak authoritatively only of those we have seen in the hospitals, and our observations do not apply to the dispensaries and field units, but at least so far as the hospitals are concerned we have seen little waste or misuse of medical talent. Perhaps some professional time might be saved by limiting medical officers to purely professional activities, but a large part of the former administrative duties of medical officers have been taken over by the Medical Service Corps officers. In the hospitals, doctors are usually made responsible for "property"—but other than this we have heard few complaints along this line from those in the hospitals. Probably the situation is different in field units, but a certain amount of administrative and inspection duties cannot be avoided under field conditions. It should be pointed out that of 220 medical officers for Army, dependents and civilian personnel, only 60 are actually on duty with troops. About 90 medical officers are available for this field duty, so these are rotated through field and fixed installations. Thus, none remain more than two thirds of their duty on field assignment.

Line officers expect a doctor to be a jack of all trades, but, given time, they may yet learn that people with eight or more years of higher education can be more profitably used in a professional capacity than in inspection and administrative duties which could be more effectively done by an intelligent noncommissioned officer with three months' special training. On the other hand, and in justice to the line officers, one must admit that they have a point when they ask, "Why can't we get enough doctors to adequately look after our own men abroad?" We believe the present situation here is a challenge to the medical profession of America.

S. H. BARON, M.D., San Francisco.

E. M. WILLIAMSON, M.D., Kalamazoo, Mich.

F. A. STUART, M.D., Tulsa, Okla.

S. D. BLACKFORD, M.D., Charlottesville, Va.

PRURITUS ANI ET VULVAE DUE TO ALLERGY

To the Editor:—My experience corroborates the statement of Dr. H. Hailey (Pruritus Ani et Vulvae, THE JOURNAL, March 26, p. 837) that eczema due to allergy is the common cause of pruritus ani et vulvae. Favoring atopic allergy in many cases is the associated eczema in other areas of the skin and of other manifestations of allergy in a varying number of these sufferers. The familial predisposition to eczema even in the vulval and anal tissues and to other allergic manifestations as noted by Dr. Hailey is confirmed.

I and many experienced allergists, however, disagree with the statement that "cutaneous tests for allergy have no legitimate place in the diagnosis and treatment of eczema and the practice will probably be discontinued in the near future." It is true that I have long reported the fallibility of the skin test with

regard to both positive and negative reactions, both by the scratch and intradermal methods in the determination of clinical food allergy. But testing, especially with the scratch test, is advisable because of the occasional large reactions which indicate possible immediate severe allergy in contrast to the cumulative allergy which may be indicated by lesser and often by negative reactions. It is because of this fallibility of the skin reaction in the diagnosis of food allergy that my standardized elimination diets have found increasingly successful use for over twenty years. But the modification of such diets always has been advised by the consideration of large skin reactions by the scratch method and by a definite history of dislikes or disagreements for specific foods.

In contrast to food allergy, skin testing is of much greater importance in the diagnosis of inhalant allergy to pollens, dusts, fungi and miscellaneous inhalants. Here again positive reactions may indicate past or potential allergy and in a small percentage of cases no reactions may occur, which justifies at times the conjunctival tests. Thus for diagnosis of inhalant allergy skin testing is most necessary.

No mention, moreover, is made by Dr. Hailey of the important use of patch tests with drugs, cosmetics, including nail polish, and other recognized causes of contact dermatitis for the study of the allergenic contact causes of pruritus ani et vulvae.

Thus, far from discontinuing skin testing, its well recognized values with its limitations should encourage its proper use and interpretation. Without skin testing the recognition and control of the causes of eczema would be seriously impaired.

ALBERT H. ROWE, M.D., Oakland, Calif.

Medical Examinations and Licensure

COMING EXAMINATIONS AND MEETINGS

NATIONAL BOARD OF MEDICAL EXAMINERS

NATIONAL BOARD OF MEDICAL EXAMINERS: *Parts I and II*. Various Centers. June 20-22, Sept. 12-14. *Part III*. June, various centers. Exec. Sec., Mr. E. S. Elwood, 225 S. 15th St., Philadelphia 2.

EXAMINING BOARDS IN SPECIALTIES

AMERICAN BOARD OF ANESTHESIOLOGY, INC. *Written*. Various Centers. July 15. *Oral*. Oct. 16-20. Sec., Dr. Curtiss B. Hickox, 745 Fifth Ave., New York 27.

AMERICAN BOARD OF INTERNAL MEDICINE: *Written*. Oct. 17. Asst. Sec.-Treas. Dr. W. A. Werrell, 1 Main St., Madison 3, Wis.

AMERICAN BOARD OF NEUROLOGICAL SURGERY: *Oral*. Chicago, June 1949. Sec., Dr. W. J. German, 310 Cedar Street, New Haven, Conn.

AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY, INC. *Part I*. Various Centers. Feb. 3. Final date for filing application is Nov. 5. Sec., Dr. Paul Titus, 1015 Highland Bldg., Pittsburgh.

AMERICAN BOARD OF OPHTHALMOLOGY: St. Louis, Oct. 15-19; Boston, December. Sec., Dr. S. J. Beach, 56 Ivie Rd., Cape Cottage, Maine.

AMERICAN BOARD OF ORTHOPAEDIC SURGERY. *Part II*. New York City, Jan. 1950. Final date for filing application for Part II is Aug. 15. Address: Sec.-Treas., Dr. Harold A. Sofield, Room 1856, 122 S. Michigan Ave., Chicago.

AMERICAN BOARD OF OTOLARYNGOLOGY: Chicago, Oct. 4-7. Sec., Dr. D. M. Lierle, University Hospital, Iowa City.

AMERICAN BOARD OF PATHOLOGY: Chicago, Oct. 7-8. Final date for filing application is Sept. 1. Sec., Dr. Robert A. Moore, 507 Euclid Ave., St. Louis.

AMERICAN BOARD OF PEDIATRICS: *Written*. Under local monitors, June 24. *Oral*. Cleveland, Sept. 16-18; New York City, Oct. 21-23; Chicago, Dec. 9-11. Sec., Dr. John McK. Mitchell, 6 Cushman Road, Rosemont, Pa.

AMERICAN BOARD OF PLASTIC SURGERY: Examinations are given in June and November of each year in the home town of applicants. Sec., Treas., Dr. Louis T. Byars, 400 Metropolitan Bldg., St. Louis, Mo.

AMERICAN BOARD OF PREVENTIVE MEDICINE AND PUBLIC HEALTH: *Parts I and II*. New York, Oct. 22-24. Final date for filing application is July 22. Sec., Dr. Ernest L. Stebbins, 615 N. Wolfe St., Baltimore.

AMERICAN BOARD OF PSYCHIATRY AND NEUROLOGY, INC. *Special Examination*, October. Place to be announced. Final date for filing application is July 15. December, New York City. Sec. Dr. F. J. Braceland, 102-110 Second Ave., S.W., Rochester, Minn.

AMERICAN BOARD OF SURGERY: *Written*. Various Centers, October 26. Final date for filing application is July 1. Sec., Dr. J. Stewart Rodman, 225 S. 15th St., Philadelphia.

AMERICAN BOARD OF UROLOGY: *Written*, December. *Oral and Clinical*, Chicago, Feb. 11-15. Final date for receipt of case histories is Sept. 1, 1949. Sec., Dr. Harry Culver, 7935 Sunnyside Road, Minneapolis 18, Minn.

BOARDS OF MEDICAL EXAMINERS

ALABAMA: *Examination*. Montgomery, June 28-30. Sec., Dr. D. C. Gill, 519 Dexter Ave., Montgomery.

ALASKA: * Juneau, Sept. 6. Sec., Dr. W. M. Whitehead, Box 140, Juneau.

CALIFORNIA: *Examination*. San Francisco, June 21-23. Sec., Dr. Frederick N. Scatena, 1020 N St., Sacramento.

COLORADO: * *Endorsement*. Denver, July 5. Sec., Dr. W. W. King, 831 Republic Bldg., Denver.

CONNECTICUT: * *Examination*. Hartford, July 1. Secretary to the Board, Dr. Creighton Barker, 258 Church Street, New Haven.

DELAWARE: Dover, July 12-14. Sec., Dr. J. S. McDaniel, 229 South State St., Dover.

DISTRICT OF COLUMBIA: * *Examination*. Washington, Nov. 14-15. Sec., Dr. G. C. Ruhland, 4130 E. Municipal Bldg., Washington.

FLORIDA: * *Examination*. Jacksonville, June 26-28. Sec., Dr. Frank D. Gray, 12 N. Rosalind Ave., Orlando.

GUAM: *Endorsement*. Agana, Last Friday of each month. Sec., Capt. C. K. Youngkin, Dept. of Public Health, Guam. % F.P.O., San Francisco, Calif.

HAWAII: * *Examination*. Honolulu, July 11-14. Sec., Dr. S. E. Doolittle, 881 S. Hotel St., Honolulu.

IDaho: Boise, July 11-13. Sec., Miss Estella S. Mulliner, Bureau of Occupational Licenses, 355 State House, Boise.

ILLINOIS: Chicago, June 28-30. Superintendent of Registration, Mr. Fred W. Ruegg, Capitol Building, Springfield.

INDIANA: *Examination*. Indianapolis, June 21-23. Sec. Board of Medical Registration and Examination, Dr. Paul R. Tindall, 416 K. of P. Bldg., Indianapolis.

MAINE: Augusta, July 5-6. Sec., Dr. Adam P. Leighton, 192 State St., Portland.

MARYLAND: *Examination*. Baltimore, June 21-24. Sec., Dr. Lewis P. Gundry, 1215 Cathedral St., Baltimore. *Homeopathic*, Baltimore, June 14-15. Sec., Dr. John A. Evans, 612 West 40th St., Baltimore.

MASSACHUSETTS: *Written*. Boston, July 12-15. Sec., Dr. George L. Schadt, 413 E. State House, Boston.

MINNESOTA: * Minneapolis, June 21-23. Sec., Dr. Julian F. DuBois, 230 Lowry Medical Arts Bldg., St. Paul 2.

MISSISSIPPI: Jackson, June 21-22. Asst. Sec., Dr. R. N. Whitfield, State Board of Health, Jackson.

MONTANA: Helena, Oct. 3-5. Sec., Dr. Otto G. Klein, First National Bank Bldg., Helena.

NEVADA: Carson City, Nov. 7. Sec., Dr. George H. Ross, 112 N. Curry St., Carson City.

NEW HAMPSHIRE: Concord, Sept. 8-9. Sec., Dr. J. S. Wheeler, 107 State House, Concord.

NEW JERSEY: *Examination*. Trenton, June 21-24. Sec., Dr. E. H. Hallinger, 28 West State Street, Trenton 8.

NEW MEXICO: * Santa Fe, Oct. 10-11. Sec., Dr. Charles J. McGoey, Coronado Bldg., Santa Fe.

NEW YORK: Albany, Buffalo, New York and Syracuse, June 28-July 1. Sec., Dr. Jacob L. Lochner, 23 South Pearl St., Albany.

NORTH CAROLINA: *Examination*. Raleigh, June 23-25. *Endorsement*. Morehead City, July 23. Sec., Dr. Ivan Proctor, 226 Hillsboro St., Raleigh.

NORTH DAKOTA: * *Written*, Grand Forks, July 5-7. *Reciprocity*, Grand Forks, July 8. Sec., Dr. C. J. Gaspel, Grafton.

OREGON: * *Examination*. Portland, July 7-9. *Reciprocity*. Portland, July 22. Exec. Sec., Mr. Howard I. Bobbitt, 609 Failing Building, Portland.

PENNSYLVANIA: *Examination*. Philadelphia and Pittsburgh, July. Acting Sec., Mrs. B. G. Steiner, 351 Education Bldg., Harrisburg.

PUERTO RICO: San Juan, Sept. 6-10. Sec., Dr. Luis Cueto Coll, Box 3717, Santurce.

RHODE ISLAND: * *Examination*. Providence, July 7-8. Chief, Mr. Thomas B. Casey, 366 State Office Bldg., Providence.

SOUTH CAROLINA: *Examination*. Columbia, June 27-29. *Endorsement*. Columbia, June 27-28, Aug. 1, Sept. 5 and Oct. 3. Sec., Dr. N. B. Heyward, 1329 Blanding St., Columbia.

SOUTH DAKOTA: * *Examination*. Pierre, July 19. Sec., Dr. G. I. Van Heuvelen, Capitol Bldg., Pierre.

UTAH: *Examination*. Salt Lake City, July 13-15. Sec., Dept. of Registration, Miss Rena B. Loomis, 324 State Capitol Bldg., Salt Lake City.

VERMONT: Burlington, June 21-23. Sec., Dr. F. J. Lawliss, Richford.

WASHINGTON: * Seattle, July 18-20. Sec., Mr. Edward C. Dohm, Department of Licenses, Olympia.

WEST VIRGINIA: Charleston, July 7-9. Commissioner, Public Health Council, Dr. N. H. Dyer, State Capitol, Charleston 5.

WISCONSIN: * *Examination*. Milwaukee, June 28-30. Sec., Dr. C. A. Dawson, Tremont Bldg., River Falls.

WYOMING: Cheyenne, June 20. Sec., Dr. Franklin D. Yoder, Capitol Bldg., Cheyenne.

* Basic Science Certificate required.

BOARDS OF EXAMINERS IN THE BASIC SCIENCES

ALASKA: Juneau, Aug. 28. Sec., Dr. C. Earl Albrecht, Box 1931, Juneau.

ARIZONA: Tucson, June 21. Sec., Mr. Francis A. Roy, Science Hall, University of Arizona, Tucson.

DISTRICT OF COLUMBIA: Washington, Oct. 24-25. Sec., Dr. G. C. Ruhland, 4130 E. Municipal Bldg., Washington.

IOWA: Des Moines, July 12. Sec., Dr. Ben H. Peterson, Coe College, Cedar Rapids.

MICHIGAN: *Examination*. Detroit and Ann Arbor, Oct. 14-15. Sec., Miss Eloise LeBeau, 101 N. Walnut St., Lansing 15.

NEBRASKA: Omaha, Oct. 4-5. Director, Bureau of Examining Boards, Mr. Oscar F. Humble, Room 1009, State Capitol Bldg., Lincoln 9.

OREGON: Portland, Sept. 3 and Dec. 3. Sec., Mr. Charles D. Byrne, State Board of Higher Education, Eugene.

RHODE ISLAND: Examination. Providence, Aug. 10. Administrator of Professional Regulation, Mr. Thomas B. Casey, 366 State Office Bldg., Providence.

TENNESSEE: Memphis, July 8-9. Sec., Dr. O. W. Hyman, 874 Union Ave., Memphis 3.

WASHINGTON: Seattle, July 13-14. Sec., Department of Licenses, Mr. Edward C. Dohm, Olympia.

WISCONSIN: Milwaukee, Sept. 24 and Dec 3. Sec., Prof. W. H. Barber, Ripon College, Ripon.

Bureau of Legal Medicine and Legislation

MEDICOLEGAL ABSTRACT

Medical Practice Acts: Sanipractor's Right to Practice Obstetrics.—The defendant was charged by information with practicing obstetrics and administering a hypodermic injection without having an unrevoked certificate to practice medicine but only a license from the state as a "drugless healer" permitted to practice "full sanipractic." The trial court sustained the defendant's demurrer and dismissed the case, so the State appealed to the Supreme Court of Washington.

Was it the intention of the legislature, asked the Supreme Court, to make the practice of obstetrics outside the scope of practice given to drugless healers?

In construing a statute and ascertaining the legislative intent, certain rules are observed by the courts. Statutes in *pari materia* must be construed together. Statutes in *pari materia* are those which relate to the same person or thing, or the same class of persons or things; and in construing a statute, or statutes, all acts relating to the same subject matter or having the same purpose, should be read in connection therewith as together constituting one law. The object of this rule is to ascertain and carry into effect the intent of the legislature, and it proceeds on the supposition that the several statutes having to do with related subject matters were governed by one spirit or policy, and were intended to be consistent and harmonious in their several parts and provisions. From this general rule it follows, said the Supreme Court, that our attention should first be directed to the determination of whether the drugless healing act gave the defendant the right to practice obstetrics. In our opinion, that conclusion cannot be drawn from the provisions of the statute. Section 4 of the act relating to drugless practitioners provides for the issuance of five different certificates, mechanotherapy, suggestive therapeutics, food science, physcultopathy and ". . . for any other separate and coordinate system of drugless practice. . . . Practitioners hereunder shall confine their practice to the subjects and system or systems represented by their certificate. . . ." Section 7 of the act provides that all persons granted licenses or certificates thereunder shall be subject to state and municipal regulations relating to the control of contagious diseases, the reporting and certifying of births and deaths, and all matters pertaining to public health; and all such reports shall be accepted as legal. The act further provides that in order to acquire a certificate to practice drugless therapeutics, a person must prove a residence course of three entire sessions of thirty-six weeks each at a chartered drugless school and be compelled to pass an examination in "obstetrics." It was argued by the defendant that the provision requiring an examination concerning obstetrics, coupled with the direction that persons receiving the benefits of the act must certify births, indicated the intention of the legislature to allow holders of certificates under the act to practice obstetrics.

The provisions of the indefinitely worded statute do not indicate the extent of the practice of drugless healers, said the Supreme Court, so it is necessary to examine all of the pertinent acts passed by the legislature. The court then discussed the practice acts relating to medicine, osteopathy, osteopathy and surgery, midwifery, and chiropractic, all of which, including the drugless healer statute, were originally passed in 1919. In the drugless healers act the term "drugless therapeutics" is defined

as consisting of "hydrotherapy, dietetics, electro-therapy, radiography, sanitation, suggestion, mechanical and manual manipulation for the stimulation of physiological and psychological action to establish a normal condition of mind and body, but shall in no way include the giving, prescribing or recommending of pharmacetic drugs and poisons for internal use, the purpose of this act being to confine practitioners hereunder to drugless therapeutics." The legislature did not define any of the terms used in the other practice acts, except "practicing midwifery." By these enactments, the court indicated, the 1919 legislature determined that practitioners of all types of healing arts, except physicians and surgeons, should be "restricted to their own particular methods of healing." "It was the manifest intention of the Legislature to prohibit the holders of restricted licenses from practicing branches of the art of healing not embraced within the subjects on which the licensee had been examined, and which by his certificate he was authorized to practice." (*State ex rel. Walker v. Dean*, 155 Wash. 383, 284 P. 756.) In the acts relating to physicians and surgeons, and the act relating to osteopathy and surgery, and the act having to do with midwifery, the legislature was careful to require definite knowledge and practical experience before a certificate could issue which would entitle the holder to practice obstetrics. The title to the drugless healers act, when liberally construed in connection with the other statutes relating to the care of the sick and afflicted, proves conclusively that the legislature intended to treat drugless healing as it did the other schools of practice—that is, that drugless healers should be allowed to do only those acts included within the definition.

Other reasons which reinforce the logic of the foregoing conclusions, added the Supreme Court, are found in the requirements for admission to, and the courses of study required by, the various schools of the healing arts. These requirements indicate the desire of the legislature to measure the extent of practice by knowledge and experience acquired by study and practice. Medical schools, for example, are accredited and approved by the Association of American Medical Colleges and the Council on Medical Education and Hospitals of the American Medical Association, which require that applicants for admission to schools of medicine must have a bachelor's degree and a good college record, or have completed three years of college work with a superior record, or have completed two years of college work in which they have demonstrated outstanding ability. An osteopath must have, before he can take the state examination for a license, a diploma issued by some chartered school of osteopathy approved by the Association of Osteopathic Colleges. The requirements of the association for school admission are that the applicant for admission must have had a four year high school course and a minimum of two years' collegiate work. The educational requirements of a drugless healer, on the other hand, are a high school education and a residence course of three entire sessions of thirty-six weeks each at a chartered drugless school. It will be noted that the act does not require proof of practical experience in a hospital, nor does it indicate in any way that it was intended to extend the privilege of taking care of women prior to, at and after childbirth to drugless healers. The act makes no reference to the character of the school, as do the acts relating to physicians, surgeons and osteopathy.

What we have said about the right to practice obstetrics, the Supreme Court concluded, applies with equal force to the administration of ether and the administration of a drug by hypodermic injection. The giving of a drug, either orally or by injection, is limited to those practitioners especially designated by statute. In this connection it will be noted that physicians and surgeons are authorized "to use drugs" and "to sever or penetrate the tissues of human beings." The osteopathic act compels "sufficient experience in and a practical working knowledge of pathology, and the administering of anesthetics" by one desiring a certificate to practice surgery. In addition, the osteopathic act states, ". . . nothing in this act shall be construed to prohibit . . . the practice of midwifery. . . ." That the administering of drugs or anesthetic and the cutting of an umbilical cord are part of a surgical operation cannot be doubted. The judgment in favor of the sanipractor was therefore reversed.—*State v. Houck*, 203 P. (2d) 693 (Wash., 1949).

Current Medical Literature

AMERICAN

The Association library lends periodicals to members of the Association and to individual subscribers in continental United States and Canada for a period of three days. Three journals may be borrowed at a time. Periodicals are available from 1938 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 18 cents if three periodicals are requested). Periodicals published by the American Medical Association are not available for lending but can be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

American Journal of Diseases of Children, Chicago

75:787-940 (June) 1948

- Toxic Effects of Overdosage of Vitamin D₂ in Children. R. Debré.—p. 787.
- *Analysis of Wartime Reduction of Dental Caries in European Children with Special Regard to Observations in Norway. R. F. Sognnaes.—p. 792.
- "Hypophosphatasia": New Developmental Anomaly. J. C. Rathbun.—p. 822.
- *Intestinal Perforation and Rupture of Gallbladder in Children with Typhoid. J. Lozoya S.—p. 832.
- Incidence of Sicklelema in Newborn Negro Infant. R. B. Scott, R. P. Crawford and M. Jenkins.—p. 842.
- Stimulation of Growth in Boys by Sublingual Testosterone Therapy. W. C. Deamer.—p. 850.
- Factors Influencing Blood Pictures of Newborn: Studies on Sinus Blood on First and Third Days. Q. B. DeMarsh, H. L. Alt and W. F. Windle.—p. 860.
- Pertussis Agglutinin Skin Test. J. J. Miller Jr., Mary Louise Ryan and E. Havard.—p. 872.
- Immunization of Children with Influenza Virus Vaccine, Centrifuged Type. R. A. Higgins, Clara Nigg, Gertrude M. Hyde and C. H. Mann.—p. 887.

Wartime Reduction of Dental Caries in Europe.—

According to Sognnaes an attempt has been made to assemble and analyze (1) the over-all incidence of dental caries in children from different European countries in the period between the beginning of World War I and the termination of World War II and (2) certain dietary factors in operation during the war years of possible significance in connection with the observed fluctuations in the frequency of caries. It was found that the teeth of European children in all of the occupied and war-torn countries show (1) a definite tendency to decrease in caries in the latter part of, and following, the recent wars. This is (2) most significant in young children and (3) in those teeth of older ones which have developed or matured during the war years. The most important general principle evolved from this analysis is (4) that there seems to be several years' delay in the initial effect of wartime conditions on the teeth and, following the first World War, even a greater delay in the return to the prewar dental status. In summing up the dietary analysis the author has failed (1) to establish a uniform increase in any specific food or food factor which can satisfactorily explain the reduction in caries and (2) to demonstrate the expected concurrent reduction in caries and sugar during the two wars. He has succeeded in showing that in several countries there has been a reduction in refined carbohydrates and of caries after certain time intervals. The author sets forth the hypothesis that in wartime children and their individual teeth during their development and maturation indirectly have benefited by the replacement of the refined caloric food sources by natural ones, and thereby have received certain caries-preventing qualities. That concept is compatible with the time relationship between the reduction in caries and war rationing, and in agreement with observations on experimental animals.

Complications of Typhoid.—Lozoya reports on the experience gained at the Hospital Infantil of México, D. F., in dealing with intestinal perforations and rupture of the gallbladder in typhoid. Among the 457 cases of typhoid observed in three years, there were 29 cases of intestinal perforation and 4 ruptured gallbladders. Of these patients 21 were operated on, with a survival of 9; of the 8 who were not operated on, 7 died. All 4 with rupture of the gallbladder were operated on, 1 patient surviving. Lozoya feels that in patients with

typhoid who have perforation of the intestine or rupture of the gallbladder operation is necessary. Good preoperative and postoperative care is essential, along with expert surgical technic, which must provide drainage of the peritoneum and avoidance of its reinfection and of abdominal distention. A good prognosis depends largely on early operation, but when there are malnutrition, intense toxicity and infection with marked leukopenia, combined with intestinal perforation or rupture of the gallbladder, death usually results.

American Journal of Hygiene, Baltimore

49:1-126 (Jan.) 1949. Partial Index

- Poliomyelitis Epidemic, Possibly Milk-Borne, in Naval Station, Portland, Oregon. F. P. Mathews.—p. 1.
- Isolation of Poliomyelitis Virus from Single Species of Flies Collected During Urban Epidemic. J. L. Melnick.—p. 8.
- Low Temperature Treatment of Pork: Effect of Certain Low Temperatures on Viability of Trichina Larvae. S. E. Gould and Laurin J. Kaasa.—p. 17.
- Studies in Human Malaria. W. C. Cooper, D. S. Ruhe, G. R. Coatney and others.—p. 25.
- Studies on Q Fever in Panama. E. C. de Rodaniche and A. Rodaniche.—p. 67.
- *Q Fever in Laundry Workers, Presumably Transmitted from Contaminated Clothing. J. W. Oliphant, D. A. Gordon, A. Meis and R. R. Parker.—p. 76.
- Relationship Between Certain Populations of Culex Pipiens Linnaeus and Culex Quinquefasciatus Say in the United States. M. A. Farid.—p. 83.

Q Fever in Laundry Workers.—According to Oliphant and his co-workers 3 cases of Q fever and 3 cases of apparently subclinical infection recently occurred in employees of a laundry handling soiled laundry from the Rocky Mountain Laboratory in circumstances suggesting that infection may have been transmitted to them by contaminated clothing and linens. There was no history of recent tick bite, exposure to contaminated air in experimental laboratories, contact with slaughterhouses or cattle pens among these workers to account for infection arising outside their place of employment. It is of interest that only those employees of the laundry who actually handled soiled laundry contracted Q fever infection. The intervals between the dates of onset are within the limits of variation of the established incubation period of Q fever, which is fourteen to twenty-six days. It is significant that infection apparently can be transmitted indirectly by contact with contaminated materials such as clothing and linens. All soiled laundry from the Rocky Mountain Laboratory is now routinely sterilized with steam under pressure before delivery to the laundry. Treatment with penicillin, streptomycin and sulfadiazine had no apparent effect on the clinical course of the disease.

American Journal of Medicine, New York

6:1-138 (Jan.) 1949

- Syndrome of Pulmonary Stenosis with Patent Foramen Ovale. Selzer, W. H. Carnes, C. A. Noble Jr. and others.—p. 3.
- Pure Congenital Pulmonary Stenosis and Idiopathic Congenital Dilatation of Pulmonary Artery. D. G. Greene, Eleanor deForest Baldwin, Janet Sterling and others.—p. 24.
- *Aureomycin in Treatment of Primary Atypical Pneumonia. V. K. Land Jr., H. M. Rose and C. D. Gibson.—p. 41.
- Pheochromocytoma with Diabetes and Hypertension. Report of Cases Cured by Operation. A. de Vries, M. K. Schumert.—p. 51.
- Arteriosclerosis: Statement of Problem. R. G. Bailey and J. W. Leider.—p. 60.
- Mechanism of Heart Failure: Résumé of Present Knowledge of the Cardiovascular Failure. R. P. Bailey and J. W. Leider.—p. 60.
- Aureomycin in Primary Atypical Pneumonia.**—The authors and his co-workers present the results of their study of these highly atypical ("virus") pneumoniae. The authors now utilize agglutinins. The authors have found that in some cases after the use of aureomycin, the patients were performed in 25 months to 12 years of age. The iliac crest puncture was done. The iliac crest puncture had both sternal and spinous punctures; 2 had iliac crest and spinous punctures; 1 had a tibial puncture in addition to the iliac crest and of a spinous process. The authors have used of alternative sites for bone marrow puncture of definite value. In children, the spinous process of the iliac crest are often the preferred sites for puncture.

drug was first administered, with corresponding improvement in their general condition. In 2 of these treatment was discontinued at this time, and what appeared to be a recrudescence took place. In the other 7 cases treatment was maintained and uneventful recovery ensued. No important toxic side effects resulted from aureomycin.

American Journal of Physiology, Baltimore

155:141-308 (Nov.) 1948. Partial Index

- Cyclic Changes in Respiratory Centers, Revealed by Effects of Afferent Impulses. M. G. Larrabee and R. Hodes.—p. 147.
Sudden Vasoconstriction in Denervated or Sympathectomized Paws Exposed to Cold. J. F. Perkins Jr., Mao-Chih Li, F. Hoffman and E. Hoffmann.—p. 165.
Effects of Cooling on Nerve Conduction in Hibernator (Golden Hamster) and Nonhibernator (Albino Rat). P. O. Chatfield, A. F. Battista, C. P. Lyman and Juanita P. Garcia.—p. 179.
Histamine as Possible Chemical Mediator for Cutaneous Pain. S. R. Rosenthal and R. R. Sonnenschein.—p. 186.
Relation of Cerebral Arteriovenous Difference in Oxygen Content to Arterial Carbon Dioxide Tension. E. S. Gurdjian, J. E. Webster and W. E. Stone.—p. 191.
Acceleratory Effects on Renal Function. H. Silvette and W. E. Britton.—p. 195.
Electrophrenic Respiration. III. Mechanism of Inhibition of Spontaneous Respiration. S. J. Sarnoff, J. L. Whittenberger and Esther Hardenbergh.—p. 203.
Fluid Shifts in Animals During Pressure Breathing. C. Hyman and J. Goodman.—p. 208.
Nature of Precordial Electrocardiogram. L. H. Nahum and H. E. Hoff.—p. 215.
Determination of Circulating Red Blood Cell Volume with Radioactive Phosphorus. R. T. Nieset, Blanche Porter, W. V. Trautman Jr. and others.—p. 226.
Comparison of Results of Measurement of Red Blood Cell Volume by Direct and Indirect Technics. H. S. Mayerson, C. Lyons, W. Parson and others.—p. 232.
Effect of Administration of Adrenalin on Circulating Red Cell Volume. W. Parson, H. S. Mayerson, C. Lyons and others.—p. 239.
Effect of Steroids on Body Weight, Temporal Muscle and Organs of Guinea Pig. C. D. Kochakian, Jane Harrison Humm and Mary N. Bartlett.—p. 242.
Renal Clearance of Allantoin as Measure of Glomerular Filtration Rate. M. Friedman, S. O. Byers and P. M. Abraham.—p. 278.
Mechanisms of Desoxycorticosterone Action: IV. Relationship of Fluid Intake and Pressor Responses to Output of Antidiuretic Factor. Julia G. Skahen and D. M. Green.—p. 290.

American Journal of Public Health, New York

39:1-134 (Jan.) 1949

- A New Look at Sanitation. H. F. Vaughan.—p. 24.
International Adoption of Principles of Morbidity and Mortality Classification. W. T. Fales and I. M. Moriyama.—p. 31.
Plans for United States Cooperation with the World Health Organization in the International Influenza Study Program. J. T. Culbertson.—p. 37.
Influenza in California During 1947 and 1948. G. Meiklejohn and H. B. Bruyn.—p. 44.
Effect of Rising Hospital Costs on Group-Payment Plans. C. R. Rorem.—p. 50.
The "Yes" and "No" of Nutrition and Natural Resistance to Infectious Disease. H. A. Schneider.—p. 57.
A Community Program for Control of Rheumatic Fever. G. C. Griffith.—p. 61.
Program of Inservice Training for Health Department Staff. Ann Wilson Haynes.—p. 66.

Archives of Internal Medicine, Chicago

81:793-902 (June) 1948

- Pheochromocytoma with Symptoms of Epinephrine Shock: Report of Case. L. R. Ferraro and R. G. Angle.—p. 793.
Tropical Adrenotropic Asthenia: Its Definition and Relationship to Other Heat Disorders. J. P. O'Brien.—p. 799.
Needle Biopsy of Liver. J. H. Topp, M. C. F. Lindert and F. D. Murphy.—p. 832.
Plasma Lipids in Primary (Xanthomatosis) and Secondary Hypercholesterolemia: I. Effect of Lipotropic Substances. A. F. Delevett and M. Bruger.—p. 859.
*Effect of Prophylactically Administered Penicillin on Incidence of Bacteremia Following Extraction of Teeth: Results in Patients with Healed Rheumatic and Bacterial Endocarditis. H. L. Hirsch, Jean J. Vivino, A. Merrill and H. F. Dowling.—p. 868.
Addison's Disease Complicated by Toxemia of Pregnancy: Review of Literature. M. Cohen.—p. 879.

Penicillin and Bacteremia Following Extraction of Teeth.—According to Hirsch and his associates it has been demonstrated that bacteremia following the extraction of teeth is of importance in the development of bacterial endocarditis. The desirability of eliminating, or even diminishing, the frequency of one of the causes of bacterial endocarditis is obvious. The effect of sulfonamide prophylaxis on the incidence and persistence of bacteremia following the extraction of teeth

having been inconclusive, the authors decided to try penicillin prophylaxis. Sixty-five patients requiring dental extractions were each given 600,000 units of penicillin in wax and peanut oil contained in 2 cc. of the mixture three to four hours before extraction, while 65 patients were not given penicillin and served as controls. Blood cultures in duplicate were obtained immediately and ten and thirty minutes after extraction, incubated both aerobically and anaerobically and studied for the presence of bacteria. When all the organisms isolated were considered, 46 per cent of the patients in the control group and 37 per cent of the patients in the penicillin-treated group were found to have bacteremia. When alpha and gamma streptococci alone were considered, a statistically significant reduction in the incidence of bacteremia, from 34 to 15 per cent, was observed with the use of penicillin. The incidence of bacteremia could not be correlated with age, sex, race, state of oral hygiene or number of teeth extracted. The number of positive cultures was greater, however, the more extensive the surgical procedure. Penicillin prophylaxis was employed in eleven tooth extractions on 7 patients with healed rheumatic or bacterial endocarditis. Transient bacteremia occurred in 4 patients. The authors suggest a plan of prophylaxis preceding dental extraction in patients with rheumatic and congenital heart disease.

Archives of Pathology, Chicago

46:191-288 (Sept.) 1948

- *Intracranial Vascular Lesions in Late Rheumatic Heart Disease. J. Denst and K. T. Neubuerger.—p. 191.
Myocardial Changes in Poliomyelitis. Vera B. Dolgopel and Mary D. Cragan.—p. 202.
*Comparison of Thymic Hyperplasia in Myasthenia Gravis and Exophthalmic Goiter. A. L. Bryan, J. R. McDonald and O. T. Clagett.—p. 212.
Testicular Tumors: II. Interstitial Cell and Miscellaneous Neoplasms. R. E. Scully and A. R. Parham.—p. 229.
Problems Related to Origin and Meaning of Pituitary Gland Tumors. I. Costero.—p. 243.
Effect of Sodium Chloride Deprivation on Growing Rat. J. T. Cuttino and M. H. Rosenthal.—p. 260.
Interrelationship of Diseases of Liver and Brain. A. B. Baker.—p. 268.

Intracranial Lesions in Rheumatic Heart Disease.—Dent and Neubuerger found in a series of 688 necropsies 45 in which rheumatic heart disease was noted in patients older than 25 years, excluding those in whom it was complicated by subacute bacterial endocarditis. The brain was adequately examined in 14 of these cases, and in 9 it showed significant vascular changes. It was found that lesions of intracranial vessels occur with unexpected frequency in late stages of rheumatic heart disease. The larger and smaller arteries and veins, mainly in the leptomeninges, show a great variety of pathologic features. The principal lesions are: various forms of thrombosis, endarteritic proliferation, alteration of the elastic membranes and fibrosis of media and adventitia. The histologic picture, as a rule, is sufficiently characteristic to permit differentiation from other vascular diseases that occur in the same location. Parenchymal changes in the brain secondary to the vascular processes are identical with those produced by other vascular diseases. Focal neurologic signs may occur, but there is little evidence to show that the lesions described form the anatomic basis for psychotic syndromes.

Thymus in Myasthenia and Goiter.—In recent years, thymectomy had been resorted to with gratifying results in many of the cases of myasthenia gravis. Bryan and his associates made a histopathologic study of the thymus in this disorder. Since thymic hyperplasia occurs also in other endocrine disorders, a comparison was made with thymic hyperplasia of hyperthyroidism. Among 23 cases of myasthenia gravis, exclusive of thymoma, in which thymectomy was done, there were 4 in which extreme lymphoid hyperplasia, and 2 in which moderate lymphoid hyperplasia of the thymus, was observed on microscopic examination. In the remainder of the cases the gland either was normal or had been replaced by fat. Twelve of the 17 normal glands in the myasthenia series showed areas of hyperplasia, but the percentage of glandular tissue was too low to permit their being considered hyperplastic, the average content of thymic parenchyma being only 29 per cent. In none of the 20 cases of hyperthyroidism did extreme hyperplasia of the thymus occur, and in only 1 case did moderate lymphoid hyperplasia occur. Small areas of epithelial

clustering occurred in 2 cases of the myasthenia series and in 3 cases of the hyperthyroidism series, but the glands were essentially normal. When the amounts of the glandular tissue of the thymuses were determined, percentages of thymic tissue, the weight of the parenchyma of 2 of 13 glands in the myasthenia series significantly exceeded the upper limit of normal, while the weight of the parenchyma of 7 to 9 glands in the hyperthyroidism series exceeded the upper limit of normal. There was apparently no correlation between the extent of hyperplasia determined microscopically and that which was observed when the weight of essential thymic elements exceeded significantly the expected upper limit of normal.

Blood, New York

4:1-96 (Jan.) 1949

- *Results of Therapy of Erythroblastosis with Exchange Transfusion. A. S. Wiener and I. B. Wexler.—p. 1.
Recent Studies of Multiple Myeloma: Sternal and Rib Puncture and Results of Treatment with Stilbamidine. S. Propp, L. W. Gorham and S. Kantor.—p. 36.
Distribution of Histochemically Demonstrable Glycogen in Human Blood and Bone Marrow Cells. M. Wachstein.—p. 54.
Pyridoxine Deficient Diet and Desoxypyridoxine in Therapy of Lymphosarcoma and Acute Leukemia in Man. A. Gellhorn and L. O. Jones.—p. 60.
Rapid Diagnostic Test for Sick Cell Anemia. H. A. Itano and L. Pauling.—p. 66.
Mechanism of Petechial Hemorrhage Formation. J. G. Humble.—p. 69.

Exchange Transfusion in Erythroblastosis.—In their technic of exchange transfusion Wiener and Wexler introduce citrated blood into the saphenous vein at the ankle and withdraw the infant's blood simultaneously from the radial artery at the wrist, coagulation being prevented by the administration of small amounts of heparin. The procedure, besides being simple, is safe, there having been no operative mortality in more than forty transfusions. The authors present the results obtained with exchange transfusion in their first 28 cases. In 16 of these, erythroblastosis was severe and almost certainly would have been fatal if left untreated; in 6 it was of moderate severity, and in 6 it was mild. Only 7 of the infants died. The available data indicate that the mortality would have been at least twice as high had the usual treatment with simple transfusions been given. Fresh blood should be used instead of bank blood because of its greater survival time and smaller likelihood of introducing infection. All infants who have survived have developed normally both physically and mentally and have shown no sequelae of damage to liver or brain. The most reliable index of the severity of the disease in the erythroblastic infant is provided by antenatal titrations of the maternal univalent Rh antibodies, as well as by tests for the presence of univalent antibodies in the infant's blood.

Journal of Aviation Medicine, St. Paul

19:397-480 (Dec.) 1948

- *Requirements for Oxygen in Commercial Aviation: Aspects of Its Use. L. D. Carlson, W. R. Lovelace II and H. L. Burns.—p. 399.
Some Biologic Factors in Design of Civil Aircraft. B. G. King and J. J. Swearingen.—p. 414.
Protective Helmet for Pilots of High-Speed Aircraft. E. Hendler and J. R. Popen.—p. 420.
Indication of Earlier Stages of Human Hypoxia by Electroencephalometric Means. J. W. Prast and W. K. Noell.—p. 426.
Detecting Potential Leaders. H. E. Page.—p. 435.
Psychosomatic Manifestations in Ophthalmology. E. E. Poos.—p. 442.
Comparison of Tests for Red-Green Color Deficiency. Louise L. Sloan and Lorraine Vollach.—p. 447.
Study of Flight Surgeon Population in Relation to National and International Obligations. W. R. Stovall.—p. 456.

Oxygen in Commercial Aviation.—According to Carlson and his associates routine transcontinental and intercontinental flights are now made in unpressurized aircraft at altitudes which require oxygen for crew and passengers. A much larger number of flights are made at altitudes which are borderline so far as oxygen requirements are concerned, the need for oxygen being accentuated by such conditions as night flying and passengers with chronic or acute illnesses which limit their oxygen utilization. The oxygen systems in commercial airline aircraft have been the result of each company's meeting a need according to the information at their disposal concerning oxygen requirements from the physiologic standpoint, as well as the

engineering factors related to specific installation problems. The authors present data for use in the design of commercial aircraft oxygen systems from the point of view of requirements from a physiologic, a medical and a practical and engineering basis and the standardization possible in utilizing these factors. They feel that increasing the flow of oxygen above normal, especially at low altitudes, would protect passengers suffering from such diseases as pulmonary fibrosis, emphysema, anemia and cardiac disease. Present data indicate that the administration of as little as 50 per cent oxygen is of value in certain clinical cases.

Journal of Experimental Medicine, New York

89:1-130 (Jan.) 1949

- Immunochemical Studies on Blood Groups. IX. Specific Precipitation of Fucose of Hog and Human Blood Group A Substances by Anti-A. E. A. Kabat, H. Baer and Vesta Knaub.—p. 1.
Purification of Influenza Virus Substrate, and Demonstration of Its Competitive Antagonism to Apple Pectin. D. W. Woolley.—p. 11.
Experimental Serum Disease: Pathogenetic Study. W. E. Ehrlich, J. Seifter and Carylyn Forman.—p. 23.
Concurrent Infection with Influenza Virus and Mumps Virus or Pneumonia Virus of Mice (PVM) as Bearing on Inhibition of Virus Multiplication by Bacterial Polysaccharides. H. S. Ginsberg and F. L. Horsfall Jr.—p. 37.
Effect of Lesion Due to Influenza Virus on Resistance of Mice to Inhaled Pneumococci. C. G. Harford, Virginia Leidler and Mary Hara.—p. 53.
Myositis in Mice Following Intramuscular Injection of Mouse Encephalomyelitis Group and of Certain Other Neurotropic Viruses. R. Rustigian and A. M. Pappenheimer.—p. 69.
Capsular Reactions and Soluble Antigens of *Torula histolytica* and of *Sporotrichum schenckii*. J. M. Neill, C. G. Castillo, R. H. Smith and C. E. Kapros.—p. 93.
Studies on Metabolism of Filarial Worm, *Litomosoides carinii*. E. Bueiding.—p. 107.

Kentucky Medical Journal, Bowling Green

47:1-36 (Jan.) 1949

- Obstetrics by the General Practitioner. T. Pugh.—p. 5.
Apomorphine-Scopolamine Analgesia in Obstetrics. J. H. Siehl.—p. 8.
Chronic Brucellosis or Chronic Undulant Fever. F. Stites and J. Stites.—p. 10.
Superficial Mycoses. C. G. Baker.—p. 15.
Recent Advances in Internal Medicine. L. T. Minish Jr.—p. 21.
Proctoscopic Examination in Detecting Disease of Rectum and Colon. O. T. Evans.—p. 25.

New England Journal of Medicine, Boston

240:45-80 (Jan. 13) 1949

- Clinical and Experimental Study of Isuprel in Spontaneous and Induced Asthma. F. C. Lowell, J. J. Curry and I. W. Schiller.—p. 45.
Diagnosis of Congenital Aneurysm of Pulmonary Artery: Report of Two Cases. C. T. Dotter and I. Steinberg.—p. 51.
*Multiple Sites for Bone-Marrow Puncture, with Particular Reference to Children. J. J. Rheingold, L. Weisfuse and W. Dameshek.—p. 54.
Medical Problems of Old Age. R. T. Monroe.—p. 57.
Conservative Treatment in Placenta Accreta: Report of Case in Twin Pregnancy. S. P. Norman.—p. 60.
Care of Newborn. S. T. Clifford.—p. 61.
Bronchiogenic Carcinoma, Right Lower Lobe. Pulmonary Tuberculosis, Healed Right Upper Lobe, Active Right Middle and Lower Lobes.—p. 68.
Metastatic Melanotic Sarcoma.—p. 71.

Multiple Sites for Bone Marrow Puncture.—Rheingold and his associates say that although the sternum is the usual site for puncture in the study of the bone marrow, other sites have been used in recent years. The authors used bone marrow punctures on multiple sites in 31 adults. Comparison of the results obtained with multiple punctures showed surprisingly similar findings. Occasionally, marrow was obtained from one site, when another yielded a dry tap. Because of these highly comparable results in different areas, the authors now utilize the various sites interchangeably when multiple punctures are performed. Spinous process punctures were performed in 25 infants and children ranging from 2 months to 12 years of age. In 5 children two punctures were done. The iliac crest puncture was performed in 8. Ten patients had both sternal and spinous process and iliac crest punctures; 2 had iliac crest and spinous process punctures, and 1 had a tibial puncture in addition to punctures of the sternum and of a spinous process. The authors conclude that the use of alternative sites for bone marrow puncture is of definite value. In children, the spinous process and iliac crest are often the preferred sites for puncture.

Oklahoma State Medical Assn. Jour., Oklahoma City

42:1-42 (Jan.) 1949

- Responsibilities of General Practitioner for Care of Psychiatric Patient. J. R. Ewalt.—p. 4.
 Pulmonary Complications in Hodgkin's Disease and Treatment. L. F. Shryock.—p. 8.
 The Acute Joint. W. K. Ishmael.—p. 11.
 Mental Hygiene in College Health Program. J. O. Hood and M. P. Prosser.—p. 14.
 Acute Infections of Hand. R. H. Lindsey.—p. 19.

Pediatrics, Springfield, Ill.

3:1-128 (Jan.) 1949

- B. Mucosus Capsulatus (Friedländer) Meningitis; Recovery of Three-Week-Old Infant Treated with Sulfadiazine and Streptomycin. W. A. Daniel Jr.—p. 3.
 Etiology of Ekiri, a Highly Fatal Disease of Japanese Children. Katherine Dodd, G. J. Buddingh and S. Rapoport.—p. 9.
 Combined Immunization Against Diphtheria, Tetanus and Pertussis in Newborn Infants. I. Production of Antibodies in Early Infancy. P. A. di Sant' Agnese.—p. 20.
 Adjustment of Electrolytes and Water Following Premature Birth (with Special Reference to Edema). C. A. Smith, S. Yudkin, Winifred Young and others.—p. 34.
 Thymol Turbidity Values in Serums of Newborn and Premature Infants and of Mothers at Term. Murdina MacFarquhar Desmond, H. J. Zimmerman, L. K. Sweet and L. J. Thomas.—p. 49.
 Clinical Observations on Use of Hyaluronidase. L. C. Burket and P. György.—p. 56.
 Speed of Secondary Immune Response to Tetanus Toxoid with Review of War Reports and Observations on Simultaneous Injection of Toxoid and Antitoxin. J. J. Miller Jr., Mary Louise Ryan and R. R. Beard.—p. 64.
 Use of Carinamide in Pediatrics. T. L. Perry.—p. 75.

Psychosomatic Medicine, Baltimore

10:309-396 (Nov.-Dec.) 1948

- Psychodynamic Mechanism in Case of Neurodermatitis. M. L. Miller.—p. 309.
 Brain Wave Patterns Accompanying Changes in Sleep and Wakefulness During Hypnosis. W. Barker and Susan Burgwin.—p. 317.
 Life Situations and Serum Antibody Titers. J. L. Bakke and H. G. Wolff.—p. 327.
 Diarrhea: A Specific Somatic Equivalent of Unconscious Emotional Conflict. Melitta Aperlger.—p. 331.
 Peripheral Vasomotor Reactions as Indices of Basic Emotional Tension and Lability. P. A. Theron.—p. 335.
 Diagnostic Value of Peripheral Vasomotor Reactions in Psychoneuroses. A. B. van der Merwe.—p. 347.
 Erasistratus, Antiochus and Psychosomatic Medicine. C. A. Seguin.—p. 355.
 Personality Factors in Allergic Nasal Disorders as Determined by Analysis of Recorded History Interviews. J. H. Mitchell, C. A. Curran and Ruth N. Myers.—p. 357.
 Audiometry Under Hypnosis. J. M. Schneck.—p. 361.
 Emotional Factors and Tuberculosis: Critical Review of Literature. Beatrice Bishop Berle.—p. 366.

Emotional Factors and Tuberculosis.—A critical review of the literature presented by Berle indicates that current as well as ancient notions concerning tuberculosis and genius, tuberculosis and mental disease, the psychopathology of tuberculosis and the possible influence of emotional factors on the course of this disease need to be reevaluated. As a result of this study, two recommendations suggest themselves: (1) training young phthisiologists to an awareness of the psychologic problems of patients with a chronic disease; and (2) clinical investigation of the possible role of bodily reactions and life situations in the development of tuberculosis. Although many physicians treating tuberculosis in private practice have long been aware of their patients' psychologic problems and have met these effectively, there is no systematic program for the training of young phthisiologists along these lines. Therefore it is suggested that the Trudeau Society or other similar organization plan an effective program for the development of an understanding of the personal and social problems of their patients. The second recommendation relates to the problem of the resistance of the host in infectious diseases. Clinical observations on the parallel course of a patient's emotional life and the course of his tuberculous disease should be carried on. Investigators could determine, for instance, whether any fluctuation occurred in the concentration of a known bacteriolytic enzyme in certain persons under conditions of emotional stress. No progress can be made in the understanding of the relation of emotional factors and tuberculosis unless the physiologic accompaniments of emotional stress are included in the detailed study of the problem of virulence.

Public Health Reports, Washington, D. C.

64:41-68 (Jan. 14) 1949

- *Q Fever Studies in Southern California: II. Epidemiological Study of 300 Cases. M. Dorothy Beck, J. A. Bell, E. W. Shaw and R. J. Huebner.—p. 41.
 Experimental Animal Colony in Tropical West Africa. H. A. Poindexter.—p. 57.

64:69-92 (Jan. 21) 1949

- State Legislation for Minimum Standards of Hospital Maintenance and Operation. V. M. Hoge and J. G. Steinle.—p. 69.

Epidemiologic Studies on Patients with Q Fever.—Three hundred cases of Q fever, with 3 deaths, have been investigated in Los Angeles and vicinity since September 1947. The cases occurred throughout the area at all seasons and over several years. They were predominantly in males in the industrial age groups, their occupations being extremely diversified. The epidemiologic findings suggested three general hypotheses as to the modes of spread of the disease in this endemic area—occupation in the dairy or livestock industries, residence in close approximation to a dairy or livestock yards, and household use of raw milk. No one of these possible modes of spread would account for more than one half of the cases. Specific epidemiologic studies have been arranged to determine the worth of each of these hypotheses.

Radiology, Syracuse, N. Y.

52:1-156 (Jan.) 1949

- Immediate and Late Results of Intracavitary Radium Therapy for Malignant Lesions of Cervix. H. H. Bowling.—p. 1.
 Intravaginal Roentgen Therapy in Cancer of Cervix Uteri. G. H. Twombly and J. A. Chamberlin.—p. 14.
 *Review of Ten Years' Experience with Transvaginal Roentgen Therapy. R. M. Caulk.—p. 26.
 Place of Deep External X-Ray Irradiation in Treatment of Carcinoma of Cervix by Long Element Needles. G. W. Waterman and W. A. Reid.—p. 34.
 Carcinoma of Cervical Stump. W. E. Costolow.—p. 41.
 *Probable Trends in Irradiation Treatment of Carcinoma of Cervix Uteri with Improved Expanding Type of Radium Applicator. E. C. Ernst.—p. 46.
 Cervical Subarachnoid Space, with Particular Reference to Syringomyelia and Arnold-Chiari Deformity. J. H. Marks and K. E. Livingston.—p. 63.
 Intraventricular Epidermoid: Characteristic Pneumoencephalographic Findings. H. Hauser and C. W. Elkins.—p. 69.
 Diagnosis of Primary Hodgkin's Disease of Stomach. E. L. Pirkey and S. M. Roberts.—p. 75.
 Primary Malignant Heart Tumor Diagnosed in Vivo with Aid of Artificial Pneumopericardium. Karen Lübschitz, E. Lundsteen and Eva Forchhammer.—p. 79.
 Spontaneous Pneumothorax Associated with Metastatic Sarcoma: Report of 3 Cases. E. A. Lodmell and S. C. Capps.—p. 88.
 Simple Method for Computing Volume of Human Gallbladder. G. Siffert de Paula e Silva.—p. 94.
 New Standard for Heart Size Measurement. L. C. Jacobs.—p. 103.
 Apparatus for Automatic Multiple Exposures. H. K. Taylor.—p. 107.

Transvaginal Roentgen Therapy.—Caulk applied transvaginal roentgen treatment alone or combined with other conventional methods in 346 cases of carcinoma of the cervix during the decade of October 1936 to December 1946. Two hundred and two patients were treated prior to 1943, and definite data for analysis in terms of five to ten year survivals were available for 192. One hundred and eighteen patients were dead, 104 having died prior to five years of observation. Two of these 104 died without clinical evidence of the disease; at least 67 patients died of or with cancer. The cause of death in the remaining cases is not known. Fourteen deaths occurred after five years, 5 from causes other than cancer, 6 from causes unknown and 3 from cancer. By combining a short anode-cervix distance with a large speculum and large master cone aperture, the maximum divergence of the beam at the level of the cervix was obtained. Daily doses of 800 r were given. The total dose varied over the years from 5,000 to 8,000 r, but at present a total dose of 6,400 r is given if intracervical and intrauterine radium is to be added, and 7,200 r if supplementary radium therapy is not to be given. All patients had some degree of diarrhea as an immediate result of the transvaginal therapy. The percentage of late complications was relatively low, with 2 cases of severe bowel reaction and only 6 cases of a recto-vaginal fistula directly attributable to radiation. Only transvaginal roentgen therapy was applied to all obese patients in

stage 1 except those with endocervical cancer. The survival in this group—21 of 28 cases—was gratifying. Only 1 of 9 selected patients in clinical stage II to whom transvaginal roentgen therapy was applied survived. This group demonstrated satisfactory control of the local disease in the fornices, but paracervical and parametrial disease spread. Transvaginal roentgen therapy can be utilized to advantage in the treatment of cervical cancer. It is an ideal substitute for local cervical radium application in all cases in which it can be practicably applied. In carcinoma of the cervical stump it can supplant radium entirely. Results may be improved by the delivery of larger doses to the parametria with higher voltage apparatus and the routine addition of intracavitary radium therapy.

Irradiation of Carcinoma of Cervix Uteri.—Ernst devised a new single unit type of cervical uterine radium applicator for the treatment of carcinoma of the cervix the technical advantage of which is due to the mechanically controlled expansion features and to the accurate distribution of seven to nine cross fire radium sources within the pelvis. The expanding feature of the lateral capsules and auxiliary colpostats of this instrument assures a much broader and more uniform distribution of radium intensities, thereby minimizing the danger of over-irradiation of certain areas within the vaginal vault. With the aid of external pressure, the more direct and indirect irradiation of the parametrial fields at close range is facilitated. Since all the radiation sources are incorporated within a single applicator, complete fixation of the individual multiple radium sources is assured. Another advantage is the decentralization feature for correcting, or at least modifying, the position of the displaced cervical canal to a more central position, thereby increasing the vulnerability of both the primary lesion and the parametrium to the radiation sources. Injury to the bladder and the rectum is minimized by the design and mechanical features of the lead-filled ends of the vertical radium capsules. Studies of the intensity of the irradiation on slow photographic films revealed that this method of application compares favorably with the Manchester method. From a clinical research standpoint the author's method facilitates the more accurate comparison and clinical evaluation of the relative effectiveness of various methods of radium application in relation to the time and intensity factors of the total radium dose. This method of applying radium is ideal for the fractional dosage type of irradiation.

Southern Medical Journal, Birmingham, Ala.

42:1-72 (Jan.) 1949

- "Aureomycin," a New Orally Effective Antibiotic: Clinical Trial in Rocky Mountain Spotted Fever, Results of Susceptibility Tests and Blood Assays Using Turbidimetric Method. G. T. Harrell, M. Meads and K. Stevens.—p. 4.
- Combined Sodium "Pentothal" and Local Anesthesia for Selected Cases of Eye Surgery with Note on Additional Use of Curare. W. McD. Boles.—p. 13.
- Diagnosis of Lesions of Stomach. C. O. Patterson, F. W. Wilson, A. E. Haley and M. O. Rouse.—p. 19.
- Physical Medicine and Preventive Medicine. J. W. McFarland.—p. 29.
- Pericarditis. S. C. Percefull and R. B. Bost.—p. 34.
- The Heart in Sickle Cell Anemia. W. H. Higgins Jr.—p. 39.
- Diagnosis and Management of Fundal Carcinoma. L. C. Scheffey.—p. 44.
- Hemostasis in Partial Resection of Liver: Case Report. E. M. Colvin and F. T. Wallace.—p. 52.
- Pediatrics: Its Accomplishments and Obligations. C. M. Pounders.—p. 54.
- Rationalization of Aerosol Therapy in Respiratory Tract Infections. A. R. Hollender.—p. 57.
- *Changing Picture of Tularemia Transmission in Arkansas: Study of 704 Case Histories. A. M. Washburn and J. H. Tuohy.—p. 60.
- Incidence of Brucella Infection in 100 Medical Students as Determined by Certain Diagnostic Tests. C. W. Johnson and M. J. Bent.—p. 62.
- Treatment of 6 Cases of Ascariasis in Man with 1-Diethylcarbamyl-4-Methylpiperazine Hydrochloride. J. Oliver-Gonzalez, D. Santiago-Stevenson and R. I. Hewitt.—p. 65.

Aureomycin in Rocky Mountain Spotted Fever.—Harrell and his associates suggest that aureomycin gives promise of usefulness in rickettsial disease. It is a new antibiotic produced by a species of *Actinomyces* which is effective when administered orally or parenterally against a wide variety of bacteria, against most rickettsias and against a few viruses. The authors present the histories of 3 patients with Rocky

Mountain spotted fever who were treated with aureomycin. The drug was supplied in capsules of 50 mg. for oral administration and in ampules containing 20 mg. of the lyophilized drug as the hydrochloride. Parenteral injections were used in only 1 of the 3 cases. The parenteral dose of aureomycin should probably be in the range of 5 to 10 mg. per kilogram per day in this disease. At present the daily oral dose for human beings seems to be 50 to 100 mg. per kilogram (3 to 6 Gm. daily for an adult) on a four to six hour schedule. The temperature in severe cases responds in about three days. Aureomycin was as effective in inducing clinical remission as any other drug yet tried. It apparently has the property of penetrating cell membranes and attacking rickettsias within cells, suppressing their growth and reproduction and allowing a lower level of immunity to be effective in reducing toxicity, lowering temperature and producing a clinical remission. Since the antibiotic acts primarily on the rickettsias, the importance of supportive therapy to the patient must not be forgotten. Since rickettsial spotted fever varies widely from year to year and from patient to patient, many more cases must be studied before final conclusions can be drawn. It may prove that a combination of aureomycin and para-aminobenzoic acid will be even more effective than either drug alone. An addendum to this paper cites a report by other investigators on the use of aureomycin in Rocky Mountain spotted fever. The favorable response of these 25 additional cases confirms the impression that "aureomycin" is a very effective drug in the treatment of Rocky Mountain spotted fever.

The Changing Picture of Tularemia Transmission.—A study of 704 case histories of tularemia convinced Washburn and Tuohy that in Arkansas the name "rabbit fever" applied to tularemia is, in part, a misnomer. Only 31 per cent of cases were traceable to this source, while ticks were implicated in 56 per cent. Seasonal occurrence and site of lesion coincide with this conclusion. There is also reason to believe that the incidence of the disease is increasing and this may be in part due to the greater number of infected tick vectors. Many of the recently reported cases indicate satisfactory response to streptomycin with greatly lowered morbidity. The disease appears as a definite occupational hazard to those whose work requires them to remain in a tick-infested environment.

Southern Surgeon, Atlanta, Ga.

15:1-68 (Jan.) 1949

- Physiologic Changes Following Vagotomy for Peptic Ulcer. R. A. Griswold.—p. 1.
- Treatment of Metastatic Cancer of Thyroid: Report of Unusual Cases. W. Trevor and G. T. Pack.—p. 9.
- *Glycerin Osmotic Drainage in Peritonitis. E. D. Smith and R. W. Smith.—p. 18.
- Child and Infant Surgery. R. S. Widmeyer.—p. 29.

Glycerin Osmotic Drainage in Peritonitis.—The Smiths present an evaluation of glycerin osmotherapy after using it in the treatment of peritonitis for over ten years. With localized soiling, as from a gangrenous gallbladder or appendix, a glycerin swabbing of the contaminated area and the insertion of a Kehrner cigaret drain, the gauze of which has been saturated with glycerin, is all that is needed. In diffuse peritonitis, with agglutination of intestinal loops and pocketing of pus, the loops of intestines are gently separated to permit aspiration of pus collections and free lavage with glycerin. As much as 8 ounces of autoclaved glycerin U. S. P. is poured over the inflamed intestines and at least one osmotic drain is placed in the crater of the infection. Unlike normal peritoneum, an edematous wound is not irritated by full strength glycerin since fluids extracted from the tissues seem to dilute the glycerin. The authors present case reports to illustrate the possibilities of osmotherapy in patients with diffuse peritonitis. They stress that glycerin has several useful properties which make it suitable for intraperitoneal use in the treatment of acute diffuse secondary peritonitis. Glycerin induces drainage from infected tissues. It has antiseptic and bactericidal action on the etiologic bacteria of peritonitis. It tends to restrict the formation of residual adhesions. Glycerin absorbed from the peritoneum has a protein-sparing action, reduces hypoglycemia and prevents formation of acetone bodies.

It causes an increase in leukocytes. Used in conjunction with a mechanical drain, it prevents the latter from adhering within the abdomen and avoids skin maceration and superficial infection usually associated with prolonged pus drainage.

Surgery, St. Louis

25:1-168 (Jan.) 1949. Partial Index

- *Influence of Pregnancy on Cancer of Breast. B. Brooks and J. N. Proffitt.—p. 1.
- Studies in Virulence of Clostridium Welchii. W. A. Altemeier and W. L. Furste.—p. 12.
- Further Experiments with Nonirritating Glove Powder. E. M. Alrich, C. M. Lee Jr. and E. P. Lehman.—p. 20.
- *Comparison of Tissue Reaction to Talc and Modified Starch Glove Powder. R. W. Postlethwait, H. L. Howard and P. W. Schanher.—p. 22.
- Method of Continuous Arterial Infusion: Bone Marrow and Blood Levels During Administration of Penicillin. S. S. Schneierson and L. Blum.—p. 30.
- Cardiocirculatory Disturbances During Intrathoracic Surgery. C. L. Burstein, T. L. Piazza, L. A. Kapp and E. A. Roventine.—p. 36.
- Foreign Body in Thyroid Following Perforation of Esophagus. E. E. Jemerin and J. S. Arnoff.—p. 52.
- Further Studies on Effect of Continuous Intra gastric Infusion of Acid and Pepsin in Dogs. M. J. Fogelman, M. I. Grossman and A. C. Ivy.—p. 60.
- *New Method for Roentgenologic Study of Rectum. G. Levene.—p. 68.
- Diverticula of Vermiform Appendix. A. Saccone, V. W. A. Dilluvio and E. I. Zins.—p. 78.
- Melano-Epithelioma of Anus and Rectum. F. W. Braastad, M. B. Dockerty and C. F. Dixon.—p. 82.
- Evolution of Neurosurgery. A. W. Adson.—p. 91.
- *Use of Hyaluronidase with Local Anesthetic Agents in Nerve Block and Infiltration Anesthesia. C. K. Kirby, J. E. Eckenhoff and J. P. Looby.—p. 101.
- Blood Loss From Donor Sites in Skin Grafting Procedures. D. W. Robinson.—p. 105.
- Rupture of Left Pectoralis Major Muscle: Report of Case. E. J. Pulaski and G. W. Martin.—p. 110.
- Kneeling Position for Operations on Lumbar Spine, Especially for Protruded Intervertebral Disk. A. Ecker.—p. 112.
- Experimental Urinary Tract Obstruction Produced by Cellophane Sclerosis: Report of Method. G. W. Duncan and W. E. Goodwin.—p. 113.
- Glomus Tumor Within Bone. W. Lehman and C. Kraissl.—p. 118.

Pregnancy and Cancer of Breast.—Brooks and Proffitt believe that although pregnancy exerts a decided influence on existing cancer in the mammary gland, it is not influential in the production of cancer in the gland. They investigated this problem on women who were operated on for cancer of the breast when they were less than 46 years old. They found no evidence that pregnancy plays a part in originating a cancer of the mammary gland, but there seems to be no doubt that pregnancy exerts a strong influence on a coexisting cancer of the breast. It increases the rapidity of its growth. The mechanism of this influence seems to be the same as that which causes the well known anatomic changes in the normal mammary gland during pregnancy. The advisability of the removal of the other breast simultaneously with or subsequent to radical operation for cancer of the breast depends on the likelihood that cancer may have already extended to the normal breast. It should be removed for the same reason that the contents of the axilla should be removed. This is of particular importance in instances in which a cancer arises in the medial hemisphere of the mammary gland, in some of which the primary neoplasm is nearer the other breast than to the axilla of the one diseased. Whether or not a patient during the childbearing age, operated on for cancer of the breast, is to be advised against pregnancy depends on the probability of the complete removal of all the neoplasm and the patient's ability to understand and choose the amount of risk involved for diminishing an already short life expectancy if all the tumor is not removed. With residual cancer the life expectancy, already short, would be further shortened by pregnancy.

Tissue Reaction to Talc and Starch Powder.—Postlethwait and his co-workers point out that talc, when used as a lubricant for surgical gloves, is frequently implanted in the wound during operation and has been known to result in the development of adhesions and granulomas. Efforts have therefore been made to find a substitute for talc. The authors describe animal experiments, which they carried out in order to compare tissue reactions to talc and to a starch powder that had been suggested by other investigators as a substitute for talc. Both materials were placed into the peritoneal, pleural, and pericardial cavities, and within muscles, tendons, joints,

and nerves of dogs. Whereas talc was found to produce granulomatous reactions, the starch powder when placed in the same tissues by similar technics is absorbed with little or no reaction. The authors suggest the starch powder as a satisfactory substitute for talc.

New Method for Roentgenologic Study of Rectum.—Levene describes a new method for the roentgenologic study of the rectum. It consists of spraying a thin mist of barium sulfate suspension on the rectal mucosa. This technic is made possible by the development of new apparatus which allows spraying without building up internal pressure. The procedure is safe and is attended by no discomfort. This method of examination has revealed lesions of various types which were not demonstrated by routine barium enema.

Use of Hyaluronidase with Local Anesthetic Agents.—According to Kirby and his co-workers the use of regional anesthesia has been limited because of the difficulty of depositing anesthetic solutions consistently along nerve trunks. Hyaluronidase, a mucolytic enzyme, is now generally conceded to be a spreading factor. The authors found that addition of hyaluronidase to local anesthetic agents injected subcutaneously increased the area of skin anesthesia but decreased the duration of anesthesia, apparently because of accelerated absorption. When epinephrine was added to local anesthetic agents the duration of anesthesia was approximately the same with and without hyaluronidase. In most instances epinephrine increased the spreading effect of hyaluronidase, probably by delaying absorption. Hyaluronidase may prove helpful in producing regional and infiltration anesthesia in surgical and dental patients.

Virginia Medical Monthly, Richmond

76:56-104 (Feb.) 1949

- Recent Advances in Antibiotic and Sulfonamide Therapy. H. F. Flippin and W. P. Boger.—p. 56.
- Acute Respiratory Infections. H. C. Brownley.—p. 63.
- Diagnosis and Treatment of Pareses of Obliques. W. P. McGuire.—p. 69.
- Medical Aspects of Atomic Bomb. W. B. Looney.—p. 73.
- Ano-Rectal Disease: Incidence in 300 Males of Military Age with Particular Reference to Polyposis. F. R. Whitehouse.—p. 76.
- Effect of Moon on Childbirth. A. G. Schnurman.—p. 78.
- Pre-Occupation with Painful Memories as Basis for Neurosis and Physical Illness. J. T. Ransone.—p. 79.
- Congenital Tuberculosis: Case Report. McL. Birdsong and C. S. L'Engle Jr.—p. 83.
- Professional Responsibility in Control of Cancer. W. H. Higgins.—p. 86.
- Factors in Pregnancy Affecting Newborn. F. N. Mullen Jr.—p. 88.

West Virginia Medical Journal, Charleston

45:1-34 (Jan.) 1949

- Evaluation of Antiseptic Drugs and Antibiotics in Treatment of Infections of Urinary Tract. A. I. Dodson.—p. 1.
- Cancer of Breast. T. P. Mantz, E. Squire, J. R. Hunter and W. Putschar.—p. 6.
- Pediatric Ophthalmology. M. W. McGehee.—p. 11.
- Treatment of Compression Fractures of Dorsal and Lumbar Spine. H. A. Swart.—p. 17.
- *Boxing and Intracranial Injuries. J. D. Romino.—p. 19.

Boxing and Intracranial Injuries.—Romino says that with the present increase in ring accidents closer study of participants must be made in order to determine the fitness factor. He suggests that boxers should be licensed. Before a license is granted, he should undergo a physical examination. This license should be renewed each year. A boxer should have a medical record of each fight and present this to the commissioner at the time of renewal of his license. The license should be shown to the doctor and a physical examination must be made before each fight. A fighter who has been knocked out should not be permitted to fight for three months. No fighter whose blood pressure is more than twenty points above normal for his age group should be permitted to fight because, in addition to the danger of serious intracranial injuries, it is likely that fighters whose blood pressures are elevated receive, in the course of a bout, numerous petechial hemorrhages which sooner or later result in a "punch drunk has-been." Each fighter should present the doctor with a signed affidavit from his manager, stating that he has undergone sufficient training. The managers should see that their boxers are evenly matched.

Book Notices

The Modern Management of Gastric and Duodenal Ulcer. Edited by F. Croxon Deller, M.D., M.R.C.P. Cloth. Price, \$5.50. Pp. 227, with 57 illustrations. Williams & Wilkins Co., Mt. Royal & Guilford Aves., Baltimore 2, 1948.

As stated in the prologue, this book gives the points of view of the various contributors on the modern management of gastric and duodenal ulcer, in an attempt to present to general practitioners and surgeons a balanced, educative account of the modern trends in diagnosis and treatment of these two extremely common diseases. The work is practical and based on clinical experience rather than on scientific argument for the reasoning and advice. Important phases of anatomy, physiology, pathology and pathogenesis are adequately discussed. Each section dealing with these fundamental phases of any study of organic disease, the methods of the sections on clinical and laboratory examinations, and the operative procedures are well written and contain the essential features which every doctor dealing with such patients should know thoroughly. The material presented is up to date, and, although much of the material presented is not unknown, it is sound and the advice and inferences given are sound. The book can be recommended for medical students, general practitioners and surgeons alike.

How to Live Longer. By Justus J. Schifferes. With a foreword by Ralph F. Sikes, M.D. Cloth. Price, \$3. Pp. 253. E. P. Dutton & Co., 300 Fourth Ave., New York 10, 1949.

This book for the layman places emphasis on the individual's responsibility for his own health and consequently for the health of the nation. It attempts to replace ignorance, neglect and indifference, termed the elements of involuntary suicide, with sound knowledge and sensible attitudes. Gains made in the last fifty years by medicine and public health are used to indicate the further strides that could be made in prolonging life if the facts of preventive and therapeutic medicine could be put to work through health education of the public.

The ten leading causes of death are analyzed and methods of outwitting these killers are suggested. The usual course of the various diseases is discussed and "danger signals" noted. Principal attention is given to stressing the importance of early medical treatment and advice when such signs manifest themselves.

The author avoids overemphasis on fear and altogether presents a hopeful picture, in fact one which some may consider overoptimistic, for those who intelligently use available health resources. The style is stimulating, and the text informative. A bibliography and a list of agencies concerned with specific health problems provide extensive fields of exploration for those with a special interest in health education.

The National Formulary 1949. [Compiled by the Joint Formulary Committee of the British Medical Association and the Pharmaceutical Society of Great Britain.] Boards. Price, 2s.6d. Pp. 128. The British Medical Association, Tavistock Sq., London, W.C.1; The Pharmaceutical Press, 17 Bloomsbury Sq., London, W.C.1, [1949].

This booklet is prepared by the Joint Formulary Committee, which represents the medical and pharmaceutical professions in England, and is intended to provide "a volume of convenient size which may be carried in the pocket or kept ready at hand by the practitioner and pharmacist. Information which may more appropriately be obtained from textbooks or works of reference is omitted." The committee's objective to provide a volume of convenient size has been achieved. Unfortunately, brevity has caused a sacrifice of information that might be desirable to many physicians. On the other hand, the book provides for the Britisher useful information on characteristic properties of some commonly used drugs, preparations subject to the requirements of the Dangerous Drugs Act and Regulations and the composition of many substances used by the medical profession in England. The book will have little value to the American physician except when the physician may wish to learn the identity of a proprietary remedy used in England; the booklet contains an appendix listing proprietary or trade names and the drugs or preparations which are substantially identical.

Your Coughs, Colds and Wheezes. By Joseph D. Wassersug, M.D. Cloth. Price, \$2.95. Pp. 277. Wilfred Funk, Inc., 227 E. 44th St., New York 17, 1949.

Here is a refreshingly frank approach to these widespread health problems, and at the same time a realistic acceptance of the fact that medicine is still far from their solution. The book conducts the reader through the territory of practical realities, pausing at each signpost to weigh new theories or developments with complete impartiality, accepting only those measures that have been found truly helpful and explaining in practical language the faults or omissions of certain procedures that may have received exaggerated recommendations temporarily. At the same time a completely hopeless or defeatist attitude is avoided.

Specific respiratory afflictions, including colds, influenza, pneumonia, tuberculosis, lung cysts and other growths, are considered in individual chapters, with emphasis in each on prevention and treatment. Of great practical value is a special chapter titled "Your Job May Be Dangerous," presenting data that many physicians will find helpful when discussing specific problems with patients. In addition to consideration of harmful effects from various types of dusts, subjects such as dampness, chilling and practical measures for control of dust are included. Two chapters on asthma serve to rationalize thinking of the average person on this frequently misunderstood medical problem.

In the final chapter is considered the much discussed but rarely identified "cigaret cough," followed by presentation of several case histories of persons whose casually dismissed cigarette cough was found to be caused by something far more serious.

Reader interest is further stimulated by the inclusion at the end of each chapter of a brief test in which one checks statements as true or false or selects the correct answer from three suggested.

Blood Clotting and Allied Problems. Edited by Joseph E. Flynn. Transactions of the First Conference, February 16-17, 1948, New York. Loose-leaf. Paper. Price, \$3.25. Pp. 179, with 26 illustrations. Josiah Macy, Jr. Foundation, 565 Park Ave., New York 21, [n. d.].

On Feb. 16-17, 1948, sixteen workers in coagulation under the sponsorship of the Josiah Macy Jr. Foundation gathered in New York to discuss blood clotting. One of their members read the well known poem, "The Blind Men and the Elephant." It is likely that, like the six men of Indostan, sixteen coagulationists returned to their homes still firmly adhering to their own fixed concepts of the coagulation elephant.

Although the book, as is to be expected, fails to furnish a coordinated picture of coagulation integrated with problems of hemostasis, several presentations, notably Jaques' paper, "Blood Clotting and Hemostasis," and Brinkhous' "Initiation and Acceleration Factors in Thrombosis," include much pertinent information drawn from past and present researches.

The chemists dominated the conference. A scholarly essay on the chemistry and physical chemistry of fibrinogen is given by Dr. Edsall. Many of his data are drawn from work done in his own laboratory. Drs. Seegers and Ware discuss the activation of prothrombin. By an interesting bit of scientific juggling they attempt to reconcile the former claim of Mertz, Seegers and Smith that the reaction between thromboplastin and prothrombin is stoichiometric with their present theory that thromboplastin acts catalytically. They discuss their Ac-Globulin in detail without, however, making much effort to correlate their work with that of other investigators who studied this factor at a time when they still vehemently denied its existence. The paper of Dr. Tage Astrup on "Fibrinolytic Enzymes" stresses the present confusion concerning nomenclature and prompted the appointment of a committee to decide on names. They agreed that both plasmin and fibrinolysin are proper terms for the fibrin-lytic enzyme.

Under the heading of "Value of Prothrombin Determinations," Drs. Wright, Brambel, Olwin, Quick and Smith discussed various phases of the problem. Dr. Olwin presents the relative advantages and disadvantages of the one and two stage methods applied to dicumarol[®] hypoprothrombinemia. Dr. Quick described his studies of congenital hypoprothrombinemias. Dr. Link in a rambling discussion on dicumarol[®] aims frequent darts

at Dr. Quick, but appears to have difficulty justifying his claim that methyl xanthines cause hyperprothrombinemia. An appendix giving the prothrombin determination technic as done in various laboratories is included.

Allergy to Cottonseed and Other Oil-Seeds and Their Edible Derivatives. Excerpts from Testimony before the Administrator, Federal Security Agency in the Matter of Fixing and Establishing Definitions and Standards of Identity for Mayonnaise, French Dressing, and Related Salad Dressings (Docket FDC-51). Public Hearings Held at Washington, D. C., November 18, 1947, and January 6 to 8, 1948. Cloth. Pp. 275. National Cottonseed Products Association, Inc., Sterick Bldg., Memphis 3, Tenn., 1948.

The title for this book describes it briefly and well. As stated in the preface, it was published for the limited distribution to the "medical, scientific and scholarly libraries of the United States." It is an excellent contribution whose value is restricted to allergists who are interested in the subject of sensitivity to edible oils. The testimony was taken from six well known allergists and two technicians in the edible oil industry. The evidence given is not limited to the experience and opinions of the six specialists regarding the frequency and likelihood of allergy symptoms resulting from ingestion of edible oils. In addition, a critical evaluation of the literature on the subject is brought out through the answers to various questions. Two of the six allergists stated that allergy symptoms resulting from ingestion of edible oils were not uncommon, while the other four stated that their active search for patients was fruitless.

The detailed evidence submitted by these latter four specialists indicates that allergy to cottonseed oil is unlikely even in patients who are proved to be sensitive to cottonseed protein. In addition, the evidence of the two technicians engaged in the field of edible oils indicates that under present conditions of oil extraction, oil shipment in tank cars and the use of the same pumps and pipes for various types of edible oils in refining, there is no practical way of preventing admixture of small amounts of other edible oils in cottonseed oil.

An Introduction to Gastro-Enterology. By Walter C. Alvarez, Professor of Medicine, University of Minnesota, Rochester, Minnesota. Fourth edition. Cloth. Price, \$12.50. Pp. 903, with 269 illustrations. Paul B. Hoeber, Inc., Medical Book Department of Harper & Brothers, 49 E. 33rd St., New York 16, 1948.

The fourth edition of "An Introduction to Gastro-Enterology" is actually the fourth revision of Doctor Alvarez's book initially published as "The Mechanics of the Digestive Tract," over twenty-five years ago.

As indicated by the title, this splendid work presents the dynamics of gastrointestinal function, normal and pathologic, written in the stimulating Alvarez style—clear, interesting and readable. The value to the reader lies in the fact that the elucidation of gastrointestinal symptomatology begins with a description of the basic physiology of gastrointestinal function, and from this point the reader is led in logical manner through the development of the pathologic physiology to an explanation of the clinical picture based on previously described facts.

The discussion of gastrointestinal motility and its relation to gastrointestinal symptoms such as nausea, vomiting, hunger, pain and constipation, found in this text, is the most detailed and complete account available on the subject.

In essence, the entire book concerns itself with normal and abnormal dynamics. There is no classified discussion of gastrointestinal disease as such, nor any but a cursory discussion of secretory activity. The bibliography is excellent and valuable in itself.

American Standard Practice for School Lighting. Sponsors: Illuminating Engineering Society, American Institute of Architects. Approved September 20, 1948, American Standards Association, Incorporated. Paper. Price, 50 cents. Pp. 79, with illustrations. Illuminating Engineering Society, 51 Madison Ave., New York 10, 1948.

This is a monograph on school lighting, giving complete details from the engineering point of view. It should be of interest not only to school architects and engineers but to physicians having to do with the eyes of school children or being called in an advisory capacity to school boards or school health services.

Selected Works of Henry Clapp Sherman, Mitchell Professor Emeritus of Chemistry, Columbia University, New York. [Reprints.] Cloth. Price, \$5. Pp. 1056, with illustrations. The Macmillan Company, 60 Fifth Ave., New York 11, 1948.

This book is a tribute to a great and inspiring teacher and to a great research worker who continues to contribute importantly to the world's knowledge of nutrition. It consists of over one hundred reprintings of original articles by Dr. Sherman published from 1895 to the present. Most of the papers included are reports of original research, while a few are addresses and reviews. Also included are biographic notes and a complete list of Dr. Sherman's papers and books. All this material was assembled by a committee of students and co-workers from Columbia University, who express their appreciation of Dr. Sherman as a teacher and associate in a foreword.

In a section entitled "Looking Forward in Nutrition," which was written especially for this volume, Dr. Sherman states that even though further research will add much to our knowledge of nutrition the application of our present knowledge could result in a vast nutritional improvement of man.

This book is an excellent résumé of the progress in nutrition during the first half of the twentieth century—the period of greatest advance in nutrition knowledge in the world's recorded history. It will probably appeal more to the nutrition specialist and research worker than to the student or dietitian.

Histologie und mikroskopische Anatomie des Menschen mit Berücksichtigung der Histophysiologie und der mikroskopischen Diagnostik. Von Prof. Dr. Med. Otto Bucher, Leiter des Laboratoriums für experimentelle Histologie und Erster Prosektor am Anatomischen Institut der Universität Zürich. Band V. Sammlung medizinischer Lehr- und Handbücher für Ärzte und Studierende. Boards. Price, 59.50 Swiss francs. Pp. 467, with 376 illustrations. Hans Huber, Marktgasse 9, Bern 16; distributed by Grune & Stratton, Inc., 381 4th Ave., New York 16, 1948.

This new textbook of histology from Switzerland is in German. Its avowed purpose is to help medical students pass their examinations and to prepare them for their work in pathology and the clinics. To these ends the subject is presented in simple, didactic form embellished with numerous tables and graphs. As the title promises, considerable emphasis is placed on the sections dealing with the differential diagnosis of the various tissues and organs. In this essentially simple morphologic presentation, discussions of most of the unsettled problems of histology and histophysiology receive scant attention. The three pages devoted to the submicroscopic organization of the cell do not contribute much to an understanding of the complex problems touched on. The illustrations are almost entirely original ones prepared by the author and a number of students and artists. On the whole, the black and white ones are not particularly good with regard to cellular detail. There are, however, a number of excellent colored figures.

According to the preface the lack of histology texts in German motivated the writing of this one. It seems that the present contribution falls below the level set in former years by the Stöhr-von Möllendorff, the Schaffer and the Petersen textbooks. As it is taught in American medical schools, histology is concerning itself progressively with functional and chemical interpretations of structure. This point of view is conspicuously absent in the present text. Those students who prefer ready-made outlines and summaries might relish parts of this book if it were in English.

Food Products. By Henry C. Sherman, Ph.D., Sc.D. Fourth edition. Cloth. Price, \$4.80. Pp. 428, with 20 illustrations. The Macmillan Company, 60 Fifth Ave., New York 11, 1948.

The present edition is the first revision of this well known text since 1933. As in the previous edition, food products are discussed from the standpoint of (1) production and marketing; (2) sanitation, inspection and standards of purity or of conventional market grade; (3) general composition, mineral content and vitamin values, and (4) special characteristics, digestibility, nutritive value and place in the diet.

Special attention has been given to a carefully studied revision of the tabulations of the amounts of individual amino acids in the different food proteins and to the lists of suggested readings

at the end of each chapter. While rather elementary for the physician, this book has long been a college textbook and a valuable reference for beginning studies of foods and nutrition.

Engineering the New Age. By John J. O'Neill. Cloth. Price, \$3.50. Pp. 320. Ives Washburn, Inc., 29 West 57th St., New York 19, 1949.

Science and engineering, twin giant forces, are lacking in social consciousness, at least in their organized aspects, O'Neill believes, and development of that is vital to cultural progress. It is vital because only through such a new attitude can reconstruction of "man's terrestrial homestead" to harmonize with changed needs and ideals be accomplished. With that premise, the author proceeds to orient the reader on Nature's basic design and how Nature actually has always proved to be an ultra-scientific engineer. Chapters on "The Master Designer" and "The Pulsing Ball We Call the Earth" present this graphically.

Man's fumbling attempts to take over are described in a section devoted to consideration of primitive civilizations, the phenomena of rivers and their rise and fall, and the construction of early cities after the brick, the "module of the structural art," was developed. After sections on the "personality" of the modern world, in which a design for life is suggested, and re-creation of our cities, which O'Neill translates as "curing urban ulcers," there is presented a program by which the engineers can elevate their social as well as professional aims. There is reproduced a credo, headed "Faith of the Engineer," which O'Neill considers as perhaps as basic as the Hippocratic oath. The book is both stimulating and encouraging. It shows that even though civilization slips and falters the net is always a little more on the plus side. O'Neill believes this progress will be accelerated if engineers will accept their responsibilities as world builders.

A Program for the Nursing Profession. By the Committee on the Function of Nursing (Division of Nursing Education, Teachers College, Columbia University). Chairman: Eli Ginzberg, Ph.D., Associate Professor of Economics, School of Business, Columbia University. Cloth. Price, \$2. Pp. 108. The Macmillan Company, 60 Fifth Ave., New York 11, 1948.

In 1948 three major studies were completed in relation to the nursing field, one by the Committee on Nursing of the American Medical Association, one under the sponsorship of the National Nursing Council and one by the Committee on the Function of Nursing. As all of these make valuable contributions to future planning, they should be carefully analyzed and correlated by all who are interested in the continued advancement of the nursing profession along such lines as will insure an adequate supply of nursing service in accordance with total needs.

The report of the Committee on the Function of Nursing is presented in seven chapters describing the plan of study, estimated requirements and recruitment factors, specialization of functions, educational methods, the integration of nursing personnel in the health team, economic aspects and incentives and, finally, a summary of findings, conclusions and recommendations. There has also been appended a selective bibliography which gives to the reader convenient access to the reference material freely utilized by the committee.

The recommendations of the committee are related chiefly to the classification of nursing personnel, the clarification of the duties of the health team, methods of education of the proposed professional and practical nursing groups, the estimated needs of nursing personnel, economic factors and research in clinical, administrative and educational fields. It is also of interest to note that in the opinion of the committee the major difficulties which now confront the nursing field can only be solved by "a radical break with the past."

Hasidism. By Martin Buber. Cloth. Price \$3.75. Pp. 208. Philosophical Library, Inc., 15 E. 40th St., New York 16, 1948.

Hasidism is a religious philosophy which originated among the Jews of Russia. The author, a distinguished Hebrew historian, presents in this volume the results of a lifetime of study on this colorful religious movement which centered about the common man who sought a way of life. The author believes that the philosophy of Hasidism should be of interest not only to its followers but to the rest of the world.

Sex and You. By LeMon Clark, M.S., M.D. Cloth. Price, \$2.75. Pp. 203. Bobbs-Merrill Company, 734 N. Meridian St., Indianapolis 7; 468 4th Ave., New York 16, 1949.

Many books are being written on the subject of sex. Some of them are excellent, others are worthless and some are definitely vicious. This book is one of the very best. It does not get lost in giving a great many of the details regarding sex and the sex act, but strikes boldly toward the goal of an underlying philosophy of life and sex. In the interpretation of these complex phenomena the author has done a good job, indeed. Too many persons simply cannot see the woods for the trees. They know a great many facts, and their information is authentic point for point, but they do not have a wholesome philosophy to tie the whole matter together. Dr. Clark has given us an excellent opportunity to develop a sound attitude toward sex and life and therefore has made an extremely important contribution to a subject which is in great need of being understood as a whole. This book can be strongly recommended to persons contemplating marriage and to those who are already married and yet may feel that they are not succeeding to the fullest possible extent. As indeed, who has? It will give a new slant to the whole subject for many persons and should be widely circulated. It is beautifully written, thoroughly balanced and correct in the views expressed.

You and Others. By Helen Shacter, Ph.D., and W. W. Bauer, M.D. Illustrated by Guy Parker, Felix Traugott, and Clara Ernst. Health and Personal Development Series. Cloth. Price, \$1.56. Pp. 288, with illustrations. Scott, Foresman and Co., 433 E. Erie St., Chicago 11, 1948.

This is the sixth grade book of the new health, safety and personal development series. The book presents basic information about the body and how it works and grows, the essentials of good nutrition and good posture, and the effect of emotions on the body's functioning. Methods of promoting sound health and safe living are considered in detail and common problems faced by preadolescents in learning how to understand themselves and others are given substantial attention.

A group of child characters, their parents and their teachers are used throughout the book to point up the variance in health problems and needs among children at this age level. Incidents and anecdotes developed around the experiences of these fictional characters should closely touch the life of the pupils who use the book. The titles of the four units, "You and Your Friends," "You and Your Family," "You and Your School" and "You and Your Community," are indicative of how the health implications of daily living are tied in with the interests of the child. An additional factor in motivation will be found in the appealing cartoons interspersed among line drawings and colored pictures. "Things to Do" or suggested activities in connection with each of the units should serve as a springboard for the development of projects in personal, school and community health.

Physicians need not hesitate to recommend this book as a resource in the development of a functional health education program in the schools.

Cytologie sanguine: Normale et pathologique. Par M. Bessis, directeur du Laboratoire de recherches du Centre national de transfusion sanguine. Préface de A. Tzanck. Paper. Price, 1500 francs. Pp. 298, with 247 illustrations. Masson & Cie, 120 Boulevard Saint-Germain, Paris 6^e, 1948.

This is an excellent book on the cells of the blood and hemopoietic organs. Of the modern textbooks of hematology there are but few covering this field exclusively, the outstanding predecessor being the four volume Handbook of Downey. There is a chapter on technic, followed by nine chapters on each type of blood cell or its precursor. A minute description of the appearance of each cell in the fresh or stained preparations is given. The black and white drawings and photographs are unusually good, bringing out points that one has often wished to find in pictures. The colored plates, representing cells stained with May-Grünwald-Giemsa stain, while beautifully clear, differ enough from the colors which American technicians are used to, after the Wright technic, to make the recognition and classification of some of the cells somewhat difficult. A table of contents and a glossary are given, but no index. This book is a valuable and desirable addition to the books on hematology and should be very useful in clarifying nomenclature.

Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. THEY DO NOT, HOWEVER, REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS, BUT THESE WILL BE OMITTED ON REQUEST.

STATISTICS ON POLIOMYELITIS

To the Editor:—1. What percentage of the population of the United States at one time or another suffer from poliomyelitis in any degree of severity? 2. What percentage of these cases are of such severity as to require medical attention? 3. What percentage of cases of poliomyelitis actually require an iron lung? 4. What percentage of the patients in these cases which require treatment in an iron lung actually survive? 5. What is the consensus regarding value of an iron lung as compared with its estimated value eight or ten years ago?

M.D., Indiana.

ANSWER:—1. In the Communicable Disease Study, a house to house canvass which was made in twenty-eight cities in 1936, attacks of infantile paralysis at any time since birth were recorded for all persons under 25 years at the time of the survey. It was found that of 174,850 persons covered by the survey 897 had had attacks of poliomyelitis, or 5.1 per thousand persons, and 2.4 per thousand under 25 had suffered attacks from which there were residual effects.

2. It can be assumed today that all cases of poliomyelitis reported as such to state health departments are seen at least once by a physician. It can also be assumed that there still remain a number of cases of mild paralytic poliomyelitis that are not recognized during the acute stage, are not reported to state health departments and deformities from which are subsequently discovered on preschool or school examination.

3. The percentage of cases of poliomyelitis requiring use of the respirator will vary from epidemic year to epidemic year and will also vary in the same epidemic year in different areas. This may be due to variations in the virulence of the strain of the virus causing the disease, as well as the degree of immunity of the patient at the time of contact with the virus. During 1948 respiratory paralysis was unusually high in the epidemics occurring in North Carolina and California.

4. Comprehensive surveys have not been made of the mortality rates of respirator cases probably because of the vagueness of the term "respirator cases." The difficulty seems to be in determining what a respirator case is. Does it depend on the type of involvement, or does it depend on the length of time the patient is placed in a respirator, which may vary?

In the 1946 Minnesota epidemic, the Minneapolis General Hospital submitted figures which showed that it had handled a total of 35 respirator cases. Included in those 35 cases were 13 of the spinal, 12 of the bulbospinal and 10 of the bulbar type. In these 35 respirator cases there was a 62.8 per cent mortality rate.

University Hospitals reported total respirator cases 31, of which 17 were spinal, 9 bulbospinal and 5 bulbar in type. Of this group of 31 cases, they reported a mortality of 35.5 per cent. But it is difficult to say how statistically accurate these figures are, for both institutions also reported a series of cases termed respirator plus tracheotomy, in which the mortality rates were much higher. Just how to determine which were true respirator cases and those which were not is difficult to say. Evidently the respirator plus tracheotomy series represented cases which were actually not true respirator cases, but in which the respirator was used perhaps as a last resort. It seems to be difficult to determine on the basis of studies available the exact mortality rate in "respirator cases."

5. During the Minnesota epidemic of 1946 and the California epidemic of 1948 (Los Angeles) there was opportunity for intensive study of respiratory and bulbar poliomyelitis. These studies have resulted in a better understanding of the value of the respirator in treatment of these types of poliomyelitis. We recognize today that the use of the respirator in certain types of bulbar poliomyelitis is actually contraindicated. Finally, the respirator is being used much more effectively than it was eight or ten years ago. Better indications for its use, improvements in the respirator and the development of new therapeutic technics have, during the last decade, resulted in a lower mortality in bulborespiratory paralysis.

TREATMENT OF DUODENAL ULCER

To the Editor:—1. What is the latest accepted treatment for uncomplicated duodenal ulcer; bleeding ulcer? 2. In what way does roughage such as vegetable pulp affect the ulcer? Why should one puree foods? 3. In what way does the eating of meats affect ulcer? Should they be scraped before eating? 4. What foods are low acid producing? 5. What are the chances of complete cure? 6. How does alcohol affect an ulcer? 7. Should a patient with ulcer be on a high protein diet?

P. Lancione, M.D., Bellaire, Ohio.

ANSWER.—1. (a) many methods have been accepted as logical approach for duodenal ulcer. If peptic ulcer is the result of abnormal function in the stomach or duodenum, or both, attempts at restoration to normal would be important.

The reports on simple vagotomy, with or without other operative procedures on the stomach, are convincing. A pharmacologic method can be instituted which would simulate this surgical approach.

Long before this specific surgical approach appeared it was known that partial paralysis of the vagus nerves could be accomplished with atropine sulfate. The vagus nerves must be so paralyzed twenty-four hours of the day. This can be accomplished by giving this drug three times a day at meals and at bedtime. One can block out emotional stimuli over the vagus nerves by this method almost as completely as with a section of the vagi. In some patients with peptic ulcer, if the emotional stimuli are overwhelming, it may be impossible to paralyze these nerves to a degree consistent with normalization of function.

If inhibitory influences of the cortex on the hypothalamic region of the brain prevent emotional stimuli from being exteriorized, then attempts should be made to break down this so-called physiologic block. This can be accomplished with barbiturates in patients who seem to respond. However, there are some in whom barbiturates do not produce emotional quiescence. This is particularly true in many who have free-flowing "anxiety" and are always voluble. In this small group, chloral hydrate, which will quiet not only the cortex, but also the hypothalamus—should be substituted for the barbiturates. For therapeutic purposes, the chloral hydrate can be masked in a convenient vehicle. Whether it be barbiturates or chloral hydrate, the drug should be given around the clock.

There is increasing clinical evidence that the pain which starts one to three hours after eating frequently appears in the early morning hours and may be related to a lowering of the blood sugar level. This relative hypoglycemia may produce increased stimulation of the vagus nerves, which in turn aggravate and magnify the abnormal function in stomach and duodenum. While there are not any adequate reports on blood sugar in patients at the height of the pain, the conclusion is justifiable if one is to interpret the Hollander (intravenous crystalline insulin) test and its influence on blood sugar, and increased acidity in the stomach. Therefore patients who have an uncomplicated duodenal ulcer should be fed at least six times a day. The following diet is given as a logical approach to this phase of the problem (ambulatory ulcer):

Avoid:

Coffee, tea, alcohol in all forms, tobacco.
Fried foods, greasy canned fish, i. e., sardines, smoked fish.
Raw fruits and vegetables.
Whole grain cereals and breads.
Spices and condiments—i. e., pepper, mustard, chili sauce, etc.
Meat, including poultry; meat stock soups.
Sugar, pie, cake, candy, jelly, honey, syrup, ice cream.

Take (take only things listed below—nothing else):

Butter as desired.
Enriched cream of wheat, farina, corn meal, cream of rice; strained oatmeal and Pettijohn's; puffed rice, rice Krispies; rice, noodles, macaroni, spaghetti; all plainly cooked without spice sauces.
Enriched white bread, toasted; white crackers, melba toast, holland rusk, zwieback.
Vegetable milk soups, made with puréed vegetables. No meat stock soups.
Lean fresh water fish, broiled, boiled, or baked; whitefish, perch, pike, trout or bass.
Cottage or cream cheese in moderate portions.
One or two eggs daily, soft boiled, poached, shirred or scrambled over water.
• All vegetables are to be thoroughly strained as baby foods; use no vegetables with seeds or tough fibers.
All fruits to be thoroughly strained as baby foods, except canned peach and pear which may be taken whole; fresh strained orange juice daily; use no berries or syrup of the canned fruit.
Mashed, baked, boiled potatoes, without skins, are permissible.
Baked custard, simple puddings and jello.
Milk, buttermilk (if desired), breakfast cocoa, Ovaltine, cream.
Regular, not iodized salt.
Sugarless sweetener or saccharine instead of sugar.
Bedtime nourishment is important.

Free sugar is omitted from this diet because the rapid absorption of sugar has a tendency to produce a secondary hypoglycemic reaction in susceptible patients. This negates the high level of blood sugar that one attempts to produce.

Peptic ulcer is relatively uncommon in diabetic patients under 40 years of age. This evidence adds weight to the hypoglycemic phase of ulcer distress.

1. (b) The treatment of bleeding ulcer—unless a patient is vomiting—begins with milk and cream every two hours, from 8 a. m. to 8 p. m. The same pharmacologic approach as written under 1. (a) is utilized except that the medication, as far as atropine and barbiturates are concerned, may have to be temporarily given hypodermically.

The intestinal phase of gastric secretion can be buffered again by the aluminum salts one-half hour and one hour after eating. As the clinical picture improves, additions to the diet, with adequate attention to the vitamin intake, can be instituted. The blood picture should be carefully and repeatedly studied to note the improvement of the patient. The prothrombin, bleeding and coagulation time should be frequently checked, because deviations from normal would prolong bleeding. One can readily institute measures to bring these back within normal range.

The question concerns uncomplicated bleeding ulcer and the patient is not vomiting. Blood transfusions have time-honored indications. Toward the end of the first week the patient should be fairly well able to approach the diet and the medical management previously described.

2. Roughage such as vegetable pulp affects the peptic ulcer patient by removing the mucous protection in the ulcer bed and allows peptic digestion to go unhampered. When adequate amounts of mucus cover the duodenal or gastric mucosa, and not too much lysozyme is present, digestion of this mucosa cannot take place. For these reasons puréed foods are definitely indicated.

3. A patient with peptic ulcer has a hyperirritable parietal cell which will secrete acid on the least provocation—from nerve impulse, secretagogues or hormones—which will produce an increased acid response. Since the digestion of meat produces secretagogues, these in turn will more easily stimulate a hyperirritable parietal cell and produce increased acid. Scraped meats are preferable to masticated meats in that scraped meats are more easily buffered by acidity and will leave the stomach much earlier than the lumps of meat which the patient usually swallows. When the meat leaves the stomach sooner, there is less chance for secretagogues to remain in the gastric juice.

The recent so-called cures for peptic ulcer, be they hog's duodenum by mouth or injection of enterogastrone, do not justify optimism at present. The best clinical experimental evidence for therapy is found in the reports of the work on vagotomy.

4. Fruits—except cranberries, plums and prunes—vegetables and milk are low acid producing.

5. A patient with peptic ulcer can be completely cured if the ulcer has not penetrated too deeply into the muscularis and has not produced an accessory pocket with a pseudodiverticulum. Deep-seated emotional factors which will not, by themselves, come to the surface under the influence of diet and drugs will also lessen the possibility for permanent cure. If the latter is true, then there is a definite indication for surgical intervention in some of these patients even though the ulcer itself is uncomplicated. Recurrence of symptoms in a patient with peptic ulcer who is under management as outlined is directly attributable to some emotional upset which produces stimulation that is not blocked by the atropine sulfate.

6. Alcohol affects a patient with peptic ulcer in that (1) it increases the acidity; (2) it prevents the patient from taking an adequate diet; (3) avitaminosis may develop because of the restricted diet; and (4) it may affect the liver, which in turn will disturb the physiology of the body and will prevent a normalizing of the psychologic balance in the individual.

7. A patient with ulcer does not necessarily have to be on a high protein diet. His intake of protein should be adequate to keep him only in nitrogen balance.

LOCALIZATION OF INTRAOCULAR FOREIGN BODY

To the Editor:—Please list the different methods for localizing a radiopaque intraocular foreign body. Which is the most accurate method?

J. C. Galbreath, M.D., Brownwood, Texas.

ANSWER.—Some thirty methods have been described for localizing radiopaque intraocular foreign bodies. All are intrinsically inaccurate, and for best results two or more methods should be used. Stereo roentgenograms in the posteroanterior and lateral views are recommended prior to localization. Small foreign bodies located far anteriorly may be visualized by means of a soft tissue technic with dental film at the inner canthus. Localization usually depends on determination of the relationship of the foreign body to an arbitrarily selected point on the globe

indicated by a radiopaque reference marker. Findings are then interpreted with reference to a normally shaped eye. Reference markers may be small pieces of wire placed under the conjunctiva, a silver ring sutured to the limbus, or a larger ring placed in the fornices, a contact lens containing lead markers or the elaborate device of Sweet. A number of devices have been designed for use with double exposure roentgen studies, but occasionally foreign bodies of low density will not be visualized. The most nearly accurate is Sweet's localization, but this requires the most elaborate equipment. Air injected retrobulbarly may allow precise localization in some cases. Berman's localizer has been of value in magnetic foreign bodies. Occasionally, if the media are clear, the foreign body may be localized with an ophthalmoscope. There are good discussions in Thorpe (The Management of Nonmagnetic Foreign Bodies, *Surg., Gynec. & Obst.* 84: 809, 1947) and Haik (Intra-Ocular Foreign Bodies, *J. A. M. A.* 135: 895-901 [Dec. 6] 1947).

TREATMENT OF CARDIOVASCULAR SYPHILIS

To the Editor:—A male patient, aged 57, has an aortic aneurysm due to previous syphilis. The blood Wassermann reaction in June 1948 was 4 plus. At that time he complained of symptoms of slight cardiac failure, which disappeared on adjustment of his activities and use of digitoxin tablets, 0.2 mg. twice a day for about ten days. His blood pressure is 170 systolic and 50 diastolic. Presently he is having a course of 0.13 Gm. bismuth subsalicylate in oily suspension once to twice a week. What is your opinion as to the advisability of treatment with procaine penicillin injections? I am hesitant because of the risk of Herxheimer reaction. Is the risk less if we have to deal with an aortic incompetence (syphilitic) without an aneurysm? What doses of procaine penicillin do you advise?

M.D., New York.

ANSWER.—Although opinion on the subject has not yet been crystallized, the belief is gaining ground that syphilitic cardiovascular lesions of all types respond well to treatment with penicillin and that the beneficial effects outweigh inherent dangers as from the rare therapeutic paradox and Jarisch-Herxheimer reactions. Some physicians feel that the risk of Herxheimer reaction is lessened if the patient is first prepared by treatment with heavy metals and then small doses of penicillin are begun. Others begin treatment with full doses of penicillin by a number of suitable schedules provided the patient receives a total of 6,000,000 to 9,000,000 units. Aqueous preparations of penicillin may be administered, 20,000 units intramuscularly every three hours around the clock; or a slowly absorbed type of penicillin, 300,000 units twice a week for ten to fifteen weeks. In addition to the specific treatment, there must be treatment directed toward the cardiac condition.

STERILITY INVESTIGATIONS

To the Editor:—I have been asked by several patients to determine ovulatory time with the "rat test" in order that they may more accurately use the Ogino-Knaus method of conception control. The only chemical or bioassay tests which I can find in the literature that could possibly be used are the Venning-Browne method of measuring excretion of pregnandiol and the Allen-Corner demonstration of progesterone. Is either of these tests more reliable or clinically more practicable than biopsy, basal temperature or potentiometric readings?

Leslie T. Hamm, M.D., Lawton, Okla.

ANSWER.—In a study of the comparison of methods used in determining the time of ovulation F. E. D'Amour (*J. Clin. Endocrinol.* 3: 41-48 [Jan.] 1943) studied twenty menstrual cycles of 5 subjects using concurrently four to six of the following methods: gonadotropin assay, estrogen assay, pregnandiol determination, vaginal smears, body temperature and subjective experiences. The purpose was to evaluate the validity of these tests on the basis of uniformity in the occurrence of positive responses and synchrony of their appearance. It was concluded that (1) subjective experiences were valueless as tests for ovulation; (2) body temperature fluctuations were not sufficiently regular or clearcut to be reliable; (3) uniformity of results of hormonal assays and vaginal smears confirmed the validity of each, and a certain sequence of events appears typical of the normal cycle, and (4) because of its sharpness and its apparent close association with ovulation, the gonadotropin peak occurring in the mid interval was considered most indicative of the exact time of ovulation.

The rat test about which inquiry is made is most likely the one described by D. P. Murphy and E. J. Farris (*Am. J. Obst. & Gynec.* 54: 467-474 [Sept.] 1947). To determine the time of the day of ovulation 2 cc. of morning urine is injected subcutaneously into each of 2 immature female white rats of the Wistar strain. At the end of two hours the animal is killed

with illuminating gas. The abdomen is opened and each ovary compared with the reds of the Munsell color chart.

In the presence of normal ovulation, the patient's urine induces hyperemia in the ovaries of the rat on four or five consecutive days. In the absence of ovulation there is no hyperemia. If ovulation is abnormal, hyperemia occurs but usually on less than four consecutive days. The test is performed daily during the middle ten days of the cycle. Intercourse is interdicted during the test month.

After the control month, intercourse is advised or artificial insemination is performed on the last day of each normal ovulation reaction. To provide the maximum sperm, intercourse should not be practiced on the day before the day when the ovum is ready.

The rat ovulation test is useful because it indicates whether or not ovulation is occurring. In addition, it provides information as to when ovulation occurs, thus permitting conservation of sperm until the optimum time for impregnation.

HISTAMINE IN MULTIPLE SCLEROSIS

To the Editor:—A patient has taken daily injections of histamine to arrest the progress of multiple sclerosis for the last three years. Recently he complained of symptoms suggestive of ulcer of the duodenum, which was verified by roentgen examination. The ulcer subsequently perforated. It has been suggested by the neurologist who previously treated him that he resume histamine injections. Is not such treatment an etiologic factor in duodenal ulcer, and would it aggravate his present condition?

Victor Piro, M.D., Chelan, Wash.

ANSWER:—Whether administration of histamine in cases of multiple sclerosis is helpful or not is not by any means clearly decided. Some neurologists report favorable subjective improvement, while many others report the opposite. In either instance there are not any reports of improvement in objective findings in multiple sclerosis. Histamine is a vasodilator and if it has not proved effective in your case in three years there is no reason for continuing it as a therapeutic agent. It is not known whether histamine is a factor in the production of a duodenal ulcer. If a perforated duodenal ulcer developed in your patient during the course of treatment with histamine, it is strongly recommended that you stop giving it. In my personal experience histamine injections have failed in the treatment of multiple sclerosis.

LIVER EXTRACT AND HYPERTENSION

To the Editor:—Kindly discuss the following: (1) the relationship of hypertension (210 systolic and 120 diastolic) and the administration of biweekly liver injections, 15 units intramuscularly, in a man aged 50, proved four and one-half years ago to have pernicious anemia; (2) the relationship, if any, of rheumatic pains in the back of neck, shoulders and arms in a young married woman aged 26 who has been getting weekly or biweekly injections of 10 units liver and 1 cc. vitamin B complex as a "tonic" for one year.

M.D., Canada.

ANSWER:—1. There is no known relationship between hypertension and the administration of liver extract. The incidence of hypertension in patients with pernicious anemia being treated with liver extracts is certainly not higher than is the incidence in other persons of comparable age.

2. The liver extract and vitamin B complex probably are totally unrelated to the rheumatic pains. Chronic myositis or chronic arthralgia have not been described as sensitivity reactions to either preparation.

HYDROFLUORIC ACID POISONING

To the Editor:—A spot remover, produced locally, contains 10 per cent hydrofluoric acid produced by diluting 60 per cent technical hydrofluoric acid. This remover is dispensed in a 2 ounce plastic bottle which will spray a few drops at a time when the bottle is squeezed. How much of this liquid would produce dangerous symptoms if ingested by a child, and how much would you consider a lethal dose?

John J. Shurts, M.D., Eldora, Iowa.

ANSWER:—Hydrofluoric acid is a corrosive poison and extremely dangerous in any concentration. When swallowed it will cause serious and extremely painful burns of the lips, mouth, esophagus and stomach. This is followed by nausea, vomiting, diarrhea, intense thirst and difficulty in swallowing. Systemic effects due to absorption of the acid are manifested by rapid weak pulse, dyspnea, muscular weakness, excitement and tremors, convulsions and collapse. Death is attributed to respiratory paralysis.

The lethal dose of hydrofluoric acid is not easily determined, since large amounts of the acid may be rejected in vomitus. Two drams of the technical grade of acid have caused the death of an adult and much smaller quantities can produce dangerous symp-

toms. The fatal oral dose for mammals is considered to be about 0.5 Gm. per kilogram of body weight.

Treatment must be prompt. Death may occur in a few minutes to several hours after ingestion of hydrofluoric acid. Large amounts of lime water should be given to dilute and neutralize the acid. Raw eggs or milk should be given to protect the mucous surfaces and an intravenous calcium preparation should be available for treatment if tetany occurs. Vomitus, feces and urine should be washed away to prevent external burns.

TRAUMATIC PREPARATION OF GASTRIC ULCER

To the Editor:—What physical stresses are exerted on the normal or diseased stomach when a man seizes a moderately heavy weight at waist level and lifts it a short distance, assuming that the weight does not press on the abdominal wall? Is there a bursting, tearing or stretching force exerted on the stomach? This question has arisen in reference to onset of symptoms of perforated gastric ulcer during work.

M.D., Washington.

ANSWER:—Physical stresses exerted on the normal or diseased stomach should be minimal under the circumstances. It is conceivable that the amount of exertion entailed in a patient harboring a penetrating or perforating gastric ulcer may have played a role, especially if the lifting was done immediately after a hearty meal or if the symptoms of perforation appeared promptly after the exertion described. The condition which may predispose to acute perforation of a chronic peptic ulcer are as follows: a blow to the abdomen, an unusually heavy meal, severe emotional stress, alcoholic debauch, violent exertion, strenuous manipulation of the abdomen during a fluoroscopic examination, vigorous abdominal massage or a fall from a height. Chronic penetration and "protected" perforation of a chronic ulcer is a common complication and is noted in about 1 of every 4 cases in which patients with gastric or duodenal ulcer have been submitted to operation. The fact remains that the rupture of an ulcer is spontaneous in the majority of cases.

VASECTOMY

To the Editor:—In *The Journal*, January 29, page 346, the answer to a question titled "Vasectomy" states: "Vasectomy is indicated and is done for the prevention of epididymitis following prostatic operations and also in some instances to prevent recurrent attacks of epididymitis."

In a recent survey in which I have been engaged, eighteen out of twenty urologists, most of whom are members of the American Board of Urology, have opposed routine vasectomy accompanying prostatic operations as a necessary procedure in preventing epididymitis—in view of the infection-preventing power of present day drugs. This consensus is supported by the experimental results of Dr. Nesbitt, urologist at the University of Michigan Hospital, which were published in the January 1948 issue of *The American Journal of Urology*. Consequently, I was surprised to read the aforementioned quotation.

Apparently, there are still those who favor vasectomy in every case. I for one, and I know there are others—am curious to hear the reasons which proponents of routine vasectomy with prostatectomy would offer for such procedure today.

Reverend James V. Moscow, Chicago.

SPEECH DEFECT

To the Editor:—In *Queries and Minor Notes*, *The Journal*, Dec. 25, 1948, a question is asked about the treatment of an 8 year old boy who has an articulatory disorder. The advice given was to refer the boy to a Child Guidance Clinic for psychotherapy and that speech therapy would be like using a sledge hammer to drive carpet tacks.

When one sees children with articulatory defects one cannot fail to be impressed by the fact that there are children who experience real difficulty in learning to produce certain sounds (Karlin, I. W.; Youtz, A. C., and Kennedy, L.: *Distorted Speech in Young Children*, *Am. J. Dis. Child.* 59:1203 [June] 1940). The causes may be varied, but to label all of them as "baby talk" is reductio ad absurdum.

This boy will benefit best by an intelligent combination of speech therapy and psychotherapy.

Isaac W. Karlin, M.D., Brooklyn.

MYELOGRAMS

To the Editor:—The optimistic response to the query on back pain or increased pain after myelogram (*The Journal*, January 15, p. 194) is not in accord with my experience. After this test, patients sometimes, though not often, do have back pain for many months or even years. Similar pain is encountered after spinal puncture for anesthesia, suggesting that the pain is not an irritation due to the opaque medium but is due to the mechanics of the puncture and injection.

It is important to be conscious of the disadvantages or risks inevitable in our diagnostic procedures.

Leopold Brahdy, M.D., New York

The Journal of the American Medical Association

Published Under the Auspices of the Board of Trustees

Vol. 140, No. 8

CHICAGO, ILLINOIS.
COPYRIGHT, 1949, BY AMERICAN MEDICAL ASSOCIATION

JUNE 25, 1949

THERAPEUTIC CRITERIA IN RHEUMATOID ARTHRITIS

OTTO STEINBROCKER, M.D.
CORNELIUS H. TRAEGER, M.D.
and
ROBERT C. BATTERMAN, M.D.
New York

This report summarizes recommendations for uniform therapeutic criteria in rheumatoid arthritis. The need for such criteria arose from the recognition of the confusing language and standards found in the many therapeutic reports on this disease. In an effort to develop common standards for the evaluation of therapy in this condition, the Committee for Therapeutic Criteria of the New York Rheumatism Association was formed in 1945. A number of previous attempts had been made to establish some order in this subject.¹

One of the chief difficulties which confronted us was the varied language used in the body and conclusions of articles on therapy which did not lend themselves to any accurate appraisal. For example, in presenting their conclusions, writers reporting results employed such terms as excellent, good, improved, greatly improved, moderately improved, objectively improved and so on. Even investigators using the same methods of therapy have reported their results in different language, not quite comparable. It becomes obvious that the reader can, in no possible way, intelligently determine what is meant by these many terms, nor can he usefully compare the results so reported.

The Committee soon encountered the manifest difficulty inherent in therapeutic evaluation in any disease of unknown causation with no specific treatment. One of the great problems involved here is the enormous influence of subjective factors in the assaying of results, on the part of investigators as well as patients. Especially confusing are attempts to evaluate the response

The criteria have been adopted by the New York Rheumatism Association and the American Rheumatism Association (Executive Committee). The authors constitute the Special Committee on the Specific Criteria of the New York Rheumatism Association. The committee of the same name of the American Rheumatism Association, both under the chairmanship of the senior author, Dr. Charles Short, Walter Solomon, Dr. Charles Tyson, who have given this report.

apeutic Criteria of the committee of the same both under the chairmen are Drs. Charles Taylor and T. Lloyd in the preparation of

1. Taylor, D. A Table to Indicate the Degree of Improvement in Chronic Arthritis, *Canad. M. A. J.* **36**: 608, 1937. Cecil, R. L.: Necessity of Certain Criteria for Diagnosis and Cure of Rheumatoid Arthritis, *Ann. Int. Med.* **11**: 637, 1937. Bayles, B., and Hall, M. G.: Gold Salts Therapy: Yardsstick Applied to Patients, *New England J. Med.* **228**: 418, 1943. Steinbrocker, O.: Therapeutic Results in Rheumatoid Arthritis, *J. A. M. A.* **131**: 189 (May 18) 1946. Steinbrocker, O. and Blazer, A.: A Therapeutic Score Card for Rheumatoid Arthritis: A Standardized Method of Appraising Results of Treatment, *New England J. Med.* **235**: 501, 1946. Short, C., and Bauer, W.: Course of Rheumatoid Arthritis in Series of Patients Receiving Simple Medical and Orthopedic Measures, *New England J. Med.* **238**: 142, 1948.

of pain in patients receiving treatment. The psychogenic influence of any new type of therapy, or even the psychologic impact of a change in physicians, accounts for another confounding factor in reporting results. It was decided, therefore, that a common language of therapeutic effectiveness is possible and feasible only in terms of the objective evidence presented by patients during the course of observation. For this reason the fundamental thesis of this work, "therapeutic criteria," is based entirely on objective information.

Early in our efforts, we noted many pitfalls in the evaluation of results. One of them was the inclusion, by many investigators, of patients in whom the diagnosis of rheumatoid arthritis was questionable. To minimize the possibility of confusion in this regard, we have embodied in our recommendations a definition of rheumatoid arthritis. It follows closely the pattern established by the primer on rheumatism published by the American Rheumatism Association.

It should be noted that these therapeutic criteria are intended for application only to patients presenting a clearcut diagnosis of rheumatoid arthritis, although those with juvenile rheumatoid arthritis, or rheumatoid arthritis with valvular heart disease, need not be excluded. Conditions to which the criteria do not apply include ankylosing spondylitis, psoriatic arthropathy, the arthritis of ulcerative colitis, Felty's syndrome, Reiter's syndrome and any cases in which the distinction between atypical rheumatoid arthritis and one of the specific infectious arthritides cannot be made with certainty.

Another problem which confronted us was the fact that many of the investigators did not seem to recognize the natural fluctuations of the disease, which in any period of observation may lead to a spontaneous remission unrelated to therapy. Similarly, exacerbations or relapses are frequent, since the disease is usually progressive. It becomes important, therefore, to have the period of observation for therapeutic evaluation of sufficient length of time to take into account the natural history of the disease. For this purpose the Committee recommends that each method of therapy should have its own arbitrary time limit established for initial therapeutic response to exclude the factor of spontaneous remission. At least a one year follow-up period should be included in any therapeutic study to provide a comparison with the initial response to treatment in this condition. Complete remission is the most significant index to the effectiveness of any specific therapeutic agent. Furthermore, to avoid errors arising from misinterpretation of the natural fluctuations of the disease, the Committee recommends that minor improvement

(grade III), as indicated later, should not be considered significant. Therefore, it should not be included in any statistical summary of a therapeutic agent or procedure. This precaution is necessary to avoid misleading lumping of "favorable" results.

In the reporting of therapeutic results, it is obviously of prime importance to consider the extent of involve-

TABLE 1.—Classification of Rheumatoid Progression

Stage	Roentgenologic Signs	Muscle Atrophy	Extra-Articular Lesions (Nodules Tenovaginitis)	Joint Deformity	Ankylosis
I	Osteoporosis sometimes no destructive changes	0	0	0	0
II	Osteoporosis slight cartilage or subchondral bone destruction may be present	Adjacent	May be present	0	0
III	Osteoporosis cartilage destruction bone destruction	Extensive	May be present	Subluxation ulnar deviation and/or hyperextension	0
IV	Same as III with bony ankylosis	Extensive	May be present	Same as III	Fibrous or bony ankylosis

ment in each case at the beginning of therapy. To facilitate such evaluation we have proposed a classification of patients according to the stage of the disease at the start of treatment.

The classification of patients according to the stage of involvement at the beginning of treatment serves several important functions. It is a useful index to future progression of the disease. In therapeutic studies it enables the individual observer to notice any differences in the response of each group in the various stages. In this way it also offers a logical basis of comparison by various investigators employing the same form of treatment, permitting them to distinguish any possible differences in their results and those of others due to grossly unequal numbers of patients in similar stages in each study.

From a practical point of view, the patient's functional capacity is important. However, the evaluation of therapeutic results has long been confused by the failure to distinguish between the effects of therapy on rheumatoid activity in contradistinction to its influence on functional capacity. Although remission of rheumatoid activity is likely to be accompanied with commensurate improvement in the mobility of affected joints, functional capacity may vary considerably in spite of an unaltered rheumatoid process, or as a result of such different procedures as orthopedic measures, physical therapy, psychotherapy and many others which improve function without altering the activity of the disease. Functional impairment is not necessarily proportionate to the structural damage, although such a relationship is common.

The ideal specific is an agent which will give lasting arrest of rheumatoid activity in all cases. At the moment there is no such remedy. It becomes necessary, therefore, to distinguish between those therapeutic agents which show measurable objective effects and those which only influence subjective and/or functional

features of the disease. For that reason especially, the criteria must be based entirely on objective evidence.

Wherever possible, precision instruments, such as a tape measure and goniometer, should be used in estimating the amount of swelling and motion for the purpose of reporting the progress of the disease being treated.

The Committee believes, however, that any evaluation should be based on the over-all picture and should not be unduly influenced by any laboratory procedure or any one feature of the disease.

In the course of the Committee's efforts to arrive at practical therapeutic criteria, it became increasingly clear that the effective use of such standards requires agreement on other preliminary considerations. These have been designated as supplementary aids to the therapeutic criteria. They consist of a definition of rheumatoid arthritis, a classification of the stages of rheumatoid arthritis and a classification of functional impairment. These now are presented and are followed by the therapeutic criteria for the response of rheumatoid activity. Finally, a brief exposition is included on the application of the therapeutic criteria and supplementary aids as a system of classification and evaluation. They are recommended by us to provide the common language and standards so sorely needed in the therapeutic investigation of rheumatoid arthritis.

DEFINITION OF RHEUMATOID ARTHRITIS

Rheumatoid arthritis is a systemic disease of unknown causation, occurring at all ages. It may be acute, subacute or chronic. It may be reversible, especially in the early stages. It is generally a chronic progressive disease, with joint involvement as the chief manifestation. Ordinarily, it is polyarticular and usually symmetric. The typical joint swelling presents a fusiform appearance. The affected joints are characterized by pain, stiffness, swelling and, many times, other signs of inflammation. Subcutaneous nodules, tenovaginitis and muscular atrophy are frequent concomitants. The rheumatoid process often progresses to deformity, subluxation and/or ankylosis. The significant pathologic changes as a rule consist of proliferation of the synovial tissue, joint effusion and roentgenologic evidence of osteoporosis and destruction

TABLE 2.—Classification of Functional Capacity

Class	
I	Complete Ability to carry on all usual duties without handicaps
II	Adequate for normal activities Despite handicap of discomfort or limited motion at one or more joints
III	Limited Only to little or none of duties of usual occupation or self care
IV	Incapacitated, largely or wholly Bedridden or confined to wheelchair; little or no self care

of cartilage and subchondral bone. Systemically, there is usually an elevation of the erythrocyte sedimentation rate and sometimes leukocytosis, anemia, fever, vasomotor imbalance, loss of weight and anorexia. Although the course of this condition tends to be progressive, with exacerbations, it may be punctuated by spontaneous remission.

In early rheumatoid arthritis joint swelling may be absent. The presence of such swelling, however, is a prerequisite for inclusion of a patient in any thera-

peutic study. Other causes of joint swelling, such as rheumatic fever, gout, osteoarthritis and rheumatoid-like disorders should be excluded. A doubtful case should be omitted from any therapeutic investigation.

CLASSIFICATION OF STAGES OF RHEUMATOID ARTHRITIS

To insure more accurate and reliable classification, certain characteristics of the disease, limited to the joints and adjacent structures, can be employed to distinguish the various stages of progression. These may be divided into four stages according to the clinical signs and roentgenologic changes.

Rheumatoid arthritis may be active or inactive. During activity, regardless of the stage, spontaneous remission may occur. Certain clinical and laboratory features characterize the various degrees of activity and may be present in any stage. These features are: elevation of erythrocyte sedimentation rate, leukocytosis, anemia, fever, vasomotor and trophic disturbances, weakness, joint tenderness, swelling and loss of weight. Some

Stage III, Severe

- *1. Roentgenologic evidence of cartilage and bone destruction, in addition to osteoporosis.
- *2. Joint deformity, such as subluxation, ulnar deviation or hyperextension, without fibrous or bony ankylosis.
3. Extensive muscle atrophy.
4. Extra-articular soft tissue lesions, such as nodules and tenovaginitis, may be present.

Stage IV, Terminal

- *1. Fibrous or bony ankylosis.
2. Criteria of stage III.

Any two or more of these stages may coexist in different joints in the same patient, but usually the process advances to an approximately similar degree in multiple joints. Since it is not practical to appraise the disease according to the stage of each affected joint, it is expedient to classify each case according to the status of the worst joint. It should again be emphasized that in any stage the disease may be considered active or inactive, and, if active, the degree of thera-

TABLE 3.—Response of Rheumatoid Activity to Therapy

Grade	Systemic Signs	Signs of Joint Inflammation	Signs of Extra-Articular Activity	Remaining Impairment of Joint Mobility	Articular Deformity	Erythrocyte Sedimentation Rate	Roentgenologic Signs
I							
Complete remission....	0*	0*	0*	Due only to irreversible changes	Due only to irreversible changes	0*	No progression
II							
Major improvement...	Elevated erythrocyte sedimentation rate and/or vasomotor imbalance permissible	Only minimum* residual joint swelling (no new sites)	Minimum* (no new sites)	Only consistent with minimum residual activity	Due only to irreversible changes	May be elevated	No progression
III							
Minor improvement...	Decreased*	Only partially* resolved (no new sites)	Decreased* (no new sites)	In relation to residual inflammation	May be present	May be elevated	No progression
IV							
Unimprovement	Undiminished*	Same* or worse	Same or new sites or exacerbation*	Same, better or worse	Present or not	Any rate	Changes indicative of progression

* Indicates criteria required to be present.

of these may become more pronounced with advancing and persistent inflammatory changes.

At any stage of the disease certain of the objective features may be present and may be recognized clinically or roentgenologically, such as persistent joint swelling with or without effusion, tenderness, stiffness and limitation of motion.

Certain characteristics in the progression of the disease, chiefly structural changes, may be used to differentiate the various stages. These are embodied in the following outline²:

Stage I, Early

- *1. No destructive changes roentgenologically.
2. Roentgenologic evidence of osteoporosis may be present.

Stage II, Moderate

- *1. Roentgenologic evidence of osteoporosis, with or without slight subchondral bone destruction; slight cartilage destruction may be present.
- *2. No joint deformities, although limitation of joint mobility may be present.
3. Adjacent muscle atrophy.
4. Extra-articular soft tissue lesions, such as nodules and tenovaginitis, may be present.

2. The criteria prefaced by an asterisk are those which must be present to permit classification of a patient in any particular stage or grade.

peutic response is determined according to the criteria to be outlined.

Hypertrophic articular changes occur frequently in the late decades, and they are usually of little importance in rheumatoid arthritis in the clinical, pathologic and functional features and their response to treatment.

CLASSIFICATION OF FUNCTIONAL IMPAIRMENT

The following classification of functional impairment is recommended as an adjunct to the criteria for the stages of rheumatoid arthritis

Class I

Complete functional capacity with ability to carry on all usual duties without handicaps.

Class II

Functional capacity adequate* to conduct normal activities despite handicap of discomfort or limited mobility of one or more joints.

Class III

Functional capacity adequate to perform only little or none of the duties of usual occupation or of self care.

Class IV

Largely or wholly incapacitated with patient bedridden or confined to wheel-chair, permitting little or no self care.

THERAPEUTIC CRITERIA FOR RESPONSE OF
RHEUMATOID ACTIVITY

To provide the most convenient and reliable means of assaying results, four categories of response of rheumatoid activity to treatment are recommended. These range from grades I to IV. Grade I represents maximum improvement; grade IV no improvement, and grades II and III intermediary stages. The criteria² are based entirely on objective evidence, since subjective symptoms are considered unreliable.

Grade I, Complete Remission

- *1. No systemic signs of rheumatoid activity (see definition).
- *2. No signs of joint inflammation.
- *3. No evidence of activity in any extra-articular process, including nodules, tenosynovitis and iritis.
- *4. No remaining impairment of joint mobility, other than that associated with irreversible changes.
- *5. No elevation of erythrocyte sedimentation rate.
- 6. Articular deformity, or extra-articular involvement due to irreversible changes, may be present.

Grade II, Major Improvement

- *1. No systemic signs of rheumatoid activity, with exception of an elevated sedimentation rate and vasomotor imbalance.
- *2. Major signs of inflammation resolved, such as heat, redness of joints and of extra-articular involvement.
- *3. No new rheumatoid process of intra-articular or extra-articular structures.
- 4. Minimum joint swelling may be present.
- 5. Impairment of joint mobility associated with minimum residual activity may be present.
- 6. Articular deformity, or extra-articular involvement due to irreversible changes, may be present.

Grade III, Minor Improvement

Any decrease in signs of rheumatoid activity inadequate to fulfil the criteria of grade II:

- *1. Diminution of systemic signs of rheumatoid activity.
- *2. Signs of joint inflammation only partially resolved.
- *3. No evidence of extension of rheumatoid activity into additional articular or extra-articular structures.
- 4. Decreased but not minimum joint swelling present.
- 5. Impairment of joint mobility due to residual inflammation may be present.
- 6. Articular deformity, or extra-articular involvement due to irreversible changes, may be present.

Grade IV, Unimprovement or Progression

- *1. Undiminished signs of rheumatoid activity, regardless of functional capacity.
- *2. Exacerbation of any previously involved joint or joints, or development of new sites of rheumatoid activity.
- *3. Roentgenologic changes indicative of progression of the rheumatoid process, excepting hypertrophic changes.
- 4. In the presence of one or more of the aforementioned criteria, improvement in other features, including, a normal or lowered erythrocyte sedimentation rate, not significant.

APPLICATION OF THE THERAPEUTIC CRITERIA
AND SUPPLEMENTARY AIDS AS A SYSTEM
OF CLASSIFICATION AND EVALUATION

The first consideration in undertaking the treatment of a patient with rheumatoid arthritis is to determine: (1) the stage of the disease, (2) the presence of rheumatoid activity and (3) the degree (class) of functional impairment. A patient therefore would be classified as having rheumatoid arthritis, active or inactive, stage —, class —.

With treatment the stage of the disease rarely improves. However, either rheumatoid activity or functional impairment, or both, may respond. For the purposes of clinical evaluation of response to treatment, therefore, there are two variables—rheumatoid activity and functional impairment. It is the opinion of the Committee that rheumatoid activity represents the crucial basis for assessment of the effectiveness of any therapeutic agent. For the purposes of evaluation of the response of rheumatoid activity to any treatment, the signs of active disease presented by the patient at the initial examination constitute the maximum evidence of rheumatoid activity in that person, and form the basis for determination of response to therapy by decrease in those signs of activity. For example, a patient at the beginning of treatment may be in stage III, active, class IV, and can, after a suitable period of therapy still be in stage III, yet may show grade II improvement of rheumatoid activity and class II functional capacity. The classification of functional impairment together with the criteria for therapeutic response of rheumatoid activity can give a helpful insight into the usefulness of the whole treatment program, which may include such general procedures as physical therapy, rehabilitation measures, psychotherapy, orthopedic corrections, analgesic and constitutional therapy and many others. For the purpose of evaluating specific therapeutic agents, this Committee recommends that reports of such treatment should be based only on the "Criteria for Therapeutic Response of Rheumatoid Activity."

DIETHYLSTILBESTROL IN MUMPS ORCHITIS

Prophylactic and Therapeutic Use

ARCHIBALD L. HOYNE, M.D.

JEROME H. DIAMOND, M.D.

and

JOSEPH R. CHRISTIAN, M.D.

Chicago

Epidemic parotitis, although primarily a disease of childhood, has been reported in all ages from infancy to senility. The greatest incidence is between 8 and 14 years. The virus of mumps, like that of other virus diseases, involves all the systems of the body at the onset, and, according to the thesis of Philibert, complications are, in reality, exaggerated or latent manifestations of the disease. Therefore, the so-called complications may not seem to follow the initial infection but may be concurrent or precede clinical evidence of parotitis. Because these facts have been demonstrated repeatedly, it would be theoretically ideal to have prophylactic measures instituted at the time infection takes place.

Statistically, approximately 1 out of every 5 men experiences testicular involvement as a result of mumps. This complication most commonly occurs on the fourth to the seventh day of the disease. It is usually ushered in with chills, inguinal pain and pressure sensation over the entire scrotum. There may or may not be an associated difficulty in urination. Early physical examination often reveals a thin, shiny, slightly reddened scrotum, and pressure elicits pain over the entire region. The testicle may be slightly enlarged, and the epididymis is usually shotty. After this initial tran-

sitory period a rapid enlargement of the testes occurs. The swelling may be hydrocele-like or may be stony hard, but in either case it is extremely tender and exquisitely painful to touch. The testicle may reach the size of a large orange, and in 1 out of every 6 cases it may be bilateral. Atrophy occurs in approximately 55 per cent, but there is restoration of function of the undamaged tubules when the inflammatory process subsides. This usually occurs in seven to ten days.

Lack of trauma and strict bed rest in the early phases of the disease seem to have no bearing on the incidence of epididymo-orchitis. This is the severest complication of mumps, but it is almost never seen in children before puberty.

In view of the experimental work done with estrogens on the testes of laboratory animals, as well as human beings, it has been postulated that an inhibition of the normal function might be beneficial in inflammatory conditions of the testicle and that estrogens may be of prophylactic value when these conditions are imminent.

The normal physiologic action of estrogen and the effects produced by large amounts of the substance in the body tissues of both laboratory animals and human beings have been shown both experimentally and clinically to be quite distinct. Zondek,¹ in 1940, demonstrated in human beings as well as in laboratory animals that high concentrations of estrogens in the body tissues inhibit the normal function of the ovaries and testes. Experimentally, the injection of estrogenic substances has produced a definite retardation of development of the testes in immature male subjects, as well as degenerative changes in the testes of adult animals. Also, temporary sterilization in the male human being has been accomplished by injection of estrone.

Diethylstilbestrol differs from the naturally occurring estrogens in that it does not possess a cyclopentenobenzanthracene nucleus. But the structure of diethylstilbestrol is not greatly unlike the derivatives of cyclopentenobenzanthracene. This similarity of structure is in all probability the responsible factor in the almost identical pharmacologic activity of the natural and synthetic estrogenic substances.

The frequency of orchitis in mumps varies in different series and with epidemics. In some years the incidence is low, while in others the virus seems to have a predilection for the testes, and the presence of orchitis is much higher. Radin,² in 1917-1918, reported an incidence of 13.91 per cent, and Bang,³ in 1943, reported 66 per cent. Bailey and Haerum⁴ reported this complication in 19.9 per cent of their series, while Dermon and LeHew⁵ found that in 35 per cent of their patients with mumps orchitis developed. McGuiness and Gall⁶ reported 36.2 per cent orchitis as a complication in their cases, but Worden⁷ reported only

a 16.4 per cent incidence in his series. In Rambar's⁸ patients, orchitis occurred in 28.83 per cent of the controls. For Eagles' series,⁹ the incidence of orchitis for four consecutive years was 21.25 per cent, 24.33 per cent, 27.03 per cent and 24.28 per cent, with an average of 25.12 per cent.

In view of the great frequency of orchitis in the adult, the average being between 18 and 25 per cent, the accompanying loss of additional man-days due to this complication is very important. This is true especially when epidemics strike in institutions, large organizations or military personnel, and has stimulated several investigators to try various methods to prevent this complication.

Measures have been used both prophylactically and therapeutically. Prior to the introduction of prophylactic serum, strict bed rest was often the only treatment instituted. The latter has been shown to be of no value, as it does not lessen the possibility of orchitis.

The use of convalescent mumps serum as a prophylactic agent was first reported by Hess,¹⁰ who found it very dependable. Since then a number of other workers have had equally good results with convalescent serum for passive immunization after exposure to mumps.

Some investigators then tried convalescent serum to prevent orchitis in mumps. Rambar⁸ gave 40 cc. of convalescent serum intravenously to 86 men on the first day of their clinical symptoms. One hundred and sixty-three men constituted his control group. Orchitis occurred in 14, or 16.27 per cent, of the men given serum, and in 47, or 28.83 per cent, of the control group. Bailey and Haerum,⁴ Iverson and de Lavergne and Florentin used convalescent serum with decidedly different degrees of success. It appeared to be of definite value in some series, while in others the results did not vary greatly from those in the control groups.

Candel and his co-workers¹¹ used pooled normal plasma as a prophylactic agent. Seventy-five men served as a control group, and 30 patients received 100 cc. of pooled plasma immediately on admission. The incidence of orchitis in the control group was 22.6 per cent and 20 per cent in the group receiving plasma. Thus it would seem that plasma is of little or no value in that dosage.

Another factor to be considered in the use of serum or plasma is the high incidence of infectious hepatitis as observed following World War II. This is a definite drawback to their administration, regardless of their worth as prophylactic agents. However, ultra-violet irradiation of the serum or plasma may be an aid in prevention of this further complication.

Gellis, McGuiness and Peters¹² selected gamma globulin as a prophylactic agent. In one series gamma globulin prepared from convalescent mumps serum was used, and in the second series the gamma globulin was prepared from normal human pooled plasma. In the first series, 51 patients were treated with 51 controls. The incidence of orchitis in the controls was 27.4 per cent, while in the treated patients it was only 7.8

1. Zondek, B.: The Effect of Prolonged Administration of Estrogen on the Uterus and the Anterior Pituitary of Human Beings; *J. A. M. A.* **114**: 1850 (May 11) 1940.

2. Radin, M. J.: The Epidemic of Mumps at Camp Wheeler, October 1917 to March 1918, *Arch. Int. Med.* **22**: 354 (Sept.) 1918.

3. Bang, H. O., and Bang, J.: Involvement of the Central Nervous System in Mumps, *Acta med. Scandinav.* **113**: 467, 1943.

4. Bailey, W. H., and Haerum, A. T.: Some Observations on the Efficacy of Convalescent Mumps Serum, *Mil. Surgeon* **90**: 134 (Feb.) 1942.

5. Dermon, H., and LeHew, E. W.: A Mumps Epidemic in a Small Task Force, *Am. J. M. Sc.* **208**: 240 (Aug.) 1944.

6. McGuiness, A. C., and Gall, E. A.: Mumps at Army Camps in 1943, *War. Med.* **5**: 95 (Feb.) 1944.

7. Worden, E. M.: Epidemic Parotitis: An Analysis of Two Hundred and Fifty Cases in Male Adults, *Canad. M. A. J.* **50**: 47, (Jan.) 1944.

8. Rambar, A. C.: Mumps: Use of Convalescent Serum in the Treatment and Prophylaxis of Orchitis, *Am. J. Dis. Child.* **71**: 1 (Jan.) 1946.

9. Eagles, A. Y.: Analysis of a Four Year Epidemic of Mumps, *Arch. Int. Med.* **80**: 374 (Sept.) 1947.

10. Hess, A. F.: A Protective Therapy for Mumps, *Am. J. Dis. Child.* **10**: 99 (Aug.) 1915.

11. Candel, S.; Wheelock, M. C., and Grimaldi, G. J.: Mumps Orchitis, *U. S. Nav. M. Bull.* **45**: 97 (July) 1945.

12. Gellis, S. S.; McGuiness, A. C., and Peters, M.: A Study on the Prevention of Mumps Orchitis by Gamma Globulin, *Am. J. M. Sc.* **210**: 661 (Nov.) 1945.

per cent. Those receiving gamma globulin in the second series (that prepared from pooled plasma) consisted of 67 patients, and there were 67 controls. The incidence of orchitis was 26.8 per cent in the controls and 20.9 per cent in the treated patients. In this series only those patients with clinical symptoms of twenty-four hours or less were included. The results with convalescent serum gamma globulin indicate a high prophylactic efficiency, while the pooled plasma gamma globulin seems to be of little worth. However, the injection of convalescent serum gamma globulin was restricted to patients with parotitis of twenty-four hours' duration or less. Therefore, this procedure may have a somewhat limited value. Gamma globulin, in contrast to results with serum or plasma, has not been shown to cause infectious hepatitis, but it is not always readily available.

In the past, the treatment of mumps orchitis has been primarily symptomatic. Strict bed rest, support of the testes by a scrotal bridge, cold applications to the scrotum and salicylates and codeine to relieve pain have been the measures commonly favored. However, in 1912, Smith¹³ first described incision of the tunica albuginea to relieve the pressure on the testes. Since then Wesselhoeft and Vose¹⁴ have expressed their belief that surgical treatment may be definitely indicated but should be reserved only for patients in whom the severity of the symptoms warrants intervention. Prescribing of heat, cold and/or morphine is incidental, in their opinion, as it would be in any acute condition when operation is required. They express the belief that convalescent serum is ineffective and illogical in treatment of orchitis and debatable as a prophylactic agent. Nixon and Lewis¹⁵ stated that convalescent serum is ineffective when used to prevent orchitis in parotitis. However, they asserted that early surgical treatment is of value in relieving symptoms, shortening the period of disability and preventing subsequent atrophy. Finn and Palmberg¹⁶ reported 3 cases in which surgical treatment gave good results.

In contradistinction to the advocates of surgical treatment, Rambar,¹⁷ while in the navy, reported 2 cases of severe mumps orchitis treated with 1 unit of pooled human plasma each, with dramatic relief of pain, drop in temperature and subsidence of swelling. Smith¹⁸ also used pooled plasma for the treatment of orchitis. In 5 cases (12.5 per cent of his patients with mumps) he administered 1 unit (500 cc.) of pooled plasma intravenously and reported results varying from excellent to dramatic. Rambar⁸ described another series in which he used both convalescent serum and pooled plasma. Of 56 patients, 30 were reserved as controls, 13 each had 1 unit (500 cc.) of pooled normal plasma, 10 received 40 cc. doses of convalescent serum and 3 had both serum and plasma. The results showed the average number of febrile days in the treated group to be 4.5 and in the untreated group 5.5. Thus the value of serum or plasma as a therapeutic agent could not be demonstrated by this study.

The fact that orchitis rarely occurs in the male patient with mumps before puberty suggests that the

virus seldom attacks the inactive testes. This prompted the use of diethylstilbestrol, which is known to decrease the activity of the testes and revert them to the pre-pubertal type of gland. Savran¹⁹ in his series used diethylstilbestrol for 77 patients and had 168 controls. He gave 1 mg. three times daily for five days at first, and orchitis developed in 3 patients. He then increased the dosage to 1 mg. four times daily for seven days, and none of the patients had orchitis. His treatment included bed rest with bathroom privileges for six to seven days, acetylsalicylic acid as needed, soft diet and fluids given freely. In 17 patients who had started treatment, inability to obtain the drug resulted in its discontinuance, and orchitis developed in 5 of them, an incidence of 29.8 per cent. Of those who received the treatment only 3 or 3.9 per cent had orchitis, but among the 168 controls 28, or 16.6 per cent, had orchitis. There were no side effects or toxic symptoms manifested by the treated patients at any time.

CLINICAL STUDY

An attempt was made to determine the efficacy of diethylstilbestrol both as a prophylactic agent and as a therapeutic measure in mumps orchitis. Patients admitted to the contagious disease hospital of a large community do not always suffer from the average course of a disease. Often they constitute the group with the severer type or representing social service problems, so that the accumulation of a great number of cases was difficult. This study was conducted over a six month period.

A total of 39 adult male patients with mumps were hospitalized. Of these, 19 had orchitis of varying severity on admission. With this relatively small number of patients, it was impossible to follow any as controls. Therefore, the 20 admitted without orchitis were treated prophylactically with diethylstilbestrol. The duration of the mumps at the time of admission varied from one to four days.

At the start, 1 mg. of diethylstilbestrol was given on the day of admission and every morning thereafter until the parotitis subsided. Thirteen patients were so treated, and 3 of this number, or 23.08 per cent, had orchitis. For all of these the condition was unilateral; in 2 it was classified as mild and in the third as moderate. The dosage was then increased to 2 mg. every morning, and 7 patients were treated by this method. None of these 7 had orchitis. The percentage affected, therefore, was 23.08 per cent for those receiving 1 mg. of diethylstilbestrol, 0 per cent for those receiving 2 mg. daily and 15 per cent for the total number of patients treated.

The 19 patients admitted with orchitis were given diethylstilbestrol therapy in larger doses, except in those cases with mild involvement. The patients received 5 mg. of diethylstilbestrol immediately on admission and 5 mg. every morning until the orchitis subsided. A smaller dose was used in the cases of milder disease.

Of the 19 patients, the average duration of mumps on admission was 8.26 days and the average duration of orchitis was 2.58 days. The degree of orchitis was classified on admission as unilateral or bilateral, and as mild, moderate or severe, depending on the amount of fever, pain, swelling and tenderness present. The response to the drug by these patients was in some instances dramatic, with decided decrease in pain and tenderness and a lessening of the patients' general

13. Smith, G. G.: Two Cases of Orchitis Due to Mumps Treated by Operation, *Boston M. & S. J.* 167: 323 (Sept.) 1912.

14. Wesselhoeft, C., and Vose, S. N.: Surgical Treatment of Severe Orchitis in Mumps, *New England J. Med.* 227: 277 (Aug. 20) 1942.

15. Nixon, N., and Lewis, D. B.: Mumps Orchitis: Surgical Treatment, *J. Urol.* 56: 554 (Nov.) 1946.

16. Finn, H. G., and Palmberg, K. J.: Surgical Treatment of Severe Mumps Orchitis, *U. S. Nav. M. Bull.* 42: 1318 (June) 1944.

17. Rambar, A. C.: Pooled Plasma Treatment of Mumps Orchitis, *U. S. Nav. M. Bull.* 42: 871 (April) 1944.

18. Smith, R. G.: Plasma Treatment of Mumps Orchitis, *U. S. Nav. M. Bull.* 44: 159 (Jan.) 1945.

19. Savran, J.: Diethylstilbestrol in the Prevention of Orchitis Following Mumps, *Rhode Island M. J.* 29: 662 (Sept.) 1946.

toxicity within twenty-four hours. In every instance the response was good, with an uneventful recovery. The average duration of treatment was 4.73 days, and the average total hospital stay was 5.89 days.

COMMENT

The results in 39 patients with mumps who were treated prophylactically and therapeutically were both dramatic and consistent. Savran, using 1 mg. of diethylstilbestrol three times daily at the beginning of his series, had 3 patients in whom orchitis developed, but when 1 mg. was given four times daily no orchitis occurred. In our series, only 1 mg. daily was used initially, and in 3 cases in a series of 13 mild orchitis developed. The next 7 patients were treated with 2 mg. daily, and no orchitis was seen. The original dose of 1 mg. daily is, in our opinion, an inadequate amount for prophylaxis. However, 2 mg. daily produced excellent results in a limited number.

Therapeutically, 5 mg. of diethylstilbestrol was given daily, and the results in 19 patients were striking. The simplicity of administration, the relatively low cost, the rapidity of response, the decrease of morbidity, the shortening of the hospital stay and the needlessness of surgical intervention make orally administered diethylstilbestrol the treatment of choice.

SUMMARY

1. Epididymo-orchitis, although the severest complication of mumps, is almost never seen in children. The incidence ranges from 18 to 25 per cent in adults.

2. Numerous agents administered prophylactically gave varying results. Diethylstilbestrol, used in a series of 77 cases by Savran, showed a 3.9 per cent incidence when given in adequate dosage. Our results limited to a smaller series disclosed a similar response when the dosage was adequate.

3. Diethylstilbestrol seems to be the ideal drug for mumps after puberty in that the morbidity of orchitis is decidedly decreased and surgical intervention is made unnecessary when orchitis is present.

4. The simplicity of oral administration and the lack of toxic effects, together with the dramatic clinical results, make diethylstilbestrol the treatment of choice as a prophylactic and also as a therapeutic agent for mumps orchitis.

NOTE.—Since this paper was written, we have had 25 additional male adults with mumps. Twenty-one of this number had orchitis when admitted and were treated with diethylstilbestrol. For these 21 the dosage was 5 mg. daily, and the time for recovery varied from three to five days. Three of the 4 patients without orchitis were treated with diethylstilbestrol prophylactically and orchitis developed in 1.

3026 South California Avenue.

The Mammalian Erythrocyte.—The transformation of a reticular cell of the bone marrow—a rather nondescript kind of a cell, relatively small, with a nucleus poor in chromatin—into the mature red cell, is brought about by the little understood processes of nucleic acid metabolism, of protein syntheses and of differentiation. Such processes are not peculiar to the red cell, but the manifestation of these processes is perhaps more readily apparent in this cell than in other cell types. . . . According to Sabin, reticular cells of the bone marrow endothelium, which develop in sinusoids temporarily closed to circulation, give rise to the erythrocytic series. On the other hand, those reticular cells which develop extravascularly give rise to the granulocyte series.—Granick, S., *The Chemistry and Functioning of the Mammalian Erythrocyte*, *Blood*, the *Journal of Hematology*, May 1949.

PRESENT POSITION OF RADIOTHERAPY
IN MEDICAL PRACTICE

B. W. WINDEYER, M.D.
London, England

The development of the art and science of radiotherapy has proceeded with such rapidity that it has been difficult to keep continually abreast of the progress that has been made. This is particularly true in regard to the last ten years, during which time the discoveries have been of such far reaching importance as to open up entirely new fields and new possibilities of methods of treatment by the use of roentgen rays and the radiations from radioactive substances. At the same time, owing to the war, maintenance of close contacts among the workers in this branch of medicine in different countries has not been possible. In consequence the radiotherapy of each country has developed along individual lines to a greater extent than in the prewar period.

It is possible that this tendency to isolation has resulted in excessive attention being paid to certain aspects of the subject and in the relative neglect of others. It is therefore particularly valuable for us from overseas to be able at the present time to attend these meetings, to hear the opinion of our colleagues and to have the opportunity of visiting the various clinics and research centers in this country.

I am honored by your invitation to address the Radiology Section of the American Medical Association and thought that my best contribution would be to describe the way in which radiotherapy has progressed in Britain, how it is being carried out at present and its possible lines of future development.

ESTABLISHMENT OF REGIONAL RADIUM CENTERS

The growth of radiotherapy as an independent specialty in Britain began with the establishment of regional radium centers by the National Radium Commission. This body was set up by statute in 1929 to insure that nationally owned radium was used to best advantage. Regional centers were established throughout England, Scotland and Wales in hospitals attached to medical schools. Supplies of radium were lent to these hospitals and in each case a radium officer was appointed, to cooperate with the members of the staff in the treatment of patients, to organize an adequate system of records and follow-up and to be responsible for the care and custody of the radium. Up till this time the small amount of radium work that was being done was carried out mainly by enthusiastic surgeons and gynecologists who had been influenced by the excellent work seen at the centers in Paris and Stockholm. The roentgen therapy was carried out almost entirely as a subsidiary part of the work of the diagnostic radiologists, and there was little liaison between these two forms of radiation therapy.

The radium officers gradually became of greater importance, and in the majority of centers the radium work was entirely handed over to them. It was soon realized that radium therapy and roentgen therapy involve the same problems and are, in fact, the same

From the Myerson Institute of Radiotherapy, Middlesex Hospital, London, England.

Read before the Section on Radiology at the Ninety-Seventh Annual Session of the American Medical Association, Chicago, June 24, 1948.

method of treatment, that there is every advantage in their being carried out under the control of the same person. Gradually roentgen therapy has been separated from the control of the department of roentgen diagnosis. It has been merged with radium therapy under the single direction of the radiotherapist in an entirely separate department. The ranks of the radiotherapists were filled from the radium officers, from the diagnostic radiologists and from the surgeons and gynecologists who had become interested in this form of therapy.

At the same time there was an increasing realization of the necessity of organizing the radiotherapy of cancer in large and well equipped departments, each treating a considerable number of patients. To attain this end the department must centralize the work of a relatively wide geographic area, and the tendency has been to aggregate small departments of roentgen and radium therapy into large centralized units.

The advantages accruing from such aggregation are many. Such trained men as are available would be used to maximal advantage, a matter of some importance with our shortage of specialists combining a sound knowledge of both roentgen and radium therapy. The training of further therapists could be carried out under conditions in which they would get experience under supervision, and not have to work on their own, with inadequate knowledge. Such specialists would be in a position to see sufficient numbers of each of the many diseases involved, and the presence of colleagues employed in the same work would greatly assist in the achievement of a higher standard. On the grounds of health alone it is desirable in a department to have several therapists, and this would not be possible economically in a small department. The many different types of radium container, which are necessary for satisfactory work, would be available, and all such apparatus would be kept in use, thus insuring the most economical employment of expensive radium supplies. There would be sufficient numbers of roentgen therapy generators to insure that interruption of work by mechanical breakdown was minimized. A full range of equipment would be provided producing roentgen rays of different quality of beam. The center would be large enough to make the best use of such expensive equipment as a 1,000,000 or 2,000,000 volt roentgen ray plant, or a teleradium unit, and to carry out controlled research in their use. Physicists and a physics laboratory in association with the radiotherapy department would be kept fully employed.

The National Radium Commission has adopted this policy of centralization in the organization of its centers, and the continuation of this policy has been accepted in the planning of the Regional Organization of the new National Health Service.

In addition, the radiotherapy departments have been organized as part of a large medical center, as it is realized that the maintenance of clinical progress and the proper conduct of radiotherapy demand the closest cooperation between the radiotherapists and the representatives of other specialties. Where possible the departments have been made a part of a university teaching center, so that research could be facilitated by association with the basic teaching and research departments.

Opinion in Britain has further crystallized toward the idea that radiotherapy is best carried out by full time workers in these departments. The increasing variety, complexity and expensiveness of the equipment necessary to give the optimum treatment to any particular patient have meant that it has become impossible for the private practitioner to make the capital outlay to provide the necessary staff and equipment. The treatment of cancer by radiation has become so expensive that it must be subsidized from public funds. As, however, cancer may and does occur in all classes of the community, provision has had to be made for the treatment of private, as well as public, patients in large well equipped institutions. The majority of full time appointments have been arranged so as to cater to this need.

In this arrangement for the centralization of radiotherapy there are some obvious difficulties, particularly with regard to the radiotherapy in dermatologic diseases. It is realized that the large number of patients requiring radiotherapy cannot be dealt with satisfactorily in the radiotherapy center and that roentgen therapy has become an essential part of dermatologic practice. It is probable that there will be an arrangement whereby roentgen therapy of nonmalignant diseases of the skin will be carried out both in special skin hospitals, provided that these are adequately equipped for the purpose, and in general hospitals with dermatologic departments.

In the general hospitals the roentgen therapy of cutaneous disease may be undertaken either in the dermatologic or in the radiotherapy department, as may be more convenient. In either case there must be active collaboration between the radiotherapist and dermatologist, at least to the extent that in the skin roentgenologic department there should be a visiting radiotherapist to advise on calibration, dose measurement, choice of plant, protection and other technical matters.

Such then is the organization which has been developed. Its full implementation has been delayed and hindered by factors associated with the war, building difficulties and lack of trained personnel. In common with some other specialties which are of little value to military medicine, there could be no recruits to radiotherapy, except for those unfit for military service.

CONTRIBUTION OF PHYSICISTS

Of the work which has been carried out, undoubtedly the greatest and most significant contribution to radiotherapy which Britain has produced in recent years has been the work of the physicists in the fields of estimation of dose received and of dose distribution.

We consider these matters to be of fundamental importance and have developed the physical side to a considerable extent. In fact, every radiotherapy department makes full time use of one or more physicists, specially trained in clinical problems, who have the use of a well equipped physics laboratory. It has been said that we have become too much imbued with the value of the physicist in our day to day practice, so that it may be advantageous to explain what we consider to be the role of the physicist and his significance in radiotherapeutic practice. Essentially we consider the physicist as a member of the team which includes

the pathologist and other clinical specialists and which is necessary for efficient radiotherapy.

The treatment of a patient with roentgen rays or radium involves many problems, among which are: (1) the dose, or amount of energy which should be delivered, (2) the quality of the radiation, (3) the time over which it is delivered, (4) the volume of tissue which should be treated and (5) the fractionation of the total dose. All these factors will have an effect on the biologic response of the lesion treated, and they must be linked up with, and be made dependent on, the even greater problems of the local and general clinical reactions of the patient and the hematologic, cytologic and biochemical changes induced. If any progress at all is to be made in unravelling these biologic problems, it is essential to know accurately the dose which produces any particular effect.

The routine measurement of tumor dose as opposed to dose delivered incident on skin has been a great advance. It is, however, a difficult and complicated procedure in many cases of deep seated lesions and may necessitate much calculation and measurement, especially if several fields are employed in different planes. It is necessary to know whether the dose is delivered to the whole of the volume of tissue which is thought to be the site of the neoplasm and whether the dose is homogeneous throughout this volume of tissue. An accurate estimation is required of the dose delivered to surrounding normal tissues and particularly to any radiosensitive organs which may be in close proximity to the lesion or in the path of one or more of the beams.

If these factors are considered it is obvious that estimation of dose will be closely linked with the planning of the distribution of fields in each patient. We consider that this is now essential in a large proportion of the patients who are given full courses of roentgen or telerradium therapy with curative intent. With these ends in view we make a practice of regularly calling in the physicist in consultation when we are dealing with the technical aspects of the treatment of individual patients. There are, of course, some instances of routine technics which can be standardized and the dose calculated from predetermined measurements of the patient, thus obviating the necessity of individual planning. Also, in the cases of purely palliative treatment, in which smaller doses are given, it is obviously unnecessary.

Isodose charts drawn for every quality of beam, focal skin distance and size and shape of field are indispensable equipment. It is natural, therefore, that a great deal of work should have been done in devising apparatus such as contour projectors and dose finders, to give in some cases a more strictly accurate, in others a simpler, method of plotting the effect of multiple fields. Moreover, the Hospital Physicists Association now provides a service to supply the widest possible range of charts, tables, diagrams and data which may be required for roentgen or radium therapy.

Condenser chambers of the type described by Sievert have been modified and developed so that chambers of suitable size and capacity can be used for taking direct readings during treatment in body cavities, such as the esophagus, to check the calculated values. There has also been a considerable amount of work carried

out in devising methods and apparatus for promoting accuracy of beam direction.

In radiotherapy the work of Paterson and Parker ("Dosage System for Gamma Ray Therapy") has caused a complete alteration in many technics and an entirely different method of approach. Of fundamental importance is the fact that the dose delivered can be estimated with accuracy in place of the older systems of stating the radiation emitted from the radium tubes with all the modifying factors of area, filtration, distribution and distance. Here too the problems of dosage measurement merge with those of dosage distribution, and here too the physicist is constantly employed. For distribution of radium sources on surface applicators or in plane or volume implantations, there are accepted rules which have given constant and satisfactory results where clinical conditions have allowed them to be accurately followed. The help of the physicist is frequently sought to measure, or calculate, the distribution and dose from a difficult implant or an awkwardly shaped applicator and, of course, in the planning of individual telerradium treatments.

Apart from developing what have now become day to day physical measurements, the hospital physics departments have made many contributions which have not yet been fully correlated with clinical observations. Of such is the work of Mayneord on the estimation of volume dosage. This may be of great importance if increased use is made of regional irradiation or if treatment with radioactive isotopes is undertaken to any extent.

The whole of this work carried out by the clinical physicists to the radiotherapy departments is designed to give the radiotherapist more accurate and fuller information about the doses which he is delivering. It is realized by all concerned that the achievement of physical accuracy is not the whole of radiotherapy, but merely the foundation stone on which can be built the investigation of the many biologic and clinical problems which remain unsolved. If the radiotherapist can be assured that he has accurately delivered his prescribed dose to the prescribed volume of tissue, he has eliminated one variable from the many with which he is confronted.

In the field of radiobiology the work of W. M. Dale, J. Wass and the late Douglas Lea on the development of theories of the action of radiations, the cytologic work of Koller and the histologic method of Spear and Glucksmann for assessment of radiosensitivity have all been of fundamental importance. They have profoundly affected the approach of the radiotherapist to problems of optimum dosage levels, but have not yet had any pronounced effect on the technics of treatment commonly employed.

DEVELOPMENT OF APPARATUS

In the development of apparatus for routine radiotherapy, there have not been great advances in Britain since 1939. There was no new manufacture of machinery during the war, when we had to rely for spares and replacements entirely on accumulated stock and on imports from this country. In consequence we have had less experience in the use of supervoltage apparatus than there has been here, and we are

anxious to develop this more fully when we can obtain machinery.

Technical progress in roentgen therapy has been mainly in the development of accessory apparatus, such as beam direction appliances, and improvements in the quality and type of measuring instruments. New types of x-ray apparatus developed since the war are still in the prototype stage and are not ready for routine use.

In radium therapy the use of telerradium has received encouragement from the National Radium Commission. The type of apparatus developed by the Radium Beam Therapy Research and described by Miss Wood, which makes use of pneumatic transference of the radium, has become almost standard equipment for units up to 10 Gm.

In the use of radium needles for implantation therapy the work of Paterson and Parker has led to the introduction of unequally loaded needles in some cases. It has frequently been found difficult or impossible to comply accurately with the Paterson and Parker distribution rules, for example, to insert needles to close the lower end of a planar or cylindric implant, which may be necessary to obtain proper distribution. Needles which have a greater linear density of radium at each end than there is in the center of the shaft are now being used and have greatly simplified such implants.

FUTURE OF RADIOTHERAPY

The place which any, therapeutic method takes in the treatment of disease is subject to variation from time to time, depending on new discoveries and the development of other methods. The place which radiotherapy will hold in the future is a matter for conjecture and may be greatly influenced by the unpredictable possibilities opened up by discoveries in nuclear physics. It may also be influenced by further additions to the knowledge of the cause and methods of treatment of cancer.

Discoveries in nuclear physics may open up new fields of usefulness and entirely new methods of treatment. Additions to our knowledge of cancer may provide an efficient method of hormone administration or chemotherapy whereby malignant disease can be destroyed in its generalized as well as its local stage. Great advances are being made; and the hope that such a discovery is imminent has in some quarters raised the question as to whether radiotherapy will not disappear and whether any young man is wise to take up this work as a career. The future in this matter cannot be foreseen, but the same arguments have been used for many years during which radiotherapy has developed to greatly increased usefulness. They were certainly used to dissuade me when all the eggs of my career were placed in the radiotherapy basket.

PRESENT STATUS OF RADIOTHERAPY

The position which radiotherapy occupies in the treatment of malignant disease in Britain may be judged from a report of the Medical Research Council for 1938 giving details of the numbers of patients treated at nine general hospitals. Of a total of 4,387 patients treated for malignant disease, 32.3 per cent were treated by operation alone, 45.5 per cent by some form of radiotherapy alone and the remaining 22.2 per cent by a combination of surgical treatment and radio-

therapy. That is to say that radiotherapy was used in the treatment of 67 per cent of the patients. At the Middlesex Hospital in 1946, radiotherapy in some form, either alone or in combination with operation, was used for 82 per cent of all patients with malignant disease who received treatment. This figure is a high one, as the hospital has a large department and provides radiotherapy services for several neighboring hospitals. It would be fair to say, however, that in Britain radiotherapy is used for 60 per cent or more of all patients receiving treatment for malignant disease. These statements do not give an altogether correct picture of the relative position of surgical treatment and radiotherapy in malignant disease, as the figures include not only patients treated with curative intent but also those for whom only palliation could be undertaken. Unfortunately, many patients suffering from cancer still come with lesions much too advanced for surgical treatment to be carried out with any hope of success. The only chance of any improvement in the condition of many of them then rests with radiotherapy.

Apart, however, from the cases of advanced disease, radiotherapy is the treatment of choice in certain well established types of cancer. The great majority of the common skin cancers—basal cell and squamous cell carcinoma—and the majority of primary lesions of the lips, buccal cavity, pharynx and larynx have become radiotherapeutic problems in the first instance. Metastatic invasion of glands from these lesions remains, however, in most clinics, to be treated by block dissection if the disease remains unilateral and has not spread widely into periglandular tissues.

The best method of treatment of carcinoma of the cervix uteri has given rise to discussion and argument for many years. There is now a measure of agreement on this subject. It is that in the majority of cases of squamous carcinoma of the cervix, the early as well as the late stages, radiotherapy is the method of choice. There is a place for radical surgical treatment, in cases in which there is local recurrence after radiotherapy if the condition is still operable, in endocervical adenocarcinoma, in cases in which there has been persistent pelvic infection and in cases in which abnormalities or atresia of the vagina would interfere with the proper application of radium. Surgical treatment may also be chosen in those cases in which it is thought that the tumor is likely to be radioresistant after an analysis of the cell counts conducted by Spear and Glucksmann's method of histologic examination.

Many types of primary lymphadenopathy (Hodgkin's disease and lymphosarcoma) are treated by radiotherapy almost exclusively. In carcinoma of the breast it is used mainly as preoperative or postoperative treatment, and by similar association with surgical treatment the results in tumors of the testis have shown a dramatic improvement. In cancer of the bladder it has a definite part to play. In many other less well defined groups radiotherapy is used for the treatment of a patient because of some peculiar situation or condition of the growth.

Palliative treatments must occupy at least 60 per cent of the time of the average hospital radiotherapy department. Their value cannot be estimated in statistical tables, but only by an appreciation of each patient and a knowledge of the life history of untreated malignant disease. Treatment which will heal a bleed-

ing ulcerated surface, stop a foul-smelling discharge or take away the pain of a bony metastasis is of the greatest importance even if the patient's life is prolonged little, if at all. In nonmalignant conditions radiotherapy is used to a considerable and increasing extent. Recent advances in chemotherapy have provided a more satisfactory method of dealing with acute inflammatory conditions, but certain chronic inflammations, including tuberculous adenitis, actinomycosis and some arthritic conditions, in particular ankylosing spondylitis, are being treated in increasing numbers.

COMMENT

With regard to the future and possible developments in radiotherapy, it seems likely that for some years to come roentgen rays in the 200 to 250 kilovolt range will continue to have a considerable field of usefulness. It is probable that with increased accumulated experience of clinical reactions and of biologic experiments, the results obtained with this form of treatment can be still further improved. It seems likely also that radium or some substitute, such as radioactive cobalt, will continue to be used for implantations and intracavitary therapy. We in Britain hope to play a greater part in continuing the investigation into the use of roentgen rays generated at voltages of 1,000,000 or 2,000,000 and higher and in the development of teleradium therapy with units of much greater size, the equivalent of perhaps 50 or 100 Gm. of radium, now that the production of radioactive isotopes has made this a possibility. Plans are in hand for experimental work in the 20,000,000 to 30,000,000 volt roentgen ray range.

With such developments it is obvious that the radiotherapists and their physicist colleagues are going to have much of their time occupied with questions of protection. These difficulties will be increased with the extensive use of radioactive isotopes for therapeutic purposes. The protection problems are, however, of the same type whatever the form of radiation used and should be dealt with by the same team of workers.

The whole question of the control and use of radioactive isotopes is one of great importance. In Britain we have not yet had the opportunity of using them for therapeutic purposes, but have followed the published work with close interest. We feel that their method of action on normal and pathologic tissues, the clinical reactions produced and, in particular, the dangers of severe and permanent damage which may occur from their use make it essential that they should be used by workers who are fully trained in the use of radiations on human tissues. It is obvious that the best results will be obtained, both with regard to rapid accumulation of knowledge and to efficient treatment of patients with the minimum risk, if the therapeutic use of radioactive isotopes is in future entrusted to radiotherapists.

ABSTRACT OF DISCUSSION

DR. ROBERT R. NEWELL, San Francisco: I have long been convinced that radiation therapy and roentgen diagnosis are essentially different, that the nature of the therapeutic specialties is similar to the nature of the other medical specialties, but that diagnostic radiology is quite different. An art is what one does; science is what one thinks. One learns a science by reading, listening and thinking about it. One learns an art by doing, working at it. For our purposes here, there should be a clear distinction between the scientific foundation and the

art of medical practice. The diagnostic radiologist practices little of the medical art. I mean that he is not occupied much with bedside medical care, but he has to serve as scientific consultant to all doctors. Patients generally reveal an understanding of this difference between the diagnostic radiologist and other doctors, looking on his services as technical and impersonal. I can work with a patient for a quarter-hour in the fluoroscopic room and find him afterward not only ignorant of my name, but unaware that I am a doctor. Physicians not infrequently incline to treat diagnostic radiologists as technical servitors rather than professional consultants. Radiologists are very much concerned with keeping themselves doctors. We are not always aware of our purposes and motivations, but I wonder whether in the United States the situation is not this: that radiologists hang onto therapeutic radiology, where they do practice the art of medicine, primarily to keep themselves convinced that they are in fact doctors, both in their own eyes and in the eyes of their patients and fellow practitioners.

DR. F. W. O'BRIEN, Boston: Radium has had a much wider use in England than in this country. Here, apparently, we have been stymied by the ease with which roentgen dosage may be approximated and phased by the calculations necessary for accurate dosage when radium is employed. Few clinicians have the interest to wrestle with the theoretical physics involved in dosage measurement, but welcome data in applicable form. Paterson and Parker among others in England and Quimby in the United States have done just that for radium dosage. They have reduced involved formulas to such simple terms that anyone with a knowledge of arithmetic can apply them. This old objection to the use of radium is no longer valid. Another obstacle to its use has been the fact that in many hospitals in the United States radium is not a part of the radiologic department. More often than not it is controlled by the gynecologic service without any outside supervision of setup and dosage. This situation is being gradually corrected. Sentiment is crystallizing here, as it has in England, as Professor Windeyer pointed out, "... radium therapy and roentgen therapy involve the same problems and are, in fact, the same method of treatment, that there is every advantage in their being carried out under the control of the same person." A person who professes to do radiation therapy without an adequate source and knowledge of radium and roentgen radiation cannot do justice to his patient or himself. Our own late Prof. James Ewing long ago advocated just what has been done in England, viz., the aggregation of small departments of roentgen and radium therapy into large centralized units for the treatment of cancer with the obvious advantages that would accrue to the patient and the therapy trainee, as pointed out by Professor Windeyer. When one reflects that the National Cancer Institute has an appropriation for the fiscal year of 1948 of \$14,000,000, that during the 1947-1948 campaign, the American Cancer Society collected \$12,000,000 (60 per cent of which was returned to the state in which it was collected), that the Atomic Energy Commission has had \$5,000,000 of funds allocated for cancer research in 1948, and that other millions have been collected by or donated to hospitals and universities for cancer study, it seems incredible that we cannot have here an integrated plan of cancer research and applied medicine.

DR. B. W. WINDEYER, London, England: In presenting what we have been doing in England, I certainly am not going to be drawn into a discussion on what should be done in this country. One realizes that, among other factors, problems are different and the distances are different, but I thought that it might be of value for you to know the way in which the matter has been handled in Britain. I am extremely grateful for the opportunity to see what is being done here, and I am sure that it would be of inestimable benefit to our young men if some form of reciprocal studentships could be arranged whereby we could send you men from time to time, and perhaps it may not be time completely lost if your young men were also to come to us.

ESTIMATION OF URINARY SODIUM

A Simple Test for Patients on Low Sodium Diets

J. MARION BRYANT, M.D.

VIVIAN IOB, Ph.D.

GEORGE L. PHILLIPS, B.S. Pharm.

and

ELMIRA E. BLECHA, M.S.

Ann Arbor, Mich.

The difficulties encountered in maintaining patients on strict low sodium diets are numerous and well known. Our experience with several hundred hypertensive and cardiac outpatients treated over a three year period with low sodium diets¹ indicates that some difficulties can be avoided by having each patient perform daily a simple test which gives a fairly reliable estimate of the sodium intake for the preceding twenty-four hours. By performing this test the patient is able to detect errors in his dietary practices. The procedure is simple and inexpensive, requires a minimum of apparatus and is carried out by the patient each day on a specimen of urine collected before breakfast. The necessary materials can be secured from any drug store.

In 1920 Allen² emphasized the necessity for close observation of the output of sodium chloride in the urine of patients maintained on salt-free diets. Dietary errors unrecognized by both patient and physician are probably responsible for many failures to obtain beneficial responses in hypertensive patients on these diets. Sources of relatively large amounts of sodium, usually in the form of salt, are numerous and difficult to identify. In addition, the patient's estimate of the proper amounts of certain allowable foods relatively high in sodium content is frequently responsible for an unsatisfactory response. Experience has shown that even the most intelligent patients who have followed a strict low sodium diet for months or years inadvertently eat foods high in sodium chloride. Such dietary lapses will go undetected unless there are means available to the patient for promptly recognizing increases of salt in the urine.

The test to be described is a modification of that devised by Fantus in 1936³ for estimating sodium chloride excretion in surgical patients receiving intravenous solutions. The usefulness of this procedure for controlling hypertensive patients on low sodium diets was pointed out to us by Dr. Arthur Grollman.

REAGENTS AND APPARATUS

A 10 per cent solution of potassium chromate and a 0.73 per cent solution of silver nitrate are the only reagents required. The two solutions may be conveniently kept in two 1 ounce (30 cc.) medicine bottles with the customary medicine droppers attached. The silver nitrate solution must be kept in a dark bottle to protect it from light. An additional medicine dropper for measuring the urine specimen can be stored conveniently in a third bottle. The medicine droppers for

measuring the urine specimen and the silver nitrate solution should be checked to see that they deliver drops of approximately the same size. A 5 cc. Kahn type test tube completes the apparatus.

PROCEDURE

Urine Test.—Ten drops of the urine specimen are placed in the test tube. One drop of potassium chromate is added and the mixture shaken. The silver nitrate solution is added drop by drop and the mixture shaken between drops until a permanent light brown or brick red color appears. Each drop of silver nitrate used represents approximately 250 mg. of chloride per liter, expressed as sodium chloride, or by inference 100 mg. of sodium per liter. Variations in the pH of the solution tested will cause slight variations in the results of this test.

Water Test.—A modification of the aforementioned procedure may be used for estimating the sodium content of water used for cooking and drinking. The volume of the solution to be tested must be larger, in view of the fact that the sodium chloride content of drinking water is usually much less than that of urine and the sensitivity of the test as employed for urine is not sufficient to be satisfactory. Thus, 40 drops of water to be tested are used rather than 10 drops; otherwise the procedure is the same. If more than 1 drop of the silver nitrate solution is required to reach the end point (a reddish tinge), the water contains more than 63 mg. of chloride per liter, expressed as sodium chloride. This indicates that approximately 25 mg. of sodium per liter is present and, assuming that 3 liters of water are consumed per day as drinking water and in cooked foods, approximately 75 mg. or more sodium are ingested from this source alone. The amount of chloride ion added in the chlorination of water is too small significantly to affect this test.

INTERPRETATION

This test is a practical method for estimating the sodium content of urine based on the volumetric determination of chloride by Mohr's method⁴ and the assumption that under ordinary conditions the urinary excretion of sodium and chloride roughly parallel each other. Daily twenty-four hour determinations of urinary sodium are obviously the ideal in controlling this type of dietary regimen, but such a procedure is expensive and so complicated as to be prohibitive at the present time even in the control of hospitalized patients.

It is recognized that in the absence of unusual fluid loss from extrarenal mechanisms sodium and chloride are almost entirely excreted in the urine.⁵ It has also been shown that approximately the same ratio exists between the amounts of sodium and chloride in the urine of patients on salt-free diets as in the chemical compound sodium chloride.⁶ Foods and drinking waters containing significant amounts of sodium also contain chloride in roughly the same proportion as in common table salt.⁶ Thus the determination of urinary chlorides in the absence of the ingestion of other chloride or halogen compounds is a simple method of checking the sodium intake. Some medicines and "salt substitutes" containing chloride compounds as ammonium chloride, potassium chloride, lithium chloride, iodides

From the Departments of Medicine, Surgery and the Diet Therapy Clinic, University of Michigan School of Medicine, and the Department of Pharmacy, University Hospital, Ann Arbor.

Some of the observations on which this paper is based were carried out with the aid of grants to Dr. Frank N. Wilson from the Horace H. Rackham School of Graduate Studies and the S. S. Kresge Foundation.

1. Bryant, J. M., and Blecha, E.: Low Sodium-Forced Fluid Management of Hypertensive Vascular Disease and Hypertensive Heart Disease, *Proc. Soc. Exper. Biol. & Med.* **65**: 227-229 (June) 1947.

2. Allen, F. M.: Arterial Hypertension, *J. A. M. A.* **74**: 652-655 (March 6) 1920.

3. Fantus, B.: Fluid Postoperatively, *J. A. M. A.* **107**: 14-17 (July 4) 1936.

4. Willard, H. H., and Furman, N. H.: *Elementary Quantitative Analysis: Theory and Practice*, New York, D. Van Nostrand Co., Inc., 1940, p. 178-182.

5. Loeb, R. F.; Atchley, D. W.; Richards, D. W., Jr.; Benedict, E. M., and Driscoll, M. E.: On the Mechanism of Nephrotic Edema, *J. Clin. Investigation* **11**: 621-639 (May) 1932. Peters, J. P.: *Water Balance in Health and in Disease*, in Duncan, G. G.: *Diseases of Metabolism*, Philadelphia, W. B. Saunders Company, 1947, chap. 6, p. 300. Shohl, A. T.: *Mineral Metabolism*, New York, Reinhold Publishing Corp., 1939, p. 81.

6. McCance, R. A., and Widdowson, E. M.: *The Chemical Composition of Foods*, Brooklyn, Chemical Publishing Co., Inc., 1947. *Chemical Analysis and Thier Interpretations*, Public Water Supplies in Michigan, Engineering Bulletin, no. 4, Michigan Department of Health, March 1948.

and bromides seriously interfere with the use of this test as a means of controlling patients on low sodium diets.

The table presents data obtained in a comparison of the sodium content of the urine of patients on various low sodium diets as determined by the flame photometer method of analysis⁷ with the sodium content of the same samples as estimated by chloride determinations. The third column in the table is the estimated sodium values based on the chloride determination by the accurate Volhard method⁸ and the fourth column the estimated sodium values by the simplified

Comparison of Actual Urinary Sodium Content and Estimated Sodium Content by Two Methods Based on Chloride Determinations

Patient	Sodium,* Mg./Liter	Estimated Sodium		Drops of 0.73% AgNO ₃ Solution	Potas- sium,* Mg./Liter
		Estimated Sodium from Chloride (Volhard Method)†	Estimated Sodium from Chloride (Simplified Method)‡		
1.....	25	25	100	1	1,100
2.....	54	48	100	1	610
3.....	32	50	100	1	680
4.....	150	50	200	2	230
5.....	11	60	200	2	750
6.....	80	91	200	2	600
7.....	56	150	300	3	1,200
8.....	100	182	300	3	480
9.....	100	200	300	3	630
10.....	84	199	400	4	1,050
11.....	29	234	400	4	1,200
12.....	200	242	400	4	940
13.....	110	293	500	5	1,400
14.....	340	224	400	4	850
15.....	110	341	500	5	1,850
16.....	520	407	500	5	650
17.....	340	409	500	5	1,650
18.....	360	462	600	6	850
19.....	60	...	700	7	375
20.....	290	...	700	7	2,200
21.....	500	598	800	8	1,400
22.....	68	650	700	7	2,000
23.....	510	896	1,200	12	3,900
24.....	960	1,052	1,200	12	1,700
25.....	330	1,056	1,300	13	3,100
26.....	820	1,087	1,300	13	880
27.....	340	1,187	1,300	13	3,800
28.....	500	1,196	1,400	14	4,440
29.....	1,000	1,223	1,300	13	820

* Flame photometer method (Bills).

† Method described in text.

‡ Patients using "salt substitute."

chloride test described herein. The fifth column gives the number of drops of the 0.73 per cent silver nitrate solution needed to reach the end point for the various specimens with the simplified chloride test. The last column gives the urinary potassium content by the flame photometer method. This table shows that, although the measurement of the sodium content of the urine by the simplified chloride test involves a large error, there is a rough correlation between the estimate obtained in this way and the actual sodium content of the urine. There is, however, a better correlation between the data obtained by the more accurate Volhard method of determining chloride and the data obtained by the use of the flame photometer.

Figure 1 is a graph in which the actual sodium content is plotted against the sodium values estimated by the simple chloride test. The heavy diagonal line indicates a theoretically perfect correlation, and the crosses indicate the actual correlation between the true and

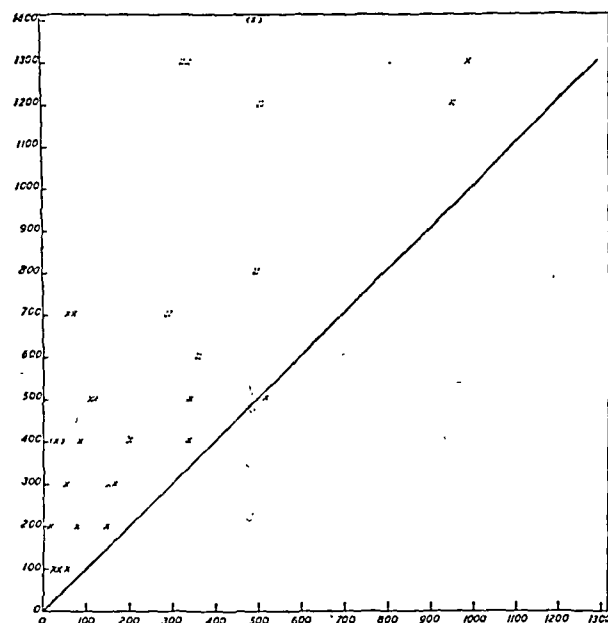


Fig. 1.—Graph based on data contained in the table, showing the correlation between actual sodium content (horizontal values) and the content estimated by the simplified chloride test (vertical values) of urine samples from patients on low sodium diets.

estimated sodium content of the urine specimens. With one exception the error was in the direction of overestimating the urinary sodium content.

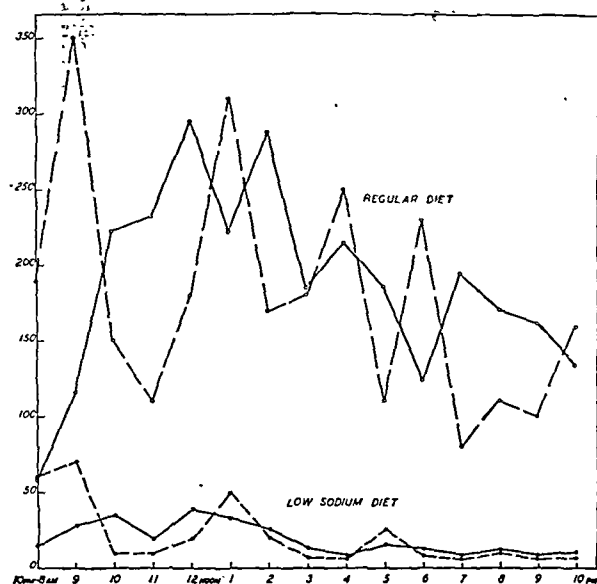


Fig. 2.—Diagram illustrating the hourly urinary excretion and concentration of urinary sodium over a twenty-four hour period in a normal subject on a regular diet and in a hypertensive outpatient on a low sodium diet. The sodium values were obtained by the simplified chloride test described in the text. The subject on the regular diet excreted an estimated 3.3 Gm. of sodium (8.3 Gm. sodium chloride) with 2.2 liters of urine, and the patient on the low sodium diet excreted an estimated 0.4 Gm. of sodium (1 Gm. sodium chloride) with 2.3 liters of urine. The concentration of the urinary sodium varied inversely with the hourly volume of urine. The estimated sodium excretion recorded at 8:00 a. m. represents the hourly average from 10:00 p. m. to 8:00 a. m. The vertical values are in milligrams of sodium. The broken line indicates milligrams of sodium per hundred cubic centimeters; the unbroken line shows milligrams of sodium per hour.

7. Bills, C. E.: To be published.

8. Logan, M. A.: Composition of Cartilage, Bone, Dentin and Enamel, J. Biol. Chem. 110: 375-389 (July) 1935.

This comparison of the chloride methods of estimating sodium with the direct determination of sodium by the flame photometer⁷ establishes the former as sufficiently accurate to be of value as a clinical aid in the management of patients on low sodium diets. The fasting morning specimen of urine is used for convenience because it tends to vary less from day to day than specimens obtained later and is roughly representative of the twenty-four hour specimen in regard to sodium chloride concentration in patients on low sodium diets. Persons eating a normal diet usually show a higher concentration of urinary chlorides later in the day.⁹ Figure 2 shows the distribution of sodium excretion as estimated by the simple chloride test throughout the day in the case of a normotensive subject on a regular diet and in the case of a hypertensive patient on a low sodium diet.

Factors that influence the volume of the daily urinary output, such as variations in fluid intake, fluid loss by extrarenal mechanisms, variations in renal function and other factors, affect the result of this test. When the intake of fluid is maintained at approximately 1 to 3 liters, the urine output varies from about 800 cc. to 2 liters. With the urinary volume in this range and the patient following a diet containing approximately 200 mg. of sodium, the simplified test described requires from 1 to 6 drops of the silver nitrate solution to reach the end point, which indicates the presence of approximately 250 to 1,500 mg. of chloride per liter, expressed as sodium chloride. This amount of urinary chloride corresponds to a daily intake of chloride of 1,500 mg. or less, expressed as sodium chloride, which are the quantities contained in the standard 200 mg. sodium diet.¹ This satisfies, roughly, the criteria set up by Allen¹⁰ for a satisfactory urinary sodium chloride output in patients on salt-free diets.

Experience has established the fact that patients on low sodium diets are able to control their sodium intake satisfactorily by this procedure with a minimum of checks by physician and dietitian. The value of this test is comparable to that of the simplified Benedict test for the control of glycosuria by the diabetic patient, although it is even less complicated than the Benedict test. In our opinion this test has been of sufficient practical value in the management of the majority of hypertensive and cardiac outpatients on low sodium diets to justify the omission of "salt substitutes" and medicines containing halogen compounds.

Finally, it should be pointed out that the presence in the urine of sodium unaccompanied with halogens will not be detected by this procedure; thus, if compounds such as sodium bicarbonate or tartrate are ingested, the test is useless.

SUMMARY AND CONCLUSIONS

A practical and inexpensive test for estimating urinary sodium excretion is described. This test is a simple procedure that enables patients on low sodium diets to estimate the daily urinary excretion of sodium and the sodium content of their drinking water. It has been found by clinical trial to be sufficiently accurate for the control of such patients. The value of this test in the management of hypertensive and cardiac patients on diets low in sodium is comparable to that of the simplified Benedict test in the treatment of diabetes.

9. Gerritzen, F.: Der Fier und Zwanzig-Stunden-Rhythmus der Chlorausscheidung. *Arch. f. d. ges. Physiol.* 238: 483-488, 1937.

10. Allen, F. M.: *Treatment of Kidney Diseases and High Blood Pressure*. Newark, N. J., The Newark Printing Co., Inc., 1925, pp. 79-82.

SOME EFFECTS OF MYANESIN® IN PSYCHIATRIC PATIENTS

LOUIS S. SCHLAN, M.D.

Manteno, Ill.

and

KLAUS R. UNNA, M.D.

Chicago

The drug 3-ortho-toloxyl-1,2-propanediol (myanesin,® tolserol®)¹ was introduced by Berger and Bradley² as a muscle-relaxing agent; it apparently raises the threshold of internuncial neurons in the spinal cord and brain stem.³ Myanesin® does not affect voluntary muscle power, is not hypnotic and has negligible effects on the electroencephalogram in doses of 0.5 to 2.0 Gm. given by mouth four to five times a day. It has been used to alleviate spasticity and rigidity with variable results.⁴ It has also been tried in cases of intractable pain⁵ and in 3 psychotic patients.^{6b}

Its use in the treatment of anxiety was suggested to us by Dr. Pauline Cooke of Chicago. Sixty-three patients (from Manteno State Hospital) were chosen to test its effects not only in anxiety states but also in acute and chronic psychoses (mixed types of schizophrenia), in alcoholism, in addiction to drugs and as an adjuvant to electroshock (table). All patients had been under previous observation for a long time, and many had been treated with electroshock, insulin shock, carbon dioxide therapy, or a combination of these. The drug was administered in doses of 0.5 to 1.5 Gm. four times a day either in tablets (tolserol,® 0.25 Gm.) or in a syrup of eriodictyon and propylene glycol (1 Gm. per 30 cc.). The present paper represents a preliminary report and will be followed by a more extensive study.

In 3 female patients whose anxiety was the main presenting complaint, myanesin,® within one hour after administration, caused alleviation of the anxiety without concomitant sleepiness. The duration of the effect in 2 patients was about two hours for each dose; in the third a much longer period of normal behavior resulted. All 3 reported in much the same language that they were able "to think things through" during the time of action of the drug. Tremor and startle disappeared, and the patients were able to fall asleep normally at bedtime.

In 8 patients with acute alcoholism, each with the "shakes" after prolonged bouts, myanesin,® decidedly reduced or abolished the gross tremor promptly. This was best seen on their raising a cup of coffee to the lips. Before the administration of the drug, both hands were needed in each case and this heroic effort resulted in spillage. Within thirty to sixty minutes after the

From the Manteno State Hospital (Dr. Schlan) and the Department of Pharmacology, University of Illinois College of Medicine (Dr. Unna).

1. The drug used in this study was supplied by E. R. Squibb & Sons under the brand name of tolserol.®

2. Berger, F. M., and Bradley, W.: The Pharmacological Properties of α : β -Dihydroxy- γ -(2-methylphenoxy)-Propane (Myanesin), *Brit. J. Pharmacol.* 1: 265, 1946.

3. Henneman, E.; Kaplan, A., and Unna, K.: The Effect of Myanesin on Facilitatory and Inhibitory Systems of the Brain, *Federation Proc.* 1 (pt. 1): 301, 1949.

4. (a) Stephen, D. R., and Chandy, J.: Clinical and Experimental Studies with Myanesin, *Canad. M. A. J.* 57: 463, 1947. (b) Berger, F. M., and Schwartz, R. P.: Oral Myanesin in Treatment of Spastic and Hyperkinetic Disorders, *J. A. M. A.* 137: 772 (June 26) 1948. (c) Bickers, D. S.; Cohn, G. A., Jr., and Rheinberger, M. B.: On the Clinical Use of 3-(ortho-toloxyl)-1,2-Propanediol (Myanesin) in Neurological Disorders, to be published.

5. (a) Stephen and Chandy.^{4a} (b) Gammon, G. D., and Churchill, J. A.: Effects of Myanesin upon the Central Nervous System, *J. Am. M. Sc.* 217: 143, 1949.

ingestion of the drug, the cup could be lifted with one hand in normal fashion and without spilling. Severe anxiety was as promptly relieved, and the patients reported feeling comfortable with the exception of "hangover" effects, such as headache and gastric distress. All of these patients had been chronically readmitted to the hospital and had previously required paraldehyde and barbiturates for three to four days after each prolonged intoxication. No such sedation was now necessary. Their subjective reports were that the relief experienced with myanesin® was prompter than with either of the other types of sedatives and, in addition, they felt "wide awake" and closer to "normal."

In 2 patients addicted to drugs (morphine and heroin, respectively), the withdrawal symptoms (yawn-

on other disturbed wards. In no case did schizophrenic ideation seem to be affected.

Of 30 patients subjected to electroshock (glissando technic) 10 had consistent postictal apnea lasting from 6 to 16 seconds. In these 10, 2 Gm. of myanesin® in solution administered one-half hour before electroshock abolished the apnea in 9 cases and reduced it from 15 to 5 seconds in the tenth. (Such apnea has been blamed for residual cerebral damage following electroshock therapy). In all 30 cases the tonic and clonic components remained absolutely unchanged in duration or quality by administration of the drug.

No serious toxic effects were observed. The soluble forms of myanesin® occasionally cause dizziness if too large a dose is given. These solutions also anesthetize slightly the mucous membranes of the tongue and pharynx. When single doses of 2 Gm. or more were given in tablet form, slight nausea was experienced by susceptible patients. Some effects were observed suggesting tolerance with prolonged unremitting use of the drug (two to three weeks).

Results of Myanesin® Therapy in Sixty-Three Patients

No. of Patients	Category	Results
1	Psychoneurotic, mixed type, severe, 20 years' hospitalization	Remission of 12 days comparable to results from four electroshock treatments. Startle reactions, a significant feature in this case, abolished. Tolerance with repeated doses.
2	Anxiety states, mixed	Alleviation of anxiety. No soporific effects.
2	Manic depressive psychoses-hypomania	Sedative action without soporific effects. Repeated doses produced tolerance.
8	Chronic alcoholism (in abstinence)	Rapid effect (15-30 minutes). Prompt abolition of severe tremor. No nocturnal sedation necessary. No craving for alcohol or paraldehyde.
2	Drug addiction (morphine and heroin) (in abstinence)	Rapid effect. Abolished somatic symptoms of withdrawal. Did not affect craving for drugs.
17	Schizophrenia (mixed types, disturbed)	No remarkable effect. Sedative action noted only when surroundings were quiet.
1	Schizophrenic patient with lobectomy, unremitting low grade excitement	Sedative action for two weeks. No other remarkable effect.
30	Diverse patients receiving electroshock	No effect on pattern or duration of seizure. In 10 patients exhibiting consistent postictal apnea, the apnea was abolished.

ing, nausea, leg cramps, vomiting) were alleviated without the craving for the drugs being affected.

In 9 disturbed patients, with long histories of psychosis, who were chronic inmates of the hydrotherapy ward, the effects of myanesin® therapy were variable. Two hypomanic patients promptly became calmer, without becoming sleepy, and appeared in better contact, and 1 with agitated depression showed diminished activity and did not require nocturnal sedation. An extremely overactive dissociated patient, who had previously had a bilateral frontal lobectomy, became consistently quiet with myanesin® therapy. She had been refractory to all other medication. In the remaining 5 cases the effects fluctuated. In the patients whose spontaneous activity was reduced, responsiveness to exciting factors in the environment remained unaffected. The sedative action of myanesin® was apparent only when the rest of the ward was quiet. This observation was repeated in 11 more spontaneously excited patients

CONCLUSIONS

In a trial group of 63 cases preliminary to a more exhaustive study the following effects of myanesin® (3-ortho-toloxyl-1,2-propanediol) therapy were noted:

1. Sedation without soporific effect permitting normal sleep in patients with pronounced anxiety when disturbed psychic functions had been causing insomnia.
2. Reduction of spontaneous activity but no effect on responsiveness to external stimulation.
3. Its sedative effects in psychotic persons were most apparent when the environment was not disturbing.
4. No alteration of chronic schizophrenic states.
5. Beneficial effects were obtained in the treatment of prolonged alcoholic intoxication and in anxiety states. In the former its action is preferable to that of paraldehyde and barbiturates. In the latter it is the only drug we have seen that allays anxiety without clouding consciousness. As such it promises to be helpful as an adjunct to psychotherapy.
6. The pattern and duration of seizures from electroshock were not changed by myanesin® given in doses of 2 Gm. On the other hand, postictal apnea, where it existed, was greatly reduced or eliminated.

"Our Patients Should Be Our Friends."—It is so obvious to those of us who have been practicing medicine privately that our patients should be our friends that we do not often stop to ask the question, "Why?" The statement may seem trite to some, but to the beginner and to the skeptic it is well to pause a moment to present some of the answers. The first of all is in establishing more easily an accurate diagnosis. In my own field and in most other fields of medicine the diagnosis is in large part dependent on an adequate history of the present illness, past troubles, family history, and social and business relationships. The sooner one establishes a sympathetic and friendly relationship with one's patient the sooner will one obtain the necessary information from all the story that can be told; any minor portion of the patient's account, sometimes in the form of a confession, may be vastly more important than all the laboratory tests in the world and may save not only time and money, but even misery and death themselves.—Paul D. White, The Shattuck Lecture, *La Médecine du Cœur, The New England Journal of Medicine*, May 26, 1949.

WILL NOISE DAMAGE ONE'S HEARING?

W. E. GROVE, M.D.
Milwaukee

Is noise driving you crazy? This was the subject of a syndicated article in a newspaper Sunday supplement of August 1947. Psychiatrists and psychologists who have studied the problem regard noise as one of the most serious threats to our health. Long-continued noise menaces health and destroys efficiency. It produces fatigue, which impairs efficiency. It encourages inattention and lack of concentration, which is again reflected in lack of efficiency. It promotes absenteeism and again impairs efficiency. The nervous system is not constituted to take this sort of battering. One becomes jumpy, jittery and irritable under the impact of continuous noise. Neurasthenia and psychasthenia develop which are not incomparable to battle fatigue. Podolsky said, "It is not an exaggeration at all to say that often cases of insanity are caused by nervous systems which cannot adjust themselves to the constant bombardment of noise."

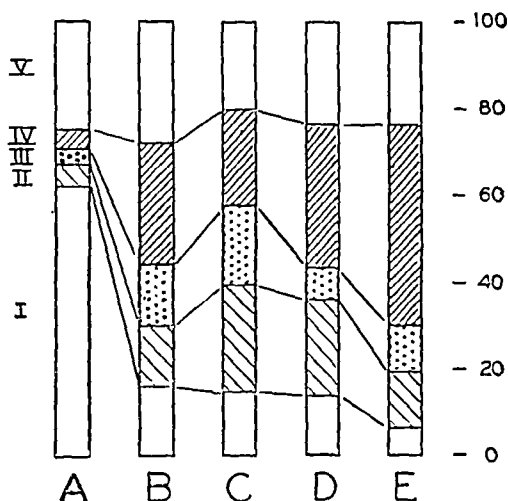


Fig. 1.—Distribution of classes of audiograms in different departments (A, B, C, D and E), from MacLaren and Chaney. (The vertical values on the right indicate cumulative percentage.)

Business executives realize that noise causes inattention, lack of concentration and poor efficiency. Their own offices are invariably placed in a quiet sector of the factory and are well sound proofed and insulated against the noisy operations of the plant. But what of the production worker who is constantly bombarded with noise of high intensity day in and day out, for months and years on end? Management has not yet learned, or is unwilling to recognize, that noise is destroying the health of their operatives, nor do they realize that from a purely mercenary business point of view noise is reducing the efficiency of production.

A long-continued high intensity noise impairs nervous and mental health, reduces efficiency as a production tool and damages hearing function; and that is what the otologist in general and the Committee on Conservation of Hearing of the Academy of Ophthalmology and Otolaryngology in particular are interested in.

The condition designated as "occupational deafness" has been recognized for many years.¹ In 1890 Barr²

made a survey of 100 boilermakers who had followed their occupation for more than three or four years and did not find any with normal hearing. For many years the condition was known as "boilermakers' deafness." With the increased industrial production incident to the first world war, interest in this condition was intensified. Since then this has rapidly become the world's greatest industrial nation. There was no need to worry about this problem while we were a small agricultural nation nor is there need for much concern even today in the rural areas, but in the cities it has become a health problem of major importance. Where metal strikes on metal there is bound to be noise.

SOURCES AND INTENSITY OF INJURIOUS NOISE

Certain facts are incontrovertible. Exposure to extremely loud sounds over a long period results in impaired hearing. The louder the sound, the greater is the impairment over a similar period. The longer the period of exposure to the same sound level, the greater is the hearing impairment.³ While all ears are probably susceptible to high intensity level sound, they are probably not equally susceptible. More data are needed on this point. Ears with a preexisting conduction lesion are probably less susceptible than are ears with normal hearing. MacLaren and Chaney,⁴ working in airplane plants on the coast, made an analysis of 5,000 audiograms of persons working in six different departments in which the relative noise level was 70, 100, 105, 110 plus, 110 plus and 105 decibels. They found that persons with a preexisting conduction deafness remained at about the same proportion in each department, indicating that noise exposure does not aggravate the existing condition deafness. More data are needed on this point. The ears of the young are probably more susceptible than those of middle or advanced age. More data are needed on this point also.

Bunch⁵ stated the opinion that noise above an 80 to 90 decibel level was injurious. McCoy⁶ suggested that the practical range for corrective measures should begin at the 100 decibel level, but MacLaren and Chaney⁴ found a sharp reduction in normal audiograms between a department in which the average noise level was 70 decibels, Department A, and one in which it was 100 decibels, Department B, using Beasley's classification. They expressed the belief, therefore, that the dividing line between innocuous and hazardous noise lies somewhere between 70 and 100 decibels. For its effect on the hearing function one can, however, safely disregard noise of less than a 90 decibel level, although Davis⁷ said that there is no rigid proof of permanent impairment of hearing from noise of less than 115 to 120 decibels "... and that concern about noise levels below 100 decibels ... is quite unwarranted." This statement is loose and is subject to confirmation.

MacLaren and Chaney,⁴ in their survey of the general noise level in various departments of an airplane factory, found the sources of noise, in the order of their loudness, listed in the table. In this connection Bunch⁵ pointed out that the noise level of an ordinary office

3. Guild, S.: Personal communication to the author.

4. MacLaren, W. P., and Chaney, A. L.: An Evaluation of Some Factors in the Development of Occupational Deafness, *Indus. Med.* **16**: 109-115 (March) 1947.

5. Bunch, C. C.: Conservation of Hearing in Industry, *J. A. M. A.* **118**: 588-593 (Feb. 21) 1942.

6. McCoy, D.: Industrial Noise: Its Analysis and Interpretation for Preventive Treatment, *J. Indust. Hyg. & Toxicol.* **26**: 120-123 (April) 1944.

7. Davis, H.: Protection of Workers Against Noise, *J. Indust. Hyg. & Toxicol.* **27**: 56-57 (Feb.) 1945.

1. Grove, W. E.: Noise in Industry, *Laryngoscope* **57**: 114-124 (Feb.) 1947.

2. Barr, T.: Injurious Effects of Loud Sounds upon the Hearing Function, *Brit. M. J.* **2**: 675 (Sept. 20) 1890; cited by Taylor, H. M.: Traumatic Deafness: Problems of Prevention, *Laryngoscope* **54**: 362-373 (July) 1944.

is about 40 decibels, that of a busy street about 65 decibels and that of heavy traffic about 80 decibels.

It is generally believed that noise of high intensity is more injurious to the hearing when it is of high pitch than when the pitch is lower. Lurie⁸ and his co-workers, working with guinea pigs, showed that intense sound of 500, 1,000 and 2,000 cycles produced changes in the organ of Corti which were comparable to those produced by a tone of 4,000 cycles. They found that the higher the frequency the closer to the round window were the degenerative changes in the organ of Corti. With exposure to a tone of 500 cycles the lesion was in the upper half of the second turn or in the lower half of the third turn of the cochlea. Whether these experimental observations can be used with respect to human beings is not known, but, at any rate, in human beings the basal coil of the cochlea seems to be its most vulnerable spot. Perlman,⁹ experimenting on human listeners, stated, "Sounds of low frequency produced less acoustic trauma than those of high frequency." Others have expressed the belief that sounds of low frequency but high intensity can produce as

Sources of Noise, in Order of Loudness

Source	Decibel Range *
1. Drop hammer.....	(100-130)
2. Rivet gun (and bucker).....	(102-128)
3. Pin router.....	(104-116)
4. Circular saw.....	(100-116)
5. Handforming of sheet metal.....	(103-110)
6. Spced hammer.....	(96-110)
7. Trip hammer.....	(- 110)
8. Punch press.....	(16-108)
9. Band saw on sheet metal.....	(- 103)
10. Air drill.....	(92-109)
11. High cycle milling machines.....	(- 99)
12. Public address system.....	(90- 66)
13. Compressed air.....	(- 92)
14. Spot weld, dimpler.....	(88- 92)
15. Filing.....	(- 88)
16. Hydro-press.....	(84- 88)

* Decibel readings are those at the ear of the operator or person most severely exposed.

much damage to the organ of Corti as those of high frequency. More data are needed on this point also.

However, there are other factors to be considered besides the intensity of the noise. These, according to Perlman,⁹ are (1) the total length of exposure, (2) the length of exposure per period, (3) whether the sound stimulus is continuous or interrupted, (4) the length of the interruptions, (5) the type of space and environment, whether there is reverberation or not, (6) the age of the worker and (7) previous ear or associated disease.

NATURE OF THE HEARING DEFECT

The hearing defect caused by prolonged exposure to loud noise is greater for high tones than for low tones. While the initial effect of exposure to loud noise involves the hearing for high tones only and is therefore not easily discernible by the person exposed, the longer the exposure the more likely is a gradual loss of hearing in the range of frequencies concerned in speech. The development of this noise deafness is slow and insidious, and the worker is apt

to disregard it until he is rather deaf, particularly if he has a well paid job.

McCoy took 100 young persons with normal hearing and no ear, nose or throat disease and placed them in a chipping school. After working for seven hours in the chipping school where they were exposed to a

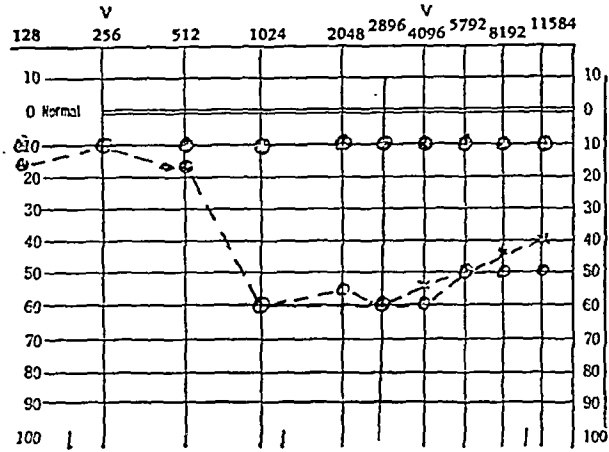


Fig. 2.—Broken lines show levels of hearing in workers after seven hours in a chipping school. (Taken from the paper by McCoy.)

noise intensity of 110 to 130 decibels, a representative group of the men had a definite hearing loss associated with tinnitus and a feeling of discomfort. This is illustrated in figure 2. On the following day, only a slight loss for high tones was discernible audiometrically and the associated symptoms were gone. This initial effect was probably due to fatigue of the eighth nerve and the spasticity of the intratympanic muscles. However, after a month's exposure to this noise level there was a permanent deficiency in the high frequency range, illustrated in figure 3, and this loss was not materially affected by a short rest. McCoy¹⁰ said that a "repre-

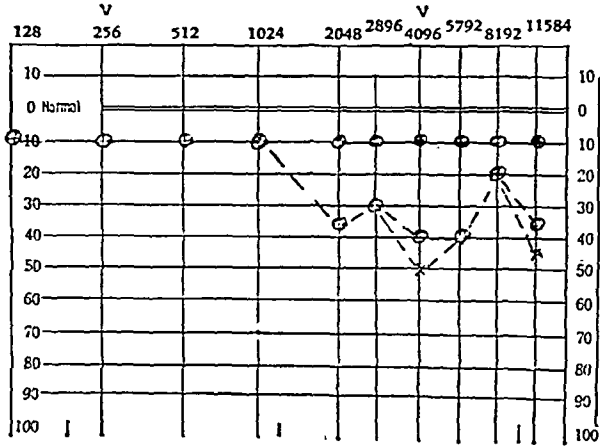


Fig. 3.—Broken lines show the levels of hearing recorded for a man who had worked one month in a chipping school. (Taken from the paper by McCoy.)

sentative group" of the men showed these changes, indicating thereby that not all ears are equally susceptible. However, while all ears are not equally susceptible to an injurious noise of a month's duration, it is fair to suppose from the experience of others that most of the ears would suffer if the exposure lasted long enough.

10. McCoy, D.: The Industrial Noise Hazard, Arch. Otolaryng. 39: 327-330 (April) 1944.

8. Lurie, M. H.; Davis, H., and Hawkins, J. E., Jr.: Acoustic Trauma in the Organ of Corti in the Guinea Pig, Laryngoscope 54: 375-386 (Aug.) 1944.
9. Perlman, H. B.: Acoustic Trauma in Man: Clinical and Experimental studies, Arch. Otolaryng. 34: 429-452 (Sept.) 1941.

METHOD OF PROCEDURE

No form of treatment is effective once the lesion in the neuroepithelium of Corti's organ has occurred. Prevention of the lesion is, therefore, the only means of attack. Sounds of injurious intensity must be prevented from reaching the ear. The method of procedure must concern itself with education, propaganda and prevention. Sporadic attempts to solve the problem have already been made, particularly in the airplane factories during the war.

The Subcommittee on Industrial Noise has been busily engaged during the past year in acquainting insurance carriers and independent employers of labor throughout the country with the seriousness of the noise problem and its effects on the general health and the hearing function. It has obtained the active cooperation of the National Association of Mutual Casualty Companies and the National Conservation Bureau of the Stock Casualty Companies. These associations, which represent the safety and engineering departments of all the casualty companies operating in this country, are well aware of the hazard of noise and of the liability which it presents. They are more than willing to help in the development of protective measures. Their main difficulty at present is in convincing their individual policy holders that something must be done about it. The independent employers of labor are still more or less willing to "let sleeping dogs lie." They fear an avalanche of claims if this subject is stirred up. It is, therefore, the duty of the subcommittee by propaganda and education, to inform both management and labor that in intense noise lies a serious health problem and that in the end it is to their advantage to face and correct it. However, the subcommittee cannot do this job without help. It needs the active cooperation and help of every otologist and of every agency that is interested in the health of the people, and, as the destruction of the hearing function is one of the main deleterious effects of noise, every agency concerned with conservation of hearing should cooperate.

The Subcommittee on Industrial Noise believes that the most logical way of beginning the attack on this problem is to set up pilot plants in some industry in which noise is a special health factor. In such pilot plants the entire problem could be intensively studied and protective and preventive measures worked out. It believes that, when such pilot plants have been set up and are in operation, the leaven will gradually spread to other manufacturers. In a large manufacturing company with 18,000 employees and in its eight subsidiary plants, such a program has already been set up. This is only a beginning, and the subcommittee would like to suggest that every otologist interested in conservation of hearing exert himself to set up and supervise such projects in manufacturing plants in his immediate locality.

The subcommittee feels that the first procedure necessary in setting up such a pilot plant program is to send in a competent physicist who will measure the actual and potential noise level in every operation or department of the plant. After this has been done it believes that the actual operation of the program should be turned over to the medical department of the plant. These medical departments will need and should receive the active cooperation of every otologist.

Second, the subcommittee believes that a careful preemployment hearing examination should be made of every person who is to be placed in an operation

in which the noise level exceeds 90 decibels. This examination should include a history of previous working conditions and of previous military service. It should also include a history of present or previous ear trouble or disease and of familial factors. An otoscopic examination should be made. An initial audiometric examination should be made. This should be rechecked in one week, one month and after six months. It would be preferable to do this in a sound-treated room, but, if this is too much to expect, a relatively quiet room will do, provided that bilateral ear phones are used and provided that the relative ambient noise level remains about the same at all times.

The subcommittee advocates a rigid preemployment hearing examination—just as a preemployment physical examination of other parts of the body is made. It does not at this time advocate an audiometric examination of all the existing plant personnel, first, because it is a job of such magnitude that no employer would agree and, second, because it hesitates to do something which would stir up a multitude of medicolegal claims, many of which would be unjustifiable. However, by a continuing program of preemployment audiometric examinations, the employer will soon accumulate a base line on the hearing function of all of his employees working in noisy operation.

PREVENTIVE MEASURES

Preventive measures are of three types:

1. The redesigning of buildings and machinery to permit less noisy operation. With the buildings and machinery now in use it is extremely doubtful whether any manufacturer would go to the enormous expense involved. It is also somewhat doubtful whether the intensity of noise could be reduced to a noninjurious level by these methods. At any rate, this is an idea which can be agitated for future construction.
2. The removal or transfer of a worker with especially noise-sensitive ears to some less noisy operation.
3. The reduction of injurious noise at the ear of the worker. Occlusion of the external canals of the ears by suitable obturators or ear plugs will theoretically reduce the intensity of noise reaching the ear to a non-injurious level. Various types of these ear defenders are on the market. However, the great problem is to get the worker to wear them. Unless individually fitted, they are apt to be uncomfortable. Unless freshly issued each day, they are apt to carry dirt and infection into the canal. Certain persons with ears which are sensitive to external otitis and eczematous processes cannot wear them. They are apt to trap moisture in the ear and favor the growth of fungi. While they reduce the level of injurious sound reaching the ear, they also interfere with the worker's ability to hear the voice. They are so small and inconspicuous that their use cannot be verified. The answer may be in the construction of external ear coverings of some material like sponge rubber, held firmly in place by a head band, much on the order of the double earphones of an audiometer or the intercommunication helmet of the airplane pilot.

MEDICOLEGAL ASPECTS

The general counsel and vice president of a large industrial corporation recently said to me, "If we assume that in industrial noise we have a health hazard and we do, then, as good businessmen, we must regard it as a liability." Would that all manufacturers were that smart.

Loss of hearing from exposure to noise of an injurious level is an occupational disease. Occupational disease, quite apart from isolated accidents, is now compensable in thirty-three states as well as in the District of Columbia, Hawaii and Puerto Rico.¹¹ Such protection is also given to employees covered by the Federal Employee's Compensation Act and the Longshoremen's and Harbor Workers' Act. We recognize the fact that under certain conditions the hearing function can be damaged by industrial noise, but every hearing defect in the worker in a noisy occupation is not caused thereby. There are many causes for depreciated hearing, particularly in persons who are no longer young. Compensation claims increase in periods of depression and mass layoffs. Until there is closer cooperation between the industrial physician and the otologist and until a careful preemployment audiometric examination is made of every worker who may be subjected to excessive noise, one will not be able to separate the true from the false, the wheat from the chaff. Many workers will receive compensation for a defect in no way connected with their occupation or only partially so, and, vice versa, many a worker whose hearing has been seriously damaged by his occupation will have doubt cast on his claim.¹

The subcommittee hesitates to stir up "the sleeping dog," but this health problem can no longer lie dormant. It is a challenge to the medical profession and should be tackled intelligently.

Council on Physical Medicine and Rehabilitation

REPORTS OF THE COUNCIL

The Council on Physical Medicine and Rehabilitation has authorized publication of the following reports.

HOWARD A. CARTER, *Secretary.*

ALPHATRON RADON OINTMENT NOT ACCEPTABLE

Manufacturer: Canadian Radium & Uranium Corporation, 630 Fifth Avenue, New York 20.

Alphatron Radon Ointment is a solution of radon gas in wool fat U. S. P. Radon, also called radium emanation, is radioactive though chemically inert; in its disintegration to radium A, radon emits alpha particles. The alpha particles are stated to have a range of 0.30 mm. in tissue, and the half-life of the radon is given as 3.825 days.

When confined in a container, radon proceeds to accumulate equilibrium amounts of its products, that is radium A, B and C. Equilibrium is established in about four hours. Radon, like radium, emits alpha rays, and when it is in equilibrium with its products of disintegration the container emits the beta and gamma rays belonging to them, e. g., radium B and C.

The Alphatron Radon Ointments first introduced were found, in examinations reported to the Council office, to be irregular in composition and distributed without adequate protection for the handlers and users. The early claims for such preparations included many therapeutic uses, but most of these have now been abandoned. More recent promotional literature for Alphatron Radon Ointment suggests its use in treating irradiation ulcers, other chronic ulcerations (including those of the varicose

and arteriosclerotic types), nonhealing wounds, chronic eczema and certain other diseases of the skin, and certain types of bursitis and arthritis. The considerable number of available reports on these and on other aspects of the subject have been considered by the Council, which at this time favors only continued, well controlled clinical investigation of materials of this sort and cannot regard any of the aforementioned therapeutic suggestions as incontrovertibly justified.

In view of the lack of further evidence for beneficial effects of Alphatron Radon Ointment, the Council on Physical Medicine and Rehabilitation voted *not* to include this item in its list of accepted devices.

ISOLETTE INFANT INCUBATOR MODEL C-35 ACCEPTABLE

Manufacturer: Air-Shields, Inc., County Line Road, Hatboro, Pa.

The Isolette Incubator and Isolation Unit Model C-35 houses infants who require control of temperature, humidity and oxygen content of their environment. The Isolette is furnished for operation with 110 to 120 volts, 60 cycle alternating current. The motor draws an average of 23 watts and the maximum current used is 190 watts, corresponding to 1.5 amperes.

The height of the Isolette without the stand is 55 cm. (21½ inches); with the stand it is 133 cm. (52½ inches). Other dimensions are 48 by 86 cm. (19 by 34 inches). The weight of the unit with the stand and casters, which are standard equipment, is 49 Kg. (109 pounds). The shipping weight is 73 Kg. (161 pounds). Accessories include a weighing scale which permits weighing the infant without removing it from the incubator and a Serdex laboratory hygrometer. Extra arm holes in the hood are optional equipment.



Isolette Infant Incubator, Model C-35

Evidence was obtained from a variety of clinical sources acceptable to the Council that the Isolette worked as claimed by the manufacturer. The Council recognizes the fact that a hazard exists when a device that includes combustible materials such as bed clothes is operated in the presence of oxygen and external sources of ignition. Personnel responsible for operating such equipment must be acquainted with its dangers. The firm supplied evidence that the Isolette has been given final approval for listing by Underwriters' Laboratories, Inc.

The Council on Physical Medicine and Rehabilitation voted to include the Isolette Infant Incubator, Model C-35, in its list of accepted devices.

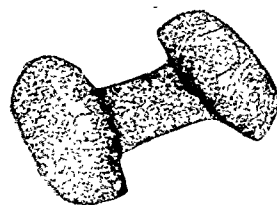
COMFORT PILLOW ACCEPTABLE

Manufacturer: Hauptman Feather Company, Inc., 75 Wallabout Street, Brooklyn 11.

The Comfort Pillow is designed to be used by pregnant women for the support of the abdomen during sleep. It is roughly H-shaped in outline, so that the two stuffed outlying sections to right and left of the abdomen are connected by a stuffed central section under the back.

The Council obtained evidence that the Comfort Pillow was well made, helped expectant mothers to get needed rest and sleep and was safe to use.

The Council on Physical Medicine and Rehabilitation voted to include the Comfort Pillow in its list of accepted devices.



Comfort Pillow

11. State Workmen's Compensation Laws as of June 1, 1946, Bulletin 78, United States Department of Labor, Division of Labor Standards, 1946.

Council on Pharmacy and Chemistry

REPORT OF THE COUNCIL

THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY

In view of the numerous inquiries received by the Council office concerning the rules under which the Council work is carried on, it is deemed advisable to publish a series of informative comments for the benefit of pharmaceutical manufacturers and others who are interested. A copy of the complete rules of the Council on Pharmacy and Chemistry may be obtained from the Council office on request.

The following brief explanatory statements have been adopted by the Council for publication.

AUSTIN SMITH, M.D., *Secretary.*

Introductory Statement

As a result of the long effort of the Council on Pharmacy and Chemistry, with the loyal support of the American Medical Association Board of Trustees and of *THE JOURNAL*, physicians and professional manufacturers of pharmaceuticals generally recognize the significance of "Council acceptance" of a medicinal or allied agent. It means that the claims for a drug have been reviewed by a carefully selected group of disinterested experts with special experience in such evaluation; that the full evidence for the claims has been carefully weighed, and the permissible claims fairly adjudged; that the drug itself is nonsecret and is what it is claimed to be; that it is manufactured under proper conditions of chemical control, and that it is marketed and advertised according to the established standards of the medical profession.

To gain an understanding of the rules by which the Council accepts a product, it is necessary to reflect that their object is the encouragement of and provision for rational therapeutics; in other words, to give the physician the necessary chemical and pharmacologic information concerning a given medicinal agent, thus enabling him to use it intelligently and effectively in the treatment or prophylaxis of disease. This involves knowledge of the identity (chemical composition, correct name), the proved action (experimental and clinical evidence, permissible therapeutic or prophylactic claims) and reliable production (proper controls, competent personnel, efficient manufacturing standards) of the drug he is asked to use in the care of his patients. All these are provided for in the Council's rules, which are the result of long experience in the evaluation of medicinal agents and which have been the model for similar regulations both in this country and abroad.

The Council is a standing committee appointed directly by the Board of Trustees of the American Medical Association. Routine business is carried on by the paid staff in the Secretary's office, which includes personnel of professional rank. But final decisions are made by the Council as a group, often with the aid of consultants who are authorities in the various fields concerned.

Members of the Council are appointed by the Board of Trustees of the Association for five year terms. Each member is selected from a list of names submitted by the Council members after a series of three eliminative votes. No special effort is made to distribute the membership among the various fields of medicine, though in practice the list is usually representative. The Council has at all times been able to enlist the services of specialists as consultants in any branch of knowledge involved in its considerations.

The work of the Council is carried out by correspondence, summarized in a bulletin that is circulated to the members every two weeks throughout the year, for discussion and voting. This makes rather heavy demands on the time of the members, and they deserve credit for the conscientious manner in which they fulfil the exacting duties. The time and work are freely

given. The Council members feel that this is a duty which they owe to the profession, to medical science and practice, and they are stimulated and repaid by the results. Those who find it impossible to give the necessary time withdraw from the Council. This is sometimes unavoidable, much as it may be regretted.

Particular phases of the Council rules will be discussed in further articles, to which this is an introduction.

Rule 1—Composition, and Rule 2—Identification

The first two of the rules under which the Council considers the merit of preparations for inclusion in New and Nonofficial Remedies require that the composition of the product be stated fully and completely and that procedures and criteria for determining the composition and standardization be furnished. This information, when received with the formal presentation of a product, is transmitted to the American Medical Association Chemical Laboratory. The chemical unit was established as an indispensable adjunct at the outset of the Council's battle in the cause of rational therapeutics and truth in medical advertising. From modest beginnings the laboratory facilities have through the years developed into a first class, modern scientific organization, always generously supported by the Board of Trustees of the Association. Individual members of the staff are specialized in particular fields, such as organic, inorganic, biologic and physical chemistry, microchemistry, spectrophotometry, bacteriology and pharmacy. Its facilities were adequate in the early days when it was necessary to analyze and expose preparations of secret or fraudulently declared composition, and it is now further equipped to provide aid in assessing and standardizing the host of new agents which a more scientific era is supplying for the physician.

Perusal of the early reports of the Council furnishes convincing evidence of the necessity for insistence on adequate declaration of composition as a cardinal principle. For example, a product marketed as "Liquid Life" and declared to be a "true antitoxine" was found to contain sodium sulfate, magnesium sulfate, quinine sulfate and a dangerous amount of zinc sulfate. This was, of course, pure quackery. On a more scientific plane, one cites the lengthy report in the same year (1911) on quinine tannate, which showed that the available commercial supply was not sufficiently uniform for practical purposes. The report included adequate standards which were adopted for publication in New and Nonofficial Remedies. This sort of blanket investigation was a feature of the earlier days of the Council and the chemical laboratory and resulted in the promulgation of tests and standards for many drugs later adopted for the U. S. Pharmacopoeia and the National Formulary. The compilation of chemical tests and standards still continues; they are first published in *THE JOURNAL* along with the monographs on preparations which the Council has accepted, thus obtaining worldwide publicity. They are then republished in a separate section of New and Nonofficial Remedies, where they are available to those interested.

It is hardly necessary to emphasize the importance of the early publication of tests and standards to insure the uniformity and purity of new and nonofficial preparations in as definitive form as may be possible; thus the nature and expected action of drugs used in experimental investigations may be assured, with consequent clarity, and certainty in the interpretation of results. The work of the Council in this field is supported and supplemented by the new Therapeutic Trials Committee, which has been established by the Council to secure and aid unbiased and critical clinical investigation at the very outset of new therapeutic agents, as well as investigations of new uses for already established agents. This, of course, necessitates proper initial consideration of composition, identity and purity of the products concerned.

When first published the Council's rules were elaborated by inclusion of explanatory comments designed to aid the manufacturer in determining the information necessary to make presentation of a product for consideration. These comments have been further elaborated from time to time as necessitated

by emergence of new problems. For these corollary comments those interested are referred to the current edition of *New and Nonofficial Remedies* or to a small pamphlet which may be obtained on request from the Council's office. With respect to Rules 1 and 2 these comments give specific details for proper presentation of composition, controls, necessary chemical information, declaration of preservatives and vehicles. It is emphasized that the Council does not accept "confidential information" which it could not publish if it is deemed advisable. Manufacturers are required to present a formal agreement to notify the Council promptly on the discovery of an error affecting the standards of strength, identity, purity or quality of an accepted preparation whether the discovery has been made by the firm itself or by a government or other outside agency.

The results of the Council's pioneer efforts in the field of drug control as initiated by its first two rules are reflected not only in a more enlightened medical profession but also in the increasingly scientific and research-minded attitude of pharmaceutical manufacturers, who realize that progress is conditioned on knowledge, not on secrecy.

Rule 3—Advertising

Much of the routine activity of the Council, especially of the Council's office, is concerned with medical advertising. Indeed, one of the main reasons for the founding of the Council was the false and misleading character of the advertising and other promotional devices offered at the turn of the century. The Council has always recognized the value of honest, straightforward presentation of warranted claims to promote the use by physicians of acceptable preparations. In fact, the Council is as anxious as anyone to see that the profession is informed of new but proved drugs and uses for drugs. Nor does it object to advertising to the lay public of certain classes of drugs which will be discussed later.

Council acceptance carries with it the right to advertise in *THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION* and other medical publications that follow the Council. This includes most of the state medical journals and some of those privately owned or published by allied medical organizations. There is no question of dictation by the Council either to the publication or the manufacturer concerned; there is merely a pursuit of the principles of sound and rational therapeutics participated in by those with mutual interests.

Aside from the requirement of Council acceptance of a product, all advertisements appearing in *THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION* and the journals affiliated with the Cooperative Advertising Bureau of the American Medical Association must conform to certain principles, all of which are corollary to the basic requirements laid down in the Council's Rule 3. These include freedom from sweeping superlative claims or inferences and from disparaging statements concerning competing products; conformance to the allowable claims as given in *New and Nonofficial Remedies*; appearance of recognized synonyms or generic designations in the case of articles bearing protected names; inclusion of adequate statement of composition for pharmaceutical mixtures. Advertisements for medicinal preparations submitted to *THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION* are referred to the Council's office for scrutiny as to conformance with these principles.

When a product is submitted to the Council for inclusion in *N. N. R.*, the manufacturer is required to furnish with the formal presentation copies of all labels, package enclosures and each piece of advertising (leaflets, circulars and brochures) used in its promotion. If the article belongs to a class of drugs already accepted by the Council, this material is scanned for conformity to recognized claims appearing in *N. N. R.*; if the advertising makes any extension of these claims, adequate evidence must be submitted in support, or the new claims must be deleted before acceptance. In the case of a new preparation, allowable claims are formulated from the presented evidence and the advertising is required to conform to these before the article can be accepted. These considerations are carried out

by the entire Council in the biweekly bulletin containing reports, general discussion and final vote. Thus all considerations become a matter of permanent record, permitting, among other things, consistency in consideration of submitted products.

In general, the Council disapproves the advertising of medicinal preparations to the lay public for the obvious reason that it promotes dangerous self medication. Misdirected and inadequate treatment, failure to recognize serious disease until too late for effective treatment, the spread of infectious disease when hidden from the physician, these dangers are a few of those involved. Further dangers are: suggestion by description of symptoms to the minds of people that they are suffering from the diseases described in such advertising, unconscious formation of drug habit, the possibilities of starting allergic reactions. These dangers not only exist with direct advertising of medicinals to the public, but apply also to the naming of diseases and therapeutic indications on labels which may fall into the hands of the patient and lead to the same results. However, the Council recognizes that such label indications may be necessary for proper instruction in the use of articles that may be properly advertised to the public; they are therefore considered unobjectionable in the case of such products. Such articles are (a) disinfectants, germicides and antiseptics promoted as prophylactic agents, (b) laxatives promoted in such a way as not to lead to abuse, (c) antiserums, vaccines and diagnostic agents which are not adapted for self medication, and (d) other preparations which may be safely used for relief of symptoms, such as antacids and analgesics. Agents falling within these exceptional classes should carry adequate and acceptable labeling statements, such as "for the relief of minor aches and pains" for analgesics, and "for the treatment of occasional constipation" for laxatives. Extension of the list of exceptions and of proper safeguards for control is being continuously studied by the Council as the presentation of various products offers occasion.

The measure of control which this rule of the Council exercises over the advertising of acceptable preparations is in no sense unreasonable, and does not interfere seriously with professional advertising. Unbridled enthusiasm and unrestrained imagination tend to destroy the confidence of the reader in the truth of the advertising. The moderation which characterizes the tone of the current advertisements in most of the American medical journals is sure to "pay dividends" in the long run. The Council likes to believe that its rules have contributed materially to this healthy attitude.

Rule 4—Therapeutic Claims

What are the criteria on which the Council accepts therapeutic claims for a new preparation or extension of claims for an already accepted one? In general, the existence and formal presentation of documented supporting evidence, usually by the pharmaceutical manufacturer who actually markets or distributes the product. Such evidence must offer objective data, with such citation of authority as will enable the Council to confirm the facts and establish the scientific value of the conclusions. The evidence should be adequately detailed, presenting results of comparative trials when feasible. It should present the work of investigators whose reputation for scientific ability and critical judgment is known. It should not consist of uncontrolled case reports or observations, however voluminous.

Once a product is accepted, the material used in its promotion to physicians must conform to the allowable claims under which it was included in *N. N. R.*, or to accepted extensions of these claims.

In the pamphlet containing the Council's rules, detailed instructions are given for the presentation of products and of confirming evidence for their usefulness. This material is first reviewed by a referee, and then by the entire Council in the ensuing consideration.

In order to keep abreast of the scientific advances on the frontiers of rational therapy, monographs in *N. N. R.* are restudied and if necessary revised at least annually. Instances can be cited of the recognition and implementation of new thera-

peutic developments, even in the brief period between the annual revisions of New and Nonofficial Remedies.

The quasijudicial character of the Council must be emphasized in this connection. Due consideration and evaluation of new evidence is a duty imposed on each member of the Council by reason of his own scientific training and rank in his chosen field. When special knowledge is required in any given case, the Council has at all times been able to secure the advice of the best and most competent authorities in the field. Any proponent of a new therapeutic procedure or preparation may feel assured that the evidence he presents in its support will be given sympathetic but competent and wholly adequate consideration.

Rule 5—Nomenclature

In general, the Council does not recognize names that suggest therapeutic use and prefers names, both protected and common or generic, that indicate the potent element or constituent of the product. The Council's Committee on Nomenclature, which is charged with preliminary consideration of names, works in close collaboration with other groups, scientific and governmental, interested in rational drug terminology. Fundamental, of course, is the provision of a single "generic" name for each drug.

The Council recognizes the importance to a manufacturer of a name which shall identify his own product. In the case of new discoveries, it recognizes the preferential right of the discoverer to choose a name. It has become the custom to use such names in connection with a properly scientific, systematic common or generic designation. The Council requires that such a generic name appear on the labels of accepted preparations marketed under trademarked names and that it be given at least half the display value of the protected name.

The owner of a patent may license other firms to produce the drug concerned; the Council will recognize a proper trademark designation for this product, as marketed by the second firm, to be used in connection with the common or generic name.

Protected names are not accepted for U. S. P. or N. F. articles or for nonofficial modifications or dosage forms of such articles unless such names were in commercial use before the products became official or unless they concern products which are otherwise entitled to protected names in the judgment of the Council.

The Council also recognizes "line" names, when not in themselves misleading and when not used as the name for a single product. The firm's name or initials, when not of such character as to be misleading or cause confusion, may also be used thus.

If the Council is consulted with regard to any specific protected or generic designation before it is placed in use subsequent differences of opinion may be avoided.

Rule 6—Patents and Trademarks

Information under this head is required for purposes of record and identification. It is especially important if the product is registered in a foreign country under a different name. The recently adopted provision for recognition of protected names used in connection with the duly recognized common or generic designations renders the proper record of trademark registry of increased importance.

Rule 7—Unscientific and Useless Articles

This rule was especially valuable in the early activities of the Council as a means of eliminating and condemning complex and worthless mixtures which venal promoters of those days foisted on the physician and the public. Its usefulness today is mainly in connection with the Council's Rule 4, which requires the presentation of such evidence of therapeutic value as would automatically eliminate from consideration articles which have no definite usefulness and which may be harmful or uneconomical. This includes, of course, needlessly complex mixtures or compounds, the constituents of which are of no demonstrable assistance to each other, as well as articles which involve danger of toxic effects disproportionate to their therapeutic value.

QUESTIONS AND ANSWERS ON COUNCIL RULES

1. What is eligible for inclusion in New and Nonofficial Remedies?

ANSWER.—Pharmaceutical and drug substances that possess originality or other important qualities which in the judgment of the Council entitle them to such place. Official preparations may also be included provided they have not been official for twenty or more years and provided the Council feels that the medical profession may not yet be fully informed concerning their use. Other articles may be included if such inclusion is believed to provide useful information for the physician.

Articles which are advertised to the public and which are not considered by the Council to be safe for use by the general population without medical supervision are ineligible for inclusion in New and Nonofficial Remedies. Included among the agents which the Council has so far classified as acceptable for inclusion in N. N. R., even though they are advertised to the public, are antiseptics for prophylactic application to minor injuries of the skin and certain laxatives, antacids and analgesics that normally can be used safely for temporary relief. The Council will not accept any agent promoted to the public for the treatment of a condition requiring medical attention.

A drug that has not been released for interstate commerce normally will not be considered by the Council unless it seems evident that the product soon will be placed in interstate commerce. The Council does not consider for acceptance articles marketed solely outside the United States.

At the request of the manufacturer or distributor the Council or its office will determine the status of a product individually. Instruments and devices which are not intimately a part of a drug package and which are not necessarily restricted to the administration of the accompanying drug are not within the scope of N. N. R.

Articles belonging to a class of preparations already rejected by the Council are obviously ineligible for inclusion in N. N. R. unless new evidence is forthcoming to overcome previous objections. A list of references to rejection reports by the Council may be found in the bibliographic index of N. N. R.

2. How can the eligibility of a product be determined?

ANSWER.—By looking in New and Nonofficial Remedies to determine whether the product or its counterpart is accepted; by reading the Council rules, copy of which is available on request; by asking for an interpretation from the Council office.

3. How should a product be presented?

ANSWER.—An acceptable outline for the description and presentation of a product has been made available by the Council in its rules. Among the material that is required is a complete description of the product in duplicate in accordance with the form outlined by the Council; three trade packages of each dosage form to be considered; one sample of each active ingredient contained in the product; twenty-two copies each of all labels (container, package, carton), package enclosures and other labeling and promotional material, and evidence to support the claims made.

The material should be presented in complete form, not piece meal. Consideration is expedited if the labels are mounted on normal size letter paper so that twenty-two separate sets of labels will be available for examination.

4. Who is responsible for the submission of evidence?

ANSWER.—The manufacturer or distributor submitting the product is responsible for evidence to support all claims made for the product. The actual presentation, however, may be made by a duly qualified agent of the manufacturer or distributor.

5. How much evidence should be submitted?

ANSWER.—If the product is one of which no brand has been previously admitted to New and Nonofficial Remedies, the manufacturer or responsible agent must present protocols of laboratory and clinical evaluations (toxicity, pharmacology, therapeutics, deterioration, etc.). Such protocols should include

not only evidence collected by the firm in its own investigations but references to published papers if available. All claims should be supported by pharmacologic, bacteriologic and other evidence necessary to demonstrate the usefulness of the submitted product. In general, this should include a summary of the various conditions treated, the number and type of cases treated, the dosage, frequency and duration of the administration of the drug, the therapeutic effects and any untoward reactions observed. The outline of description should be supplemented by twenty-two copies of reprints or suitable abstracts of available experimental and clinical evidence, including references to the published scientific literature or to the sources from which it is derived. When extensive, the detailed reports may be submitted in duplicate and twenty-two copies of a suitable comprehensive and unbiased summary or abstract may be furnished for the Council.

6. What constitutes acceptable evidence?

ANSWER.—To be acceptable the clinical evidence must offer objective data with such citation of authority as will enable the Council to confirm the facts and establish the scientific value of the conclusions. The amount and character of the evidence that is required depend on the inherent probability of the claims, no evidence being needed for a self-evident claim but strong evidence being required when the claim is beyond the trend of accepted data or previous scientific knowledge. Acceptable evidence is determined mainly by its quality. It must be furnished in sufficient detail to permit judgment as to the care with which it was gathered and the legitimacy of the deductions. Comparative trials facilitate and often are necessary for such judgment. The creditability of the data and the justification of the deductions are influenced by the reputation and experience of the investigators as to disinterestedness, technical ability and critical judgment. "Testimonials" do not constitute acceptable evidence.

The submitted evidence should withstand statistical analysis if such seems indicated. It is better to accumulate sufficient cases in a few centers than a few cases in many centers, since the latter are usually inadequate for controlled observation and critical analysis. Some indication of the animal and clinical data that often are required in the evaluation of a new drug or technic is offered in a report of the Council entitled "Laboratory and Clinical Appraisal of New Drugs" (J. A. M. A. 126: 958-961 [Dec. 9] 1944). (Reprints may be secured from the Council office.)

7. Does the evidence submitted to the Council need to be published before it is offered on behalf of a product?

ANSWER.—Because of the long delay that normally occurs between the completion of a study and publication of the findings and because some investigators do not wish to publish their findings until they have studied other phases of interest which are not necessary to determine the lack of harmfulness and the usefulness of a preparation, it is not necessary for the evidence to be published before it is submitted to the Council.

8. Is evidence presented in foreign publications acceptable?

ANSWER.—Normally, distributors and manufacturers have found it to their interest to have original work done in the United States, where a manufacturer or distributor can watch closely and work with the person or persons undertaking the research.

9. Is it necessary for a manufacturer or distributor to submit additional evidence or review available evidence if he is merely submitting another brand of a product already described in N. N. R.?

ANSWER.—When the article submitted represents only a new brand of a preparation already described in N. N. R., such evidence is not required so long as the claims for the product do not go beyond the statements set forth in N. N. R.

When the article submitted is simply a dosage form of a brand of a product already accepted, only that information is required which is essential to supplement the original presenta-

tion and afford a clear description of the composition, purpose and usefulness of the new dosage form.

10. Can a manufacturer or distributor use in advertising literature claims exceeding those described in N. N. R.?

ANSWER.—Therapeutic claims accepted by the Council are set forth in the N. N. R. monograph for the accepted article or class of articles. Claims made subsequent to the acceptance of an article must be submitted to the Council for review if such claims exceed or substantially modify those made at the time the product was accepted.

If new claims are contemplated, they should be presented to the Council with supporting evidence before being used in promotion.

11. Does the Council have any specific criteria for gathering evidence on drugs?

ANSWER.—The Council has indicated the type of evidence that may be necessary when undertaking an evaluation of a new agent. Its thinking is reflected in one of its reports entitled "Laboratory and Clinical Appraisal of New Drugs" (J. A. M. A. 126: 958-961 [Dec. 9] 1944). (Reprints may be secured from the Council office.)

Criteria for certain groups of products have been adopted by the Council in an attempt to encourage consistency in the collection of evidence for the agents in these groups. So far the Council has prepared criteria for anti-infective agents, antifungal agents and contraceptive agents. Copies of these criteria are contained in the Official Rules of the Council and may be obtained on request from the Council office.

12. Does the Council accept mixtures?

ANSWER.—Despite its general opposition to the indiscriminate marketing of mixtures of drugs in fixed proportions, the Council recognizes that certain ready-made dosage forms of synergistic or mutually adjuvant constituents may be desirable for the convenience of physicians. The Council will accept such mixtures if they otherwise conform to its rules.

13. Must advertising material be submitted in finished form at the time the product is presented to the council?

ANSWER.—Proposed labeling and advertising material may be submitted in manuscript or proof form. In fact, such submission is encouraged, as the claims may be more readily modified to meet Council suggestions. However, the responsible agent will be expected to see that the printed material conforms in every respect to what has been agreed on by the Council.

14. Can minor changes in labeling and advertising be effected at the next printing of this material?

ANSWER.—A reasonable time will be afforded by the Council to effect minor changes in labeling and advertising.

15. Are trade names recognized by the Council when a new drug is presented?

ANSWER.—Trademark names for medicinal articles are accepted if the Council deems the use of such protected names not to be harmful to health, and if they are used in connection with a common or generic name which shall not be unduly subordinated to the trademarks in the labeling and advertising. It is desirable that trade names be coined so as to indicate the potent element or constituent.

Trade names for official articles will not be accepted unless the trade names were in actual commercial use before the drug was admitted to or tentatively adopted for inclusion in the U. S. Pharmacopoeia or National Formulary.

16. Will the Council consider trade names before they are placed in use?

ANSWER.—Yes: It is highly desirable that trade names be passed by the Council before they are publicized, in order to avoid confusion and loss of investment if they should be found unacceptable. The Council is therefore willing to pass on proposed trade names even before the acceptance of the drug itself is determined.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

535 NORTH DEARBORN STREET - - - CHICAGO 10, ILL.

Edited by

MORRIS FISHBEIN, M.D.

Assistant Editor, AUSTIN SMITH, M.D.

Associate Editors

JOHNSON F. HAMMOND, M.D. RICHARD J. PLUNKETT, M.D.

Editor for Current Medical Literature, GEORGE HALPERIN, M.D.

Assistant to the Editor, JEWEL F. WHELAN

Subscription price - - - Twelve dollars per annum in advance

Cable Address - - - "Medic, Chicago"

Please send in promptly notice of change of address, giving both old and new; always state whether the change is temporary or permanent. Such notice should mention all journals received from this office. Important information regarding contributions will be found on second advertising page following reading matter.

SATURDAY, JUNE 25, 1949

THE ATLANTIC CITY MEETING

Attendance at the Ninety-Eighth Annual Session of the American Medical Association was second largest in the history of the Association. More than 13,000 physicians and almost 15,000 visitors were registered. Many physicians from foreign countries were present, evidence of the international standing of the Association and the worldwide interest in its activities.

No one phase of activity was most interesting, since the varied interests of physicians and guests drew maximum attendance in every section and exhibit. The scope of this session was tremendous, including 212 scientific exhibits and 341 technical exhibits; more than 300 scientific papers were presented at the Scientific Section meetings. The color television show alone attracted over 30,000 visitors. Demonstrations and interviews, and the interest shown in them, were continuously in evidence. The audiences at the Section meetings were among the most attentive attracted to such programs.

The actions of the House of Delegates were reported in part in last week's issue of THE JOURNAL, and other topics are reflected in this and forthcoming issues.

Dr. Ernest E. Irons, long associated with the Council on Pharmacy and Chemistry and with the Board of Trustees, was inducted into the Presidency of the Association. By unanimous vote, Dr. Elmer L. Henderson, formerly chairman of the Board of Trustees, was made President-Elect. Dr. F. F. Borzell and Dr. James P. Reuling were reelected Speaker and Vice-Speaker, respectively, of the House of Delegates. Reelected to the Board of Trustees was Dr. Louis H. Bauer, who became Chairman of the Board. Dr. F. J. L. Blasingame of Wharton, Texas, was elected to fill the vacancy on the Board created by the expiration of Dr. Henderson's term. Other elections included those for the Judicial Council, Council on Scientific Assembly, Council on Medical Education and Hospitals and Council on Medical Service. Dr. George F. Lull and Dr.

J. J. Moore were reelected Secretary and Treasurer, respectively.

On Sunday previous to the meeting inspiring addresses were offered at an open religious service by His Eminence Francis Cardinal Spellman, Rabbi Morris S. Lazaron and Rev. Joseph McCartney. A dinner for the House of Delegates was addressed by Lord Horder, and the Joseph Goldberger Award in Clinical Nutrition was presented, posthumously, to Dr. Randolph West.

Other activities too numerous to describe in detail reflected the breadth of current medical problems and the intensity of interest shown by the medical profession in solving these problems. From time to time reports on these activities will appear in THE JOURNAL. Their substance was made available immediately to the general population through the press. Thus the public is kept informed of the work of the medical profession to prevent illness, cure disease and make available the best possible medical care. There were more than twenty radio interviews and newscasts under sponsorship of the Association.

The next session of the Association will be the 1949 clinical session in Washington, D. C., December 6-9, followed by the annual session in San Francisco, June 26-30, 1950. Officers and various committees of the Association have already completed arrangements to make these meetings successful.

FENESTRATION OPERATION FOR OTOSCLEROSIS

Recently Dr. Julius Lempert¹ described the present status of the "Lempert Fenestra Nov-Ovalis Operation for the Restoration of Practical Unaided Hearing in Clinical Otosclerosis." Since Dr. Lempert first described the one stage method for surgical management of otosclerosis, improvements in technic have been made. Moreover, means for ascertaining preoperatively the likelihood of obtaining practical and serviceable results have been improved. For restoration of practical hearing the preoperative bone conduction hearing for the 512, 1,024 and 2,048 pure tone frequencies should not be lower than the 30 decibel level. The decibel level of bone conduction hearing should be at least 25 to 30 decibels higher than the decibel level of air conduction hearing. With an adequate cochlear nerve function reservoir, no matter how great the preoperative hearing loss, restoration of practical hearing is considered possible. Dr. Lempert has described in detail his "bone-dust free fenestra nov-ovalis technic." The main principle of this new technic is prevention of the entrance of bone dust into the operative area, since such dust may be responsible later for osteogenesis that interferes with or closes

1. Lempert, J.: Lempert Fenestra Nov-Ovalis for the Restoration of Practical Unaided Hearing in Clinical Otosclerosis: Its Present Status, *Proc. Roy. Soc. Med.* 51: 617 (Sept.) 1948.

the fenestration. The technic includes burnishing the fenestral rim with pure lead to prevent osteogenesis at the freshly cut bony edge.

Since the original operation was described, Dr. Lempert has performed 3,700 fenestration operations and 450 revisions. Most frequent adverse complications have been osteogenesis at the operative site, bleeding or oozing postoperatively, the development of postoperative inflammation of the tympanomeatal flap and postoperative labyrinthitis. The three latter complications have recently been almost completely controlled by improvements in operative technic and the administration of 300,000 units of penicillin each day for ten postoperative days. The introduction of the lead burnishing technic should greatly reduce the number of closures of the fenestra from osteogenesis.

Successful restoration of hearing obviously depends on proper selection of patients, the operative technics used and careful evaluation of preoperative and postoperative audiometric measurements. Dr. Lempert estimates that unaided hearing can be restored by operation in approximately 80 of 100 patients considered most suitable for operation. At the end of two years, however, hearing regression will have occurred in 20 of this group of 80, thereby netting a 60 per cent successful two year result. Results at the end of two years are considered essentially permanent. With the latest advances in technic, better results are expected, but Dr. Lempert warns that there is great need for utmost caution in evaluating results in order that accurate preoperative prognoses may be made.

Reports from some other authors have claimed a much higher percentage of successful operative results. Thus Shambaugh and Juers² and Shambaugh³ in recent studies using a modified technic in a group of patients designated as class A (ideal), a group which may be said to correspond to Dr. Lempert's (100 most suitable for operation), stated that successful two year results are possible in 80 per cent. Features of the Shambaugh modification include enchondralization of the fistula, placing the fistula on the horizontal semi-circular canal laterally and the use of a sea sponge and head frame technic to prevent postoperative serous labyrinthitis. In 1946 Shambaugh⁴ stated that 92 per cent of an operative series measured audiometrically two years postoperatively showed improvement, although not all patients had maintained their maximum gain. As standards of selection of patients, changes in operative technic and methods of postoperative and preoperative audiometric evaluation have changed, this estimate of prognosis has apparently been revised downward. Other authorities suggest that the 20 per cent difference in estimate of good prognosis (60 per cent

by Lempert and 80 per cent by Shambaugh) probably does not relate to a real difference in operative results obtained or technics employed but is a factor of differences in standards of patient selection and differences in concept of what may be considered a successful result.

POSTONCOLYTIC IMMUNITY

In 1946 Aptekman¹ and his associates of the Wistar and Carnegie Institutes prepared an alcoholic extract of rat sarcoma tissues. Concentrates of this extract injected into transplanted sarcomas in homologous inbred strains of rats caused a rapid lysis of the sarcomas, followed by sloughing and complete healing. Tested several weeks or months later the recovered rats were found to be wholly refractory to reimplantations with homologous type sarcoma.

Confirmation of this postoncolytic tumor immunity with attempted determination of the chemical nature of the specific oncolysin is currently reported by the same investigators.² Primary sarcomas were induced in various inbred strains of rats by a local injection of 3 mg. methylcholanthrene dissolved in mineral oil. Tumors thus induced were found to be 100 per cent transplantable to rats of the same inbred strain. Grafts from these primary tumors implanted into 1 month old susceptible rats of homologous strain usually attained a size of about 20 by 8 by 5 mm. by the end of seven days. To prepare the lytic concentrate, tissues from primary or transplanted sarcomas were minced, mixed with an equal volume of 95 per cent ethyl alcohol and ground for four to six hours at room temperature in an electrically driven ball mill. The fine emulsion thus obtained was centrifuged free from undissolved residue. Two volumes of 95 per cent ethyl alcohol were then added to the clear supernatant fluid. The substances precipitated by this addition were removed by filtration. The resulting clear yellow solution was then concentrated to about one sixth of its original volume by vacuum distillation. The resulting concentrate contained 30 per cent alcohol. The concentrate was injected in 0.5 to 0.75 cc. doses into rapidly growing tumors seven or eight days after implantation. The injections were repeated every two or three days until the tumor was destroyed. In some cases only two or three injections were required. In others, as many as six to ten injections were needed to bring about complete lysis.

Of 210 rat tumors thus treated, 203 were completely destroyed. Most of the 7 rats not cured died from anesthesia. Of the 203 rats cured by oncolysis, 149 were tested three to four weeks later for acquired tumor resistance. They were then given a challenging dose of homologous sarcoma on the opposite side of the body. The rats were retested with larger sarcoma doses

2. Shambaugh, G. E., and Juers, A. L.: Surgical Treatment of Otosclerosis, *Arch. Otolaryng.* 43: 549-567 (June) 1946; Indications for and End Results of Fenestration Surgery, *Ann. Otol. Rhin. & Laryng.* 57: 397 (June) 1948.

3. Shambaugh, G. E.: The Fenestration Operation: An Evaluation of Its Present Status, *Surg. Gynec. & Obst.* 84: 828-838 (April) 1947.

4. Shambaugh, G. E.: The Fenestration Operation for Otosclerosis, *J. A. M. A.* 130: 999-1006 (April 13) 1946.

1. Aptekman, P. M.; Lewis, M. R., and King, H. D.: *J. Immunol.* 52: 77 (Jan.) 1946.

2. Lewis, M. R.; King, H. D.; Aptekman, P. M., and Seibert, F. B.: *J. Immunol.* 60: 517 (Dec.) 1948.

ten to twelve months later. All were found to be 100 per cent resistant to homologous retransplants. Control transplants of the same tumor into normal rats usually gave rise to large tumors (50 by 25 by 20 mm.) within twenty-one days.

Detailed chemical and physicochemical analyses of the alcoholic concentrates have led to tests of numerous suspected fractions dissolved or suspended in 30 per cent alcohol. Nicotinamide, cocarboxylase, ascorbic acid and certain other substances have been found to increase the growth rate of rat sarcomas. Control extracts from normal tissues as well as certain other suspected factors decrease tumor growth rate. But none of them thus far tested has destroyed the tumor. Human malignant tumor extracts were prepared by the same technic from carcinoma of the intestines. These were found to be more toxic than similar extracts from rat sarcomas, since 40 per cent of the rats repeatedly given injections of the human concentrates died from the injections. In the surviving rats the tumors were destroyed, followed by an effective tumor immunity.

A second finding of theoretic interest is the result of their tests of the possible hereditary transmission of this acquired oncolytic tumor immunity. Five healed and immune female rats were mated with 5 healed and immune males. When the offspring were 30 days old, in them and their parents fragments were engrafted of the same kind of tumor that had undergone oncolysis in the parents. The tumor grafts grew in every one of the offspring, but failed to grow in the parents. The physiologic mechanism of this postoncolytic immunity to cancer has not yet been determined.

Current Comment

DR. LEWIS HILL WEED RETIRES

Friends and hundreds of leading physicians who have been associated with Dr. "Lew" Weed in the work of the Division of Medical Sciences of the National Research Council for the last eleven years will be shocked to hear that he is seriously ill with tuberculosis involving both the lungs and the larynx and is now in the sanatorium at Saranac Lake. Among the positions he has occupied recently have been trustee of the Institute for Advanced Study, trustee of the Carnegie Institution in Washington, chairman of the Division of Medical Sciences of the National Research Council, member of the Medical Advisory Committee of the American Red Cross, member of the Advisory Council of the Insurance Research Fund and member of the Board of the Honorary Consultants of the Army Medical Library. He was for many years a professor of anatomy in Johns Hopkins University School of Medicine and for some time dean of the School of Medicine. In 1946 he received the Medal of Merit with a citation in which he was hailed as "eminent scientist and medical administrator" and which specified his "especially

meritorious conduct in the performance of outstanding service." The citation reads, "By his vision and energetic action, Dr. Weed has rendered unquestionable service to his country in the mobilization of eminent civilian specialists and through the stimulation and support of scientific projects which to so large an extent formed the basis of effective measures for the prevention and cure of diseases and battle injuries among the armed forces of the United States." His genial character and fine sense of humor, his extraordinary facility for resolving differences in point of view endeared him to all who were privileged to work with him. Dr. Weed has the very best wishes of the medical profession of our country and of the innumerable scientists who have been associated with him, for recovery from his illness and for many years of relaxation from the arduous duties that he has undertaken in a career marked by brilliance and important achievement.

POISONING FROM ANILINE MARKING ON DIAPERS

Kagan and his co-workers¹ have warned against the hazard of aniline intoxication in infants, particularly premature infants, from the use of diapers stamped with inks containing aniline dyes. Sixty-three such cases have been reported of which five terminated fatally. Kagan and his group have added 9 cases to this series. Aniline may be absorbed through the skin. In the body it produces cyanosis through conversion of hemoglobin to methemoglobin, a non-oxygen-carrying pigment. Such conversion is slow, and prolonged absorption of the dye is required to produce a significant effect. Infants, especially premature infants, are particularly susceptible to diminished supply of oxygen and hence even slight degrees of methemoglobinemia may be serious. Prevention of such accidents is simple. If the diapers are boiled after they are stamped and thoroughly dried before use, the dye becomes fixed and absorption does not occur. The ideal method of prevention would be the use of nontoxic dyes, but unfortunately, vegetable pigments, charcoal and silver nitrate lack the permanence required for marking clothing in large institutions.

POSTGRADUATE COURSES FOR PHYSICIANS

In this issue is the semiannual list of postgraduate courses prepared by the Council on Medical Education and Hospitals covering the period July 1, 1949 to Jan. 15, 1950. These courses are offered in fifty-two subjects and vary in length from a few days to more than a year. There are 834 courses. In eighty-five instances the course can be arranged to suit the convenience of the student. Medical schools and hospitals as well as state and special medical societies will give the courses, although many other agencies will cooperate. This type of training continues to be popular among physicians. The list of courses in this issue covers more varied opportunities than were provided in any previous list.

1. Kagan, B. M.; Mirman, B.; Calvin, J., and Lundeen, E.: *J. Pediat.* 34: 574 (May) 1949.

ORGANIZATION SECTION

PROCEEDINGS of the ATLANTIC CITY SESSION

MINUTES OF THE ANNUAL SESSION OF THE HOUSE OF DELEGATES OF
THE AMERICAN MEDICAL ASSOCIATION, HELD IN
ATLANTIC CITY, JUNE 6-10, 1949

HOUSE OF DELEGATES

First Meeting—Monday Morning, June 6—Continued

REPORT AND SUPPLEMENTARY REPORT OF COUNCIL ON MEDICAL SERVICE

Dr. James R. McVay, chairman, presented the following report and supplementary report of the Council on Medical Service, which were referred to the Reference Committee on Insurance Plans and Medical Service:

Report of the Council on Medical Service

To the Members of the House of Delegates of the American Medical Association:

PREPAYMENT MEDICAL CARE

The rapid and orderly growth of voluntary prepayment medical and hospital care plans has been one of the striking and stimulating economic developments supported by American medicine during the past fifteen years. The initiating and propelling force of these plans was the medical profession acting through its local and state societies and later its national organization. This movement has attained national proportions. At the present time over 30,000,000 persons are covered by Blue Cross type hospital insurance and over 10,000,000 by Blue Shield type medical care insurance. This stimulus and the accumulated experience gained by these organizations have prompted many private insurance companies to enter this field, and they are making substantial contributions toward the accomplishment of the ultimate objective; namely, voluntary health insurance at a nominal cost for all the people in the United States. The total number of persons covered by all voluntary agencies is 55,000,000 for hospitalization and 37,000,000 for surgical or medical care.

The American Medical Association is not engaged in the insurance business and has no intention of giving a preferential standing to any one type of voluntary plan. The American Medical Association does believe, however, that it has a definite function to perform, that of evaluating any insurance plan presented to the people, thus protecting them as far as possible against unscrupulous or unsound plans. The American Medical Association further believes that the people should be free to purchase the type of health security they desire. To this end the Council on Medical Service for the past four years has critically examined various plans and has given its approval to numerous plans operating on a local or state basis. The Council has felt the need for a national organization which would act as a trade and coordinating agency for all medically sponsored plans.

Therefore the Council on Medical Service recommends:

1. The formation of a national coordinating agency representing all qualified voluntary prepayment plans in accordance with the proposal made to the Board of Trustees by the Council on Medical Service.

2. That there shall be no official connection between the American Medical Association and the Associated Medical Care Plans. However, the American Medical Association will continue to approve or disapprove all voluntary medical care plans.

3. The recognition of A.M.C.P. as a trade organization of member plans and Blue Cross as occupying a similar position for voluntary prepayment hospital care plans.

4. The recognition of the responsibility of the American Medical Association to:

(a) Promote the principle of voluntary insurance by educating the people as to their need for such coverage and by obtaining full

cooperation from state and county medical organizations in the local field.

(b) Inform the American people of the availability of approved plans that propose to supply on a prepayment basis security against the economic hazards of serious illness.

Respectfully submitted,

JAMES R. McVAY, Chairman.

ELMER HESS, Vice Chairman.

JESSE D. HAMER.

J. D. McCARTHY.

THOMAS A. MCGOLDRICK.

H. B. MULHOLLAND.

R. L. SENSENICH.

WALTER B. MARTIN.

EDWARD L. BORTZ.

GEORGE F. LULL.

MR. THOMAS A. HENDRICKS, Secretary.

Supplementary Report of Council on Medical Service

I. Positive Approach to Action: Since the Interim Session in St. Louis, the Council on Medical Service and its correlating committees have met with leaders of labor, farm and industrial groups, and representatives of consumer health cooperatives, Associated Medical Care Plans, private insurance organizations, the American Hospital Association, the American Medical Association's National Education Campaign managers and numerous state medical associations.

In most instances the problems have been difficult; points of view often have been divergent and solutions hard to find. In every instance the Council has approached each particular problem openly and objectively and has based its decisions on what it believes is in the best public interest and will guarantee, so far as possible, the highest standards of health service to every American citizen.

Your Council on Medical Service recommends to the House of Delegates positive, decisive, progressive action without sacrificing any of the fundamental principles of American medicine.

II. Five Specific Recommendations: Specifically, the Council recommends that the House of Delegates take definite action on five following subjects:

1. Approve complete and absolute separation of Associated Medical Care Plans from the American Medical Association and adopt the joint statement of the Board of Trustees and the Council on Medical Service as presented in the report of the Council.

The Council on Medical Service desires at this time to acknowledge the efforts of Associated Medical Care Plans in promoting through its member plans the principle of voluntary prepayment health insurance, and believes that Associated Medical Care Plans has reached a state of development where it can function more adequately as an autonomous trade association.

2. Approve the tentative principles set up to guarantee good medical service to subscribers of lay sponsored voluntary health plans.

3. Approve arrangements made at the suggestion of the Council with Whitaker and Baxter that the Council develop the positive phases of the National Education Campaign, principally the nationwide promotion of the voluntary health insurance campaign on all fronts.

4. Approve the plan of action of this over-all campaign using all the agencies portrayed in the Scientific Exhibit on "Voluntary Health Insurance," and in accord with the promotional

program adopted by the Atlantic City June 4 conference of groups working in the voluntary health insurance field.

5. To carry out the recommendations and to further the effectiveness of the Council's correlating committees on (a) prepayment hospital and medical service, (b) extension of hospitals and other facilities, (c) medical care of veterans, (d) medical care of industrial workers, (e) medical care of the indigent, (f) medical care of children and (g) relations with lay sponsored voluntary health plans, the Council further recommends that the House of Delegates approve the necessary increase of the Council's staff personnel so that (1) full time assistance may be available to forward the activities of the correlating committees, and (2) an active program of field promotion may be instituted immediately to bring about increased enrolment through all approved voluntary health programs and plans in the shortest possible time.

III. Detailed Addenda: Copies of this report together with addenda giving detailed data on each of these points is herewith supplied for the information of the House of Delegates and its appropriate Reference Committee. Each of the addenda is numbered to conform with each of the five recommendations.

Respectfully submitted,

JAMES R. McVAY, Chairman.
ELMER HESS, Vice Chairman.
THOMAS A. MCGOLDRICK.
H. B. MULHOLLAND.
JESSE D. HAMER.
J. D. MCCARTHY.
WALTER B. MARTIN.
R. L. SENSENICH.
EDWARD L. BORTZ.
GEORGE F. LULL.
MR. THOMAS A. HENDRICKS,
Secretary.

ADDENDA (IN REFERENCE TO II (2))

At the direction of the Board of Trustees the Council on Medical Service has drawn up the attached suggested principles to use to evaluate lay sponsored voluntary health plans.

BACKGROUND

In December 1946, the Committee on Rural Medical Service reported to the Board of Trustees (and House of Delegates):

The development of cooperative associations and other consumer controlled groups for provision of medical care has received considerable attention. There are some eighty-nine cooperatives in thirty-one states now operating. This is an interesting experiment in the rural effort to do something constructive from the point of view of the consumer. The medical profession should be concerned in all these plans with the view that a high level of medical care be supplied. Since these groups expect to employ physicians, some minimum standards, or the basic principles involved in such contracts, should be adopted by this House of Delegates for the guidance of physicians entering such employment and for the consideration of employing groups interested in establishing a high standard of medical care.

Acting on this report the Reference Committee recommended the following resolution which was adopted by the House of Delegates:

WHEREAS, There is some difference of opinion regarding the establishment of consumer cooperative medical care programs, nevertheless they are functioning in certain areas of this country; and

WHEREAS, It is necessary that in order to insure good medical care certain basic principles be formed; therefore be it

Resolved, That this House of Delegates request the Board of Trustees to set up proper standards to be used by cooperative or consumer controlled groups when providing medical service.

The Board of Trustees referred the resolution to the Council on Medical Service.

On receipt of this resolution, the Council on Medical Service initiated a survey of lay sponsored voluntary health plans. In reporting this survey to the House of Delegates the Council described it as a study to determine the possibility of formulating standards for this particular type of medical practice.

This survey, when completed, indicated that some one hundred and seventy-one lay sponsored voluntary health plans had been organized in forty-three states and were serving an estimated 1,600,000 persons. Certainly more important, however, was (and is) the growing emphasis on the so-called fringe benefits in collective bargaining. While the American Medical Association

has no part in the collective bargaining effort itself, we must recognize a responsibility in seeing to it that the principles under which any health plans, resulting from such collective bargaining are organized, give assurance to the individual participants that the quality of medical care will not be adversely affected.

To the end that such assurance might be given wherever lay sponsored prepayment plans are operated, the Council on Medical Service has sought the counsel and experience of many individuals and groups. As a final step in the development of suggested principles for lay sponsored health plans the Council selected a special committee composed of three persons well acquainted with the problem. This committee met with a similar committee representing the lay sponsored plans with a specific instruction to prepare suggestions as to principles. This special committee, composed of Dr. L. W. Larson, Bismarck, N. D., Committee on Rural Health of the American Medical Association; Dr. Norman Scott, Newark, N. J., executive vice president and medical director of the Medical-Surgical Plan of New Jersey, and Mr. C. H. Crownhart, Secretary of the State Medical Society of Wisconsin, is to be commended for the excellence of its work, which resulted in a series of detailed suggestions. The Council considered these suggestions at length and developed the following twenty principles which it presented to the Board of Trustees.

The Board of Trustees, in turn, transmitted the principles to the Bureau of Legal Medicine and Legislation of the American Medical Association for review and requested the Council on Medical Service to submit copies to the House of Delegates as addendum to this Supplemental Report:

SUGGESTED PRINCIPLES FOR LAY SPONSORED VOLUNTARY HEALTH PLANS

1. The plan shall be nonprofit, paying no dividends to beneficiaries or others; all surplus earnings shall be devoted either to improving the services, to making compensation of physicians and other staff members more adequate for their responsibilities and services, to purchasing facilities and equipment, to increasing the scope of benefits, or to building adequate reserve funds. All income to the plan shall be devoted to services for beneficiaries.

2. The plan shall comply with the Principles of Medical Ethics of the American Medical Association, which provide that it is unprofessional for a physician to dispose of his professional attainments or services to any lay body, organization, group or individual, by whatever name called, or however organized, under terms or conditions which permit a direct profit from the fees, salary or compensation received to accrue to the lay body or individual employing him.

3. If incorporated, the plan shall be adequately financed and organized without capital stock.

4. The plan shall be operated under an autonomous administration or trust, with segregated funds, and shall be devoted exclusively to the provision of health service.

5. Promotion, sales, organization and administrative expense of the plan shall be kept at a minimum as judged by the accrediting body.

6. The quality of medical service shall be maintained at the highest possible level. All participating physicians shall be doctors of medicine duly licensed to practice medicine in any state in which the plan operates. Each physician engaged in the practice of a specialty shall be required to have adequate qualifications for that specialty. The personnel and facilities of the plan shall be adequate to insure a high quality of medical care.

7. The plan shall provide all services as set forth in the agreement with the beneficiary. When, in the opinion of the medical staff, a professional service set forth is not available because of an emergency or because of the need for highly technical procedure, or for any other reason, then such service shall be otherwise provided by the plan.

8. The plan, in its agreement entered into with the beneficiary and which shall be distributed to each beneficiary, shall state clearly the services and benefits to be provided and the conditions under which they will be provided. All exclusions, limitations, waiting periods and deductible provisions shall be clearly

stated in the agreement with the beneficiary and in promotional and descriptive literature.

9. The plan shall, in its agreement with the beneficiary, state clearly the amount of dues or subscriptions to be paid. The amount of dues or subscription shall be adequate to provide for the benefits and services offered and to insure proper financing of the risks involved.

10. No promotional material shall invite attention to the professional skill, qualifications or attainments of the physicians participating in the plan.

11. Participating physicians may be compensated in any manner not contrary to the Principles of Medical Ethics of the American Medical Association relating to contract practice.

12. Any duly licensed physician in the community who wishes to participate in the plan, who meets its professional and personnel standards and who agrees to abide by its terms and the requirements of its beneficiaries shall be admitted to the plan.

13. The names of all participating physicians of the plan shall be made available to the prospective beneficiary. The beneficiary shall, within reasonable geographic and professional limitations, have free choice among participating physicians.

14. There shall be no interference by the governing body with the medical staff in the practice of medicine. The traditional and confidential relationship of the physician and patient shall be preserved.

15. Adequate provision shall be made for effective participation of the medical staff in the deliberations of the governing body. It is recommended that the membership of the governing body include representatives of the medical profession.

16. All services rendered by the participating physician, not included in the beneficiary's contract, shall be payable by the beneficiary to the participating physician on a fee for service basis.

17. The method of operation of any hospital owned or under contract to the plan shall be in accordance with sound public policy.

18. The plans shall provide for like rates, benefits, terms and conditions for all persons in the same class.

19. Investment of reserve funds shall be made only in securities deemed prudent for such purposes.

20. Any plan desiring approval under these principles shall agree to such periodic reviews and to abide by such regulations as may be deemed necessary by an appropriate accrediting body of the American Medical Association in consultation with representatives of the sponsors of the plan.

ADDENDA (IN REFERENCE TO II [3 AND 4])

At the request of the Council on Medical Service, a meeting was held with Whitaker and Baxter at the La Salle Hotel, Chicago, April 30, 1949. The meeting was attended by the following: Drs. McVay, Hamer, McCarthy, Martin, Mulholland, McGoldrick and Hess of the Council; Dr. Howard and Messrs. Rember and Hendricks of the American Medical Association staff.

Agreement was reached with Whitaker and Baxter that the Council would have charge of the promotion of the enrolment campaign for voluntary health insurance. All approved groups and agencies are to be used in furthering this campaign, among them being Associated Medical Care Plans, private insurance carriers, the Western Conference of Prepaid Medical Care Plans and the Conference of Medical Society Prepayment Plans. Help in promoting this campaign is to be enlisted from the United States Chamber of Commerce, the Farm Bureau and other farm organizations, state and local federations of women's clubs, parent-teachers associations, leaders of industry and labor.

Representatives of the various voluntary health insurance groups were invited to meet with the Council in Atlantic City on June 4. At that time suggestions were made as to ways and means of supporting that part of the National Education Campaign that has to do with voluntary health insurance.

Total enrolment in voluntary health insurance has long been a moot question. In an endeavor to reach some reasonable estimate of the present status in regard to voluntary plan enrolment, nationwide and by states, the Council enlisted the cooperation of Associated Medical Care Plans, the Health

Insurance Council and Blue Cross. The resultant picture is not as accurate or as clear as the Council would wish, but we believe it is the best presented to date. The conclusions are portrayed at the Scientific Exhibit on "Voluntary Health Insurance." This exhibit, sponsored jointly by Associated Medical Care Plans, the Health Insurance Council and the Council on Medical Service, is an expression of the Council's conception as to the over-all plan of action in reaching the voluntary enrolment goal. It will take the best efforts of all of us to achieve the goal.

ADDENDA (IN REFERENCE TO II [5])

Additional staff requirements to enable the Council's correlating committees to function effectively and actually to carry on a program of field promotion of all approved voluntary health programs have been estimated as follows:

(1) One staff assistant whose full time can be devoted to the preparation of news stories, pamphlets and other copy on the subject of voluntary health insurance, as well as related medical care programs—to be assigned to the Council from the staff of Whitaker and Baxter or the Public Relations office of the American Medical Association.

(2) One field assistant, with a knowledge of medical society activities and prepayment medical care plans, whose full time can be devoted to consulting with and assisting medical societies, prepayment plans, etc.

(3) One field assistant, with insurance experience, whose full time can be devoted to activities paralleling those noted in (2).

REPORT OF COUNCIL ON MEDICAL EDUCATION AND HOSPITALS

Dr. Reginald Fitz, member of the Council on Medical Education and Hospitals, presented the following report, which was referred to the Reference Committee on Medical Education:

Under the new Constitution and By-Laws, the Council on Medical Education and Hospitals will make its annual report to the House of Delegates at the interim session. However, there are three matters that the Council would like to present to the House of Delegates at this session. The first of these has to do with the evaluation of foreign medical schools. The second is a revision of the "Essentials of Approved Residencies and Fellowships" and the third is a revision of the "Essentials for Approved Examining Boards in the Specialties."

1. Up to this time the Council on Medical Education and Hospitals has never attempted to classify foreign medical schools. During the past two years it has become increasingly evident to the Council that a reliable and authoritative classification of foreign medical schools should be available to the licensing boards and other official and voluntary agencies in the United States that deal with graduates of foreign medical schools. In the past fifteen years more than 10,000 foreign trained physicians have migrated to the United States, and it may be expected in the years ahead that at least 1,000 foreign medical graduates will be coming to this country annually.

State licensing boards at this time have no way by which they can intelligently evaluate the training of these physicians and determine whether or not they should be admitted to their examinations for licensure. As a result, some state boards are excluding all foreign medical graduates from their examinations, while others admit all foreign medical graduates to their examinations without regard to the type of education that they have received.

After lengthy consideration, the Council believes that the American Medical Association has an obligation to classify foreign medical schools. The Council, therefore, requests authorization from the House of Delegates to establish after thorough study of all available information a list of foreign medical schools that appear to provide adequate educational programs. Such a list will make it possible for state licensing boards to adopt a more intelligent and enlightened policy with respect to foreign medical graduates without lowering the standards of licensure that have been developed for the protection of the public.

2. The Council is submitting to the House of Delegates for ratification a revised text of the essentials for residency training

in physical medicine. These essentials have been revised to recognize the fact that the field of physical medicine in recent years has been broadened to include rehabilitative medicine. The Council now proposes that residencies in the field of physical medicine be known as residencies in physical medicine and rehabilitation.

3. In February 1949, the Council voted to approve the newly formed American Board of Preventive Medicine and Public Health. The Council now requests authority of the House of Delegates to amend its "Essentials for Approved Examining Boards in the Specialties" to include this new board in the list of boards approved by the Council.

Respectfully submitted,

H. G. WEISKOTTEN, Chairman.
REGINALD FITZ.
VICTOR JOHNSON.
RUSSELL HADEN.
HARVEY B. STONE.
W. L. PRESSLY.
WILLIAM S. MIDDLETON.
DONALD G. ANDERSON, Secretary.

ESSENTIALS FOR RESIDENCY TRAINING IN PHYSICAL MEDICINE AND REHABILITATION

Residencies in this specialty should include experience in the various aspects of rehabilitation and training in the clinical and diagnostic use of all physical agents except those employed in radiology. As used in these Essentials, rehabilitative medicine is considered to be that phase of medicine which is concerned with the care, treatment and restoration of the physically and psychiatrically handicapped patient and of the convalescent. A complete program should include physical therapy, corrective speech, psychologic services, social service, occupational therapy, vocational guidance, education and planned recreation, correlated with the necessary medical, surgical and psychiatric care. (Programs presently limited to training in physical medicine should be expanded to meet the requirements of the broader concept of this specialty.)

A department of physical medicine and rehabilitation should be organized as a major service with a qualified department head and associates, as well as trained technical personnel. It should operate as a service department to the clinical divisions.

Sufficient space in the hospital and adequate equipment should be provided to carry out a comprehensive and well planned program. The allocation to this service of a sufficient number of beds, as well as treatment rooms, offices, class rooms and space for recreation and other activities, is highly advantageous, if not essential.

A minimum of three years of residency training is considered necessary to train a physician who desires to specialize in this field. Shorter training periods in this specialty of six to twelve months may be valuable for residents in medicine, surgery and other specialties.

A three year program should encompass the entire field of physical medicine including its basic science aspects; medicine, in the rehabilitative aspects of arthritic, cardiovascular and other chronic diseases; ophthalmology-otolaryngology, in the rehabilitation of the blind, deaf and otherwise handicapped patient; psychiatry, as it applies to the care and treatment of the convalescent medical and surgical patient and the psycho-neurotic; neurology, particularly in its application to special problems such as hemiplegia and other chronic neurologic disorders; orthopedics, as it applies to congenital and acquired deformities; surgery, as it applies to traumatic, amputee and plastic cases; and pediatrics in its relation to patients with poliomyelitis, rheumatism, cerebral palsy and similar diseases. Theoretic and practical training should be given in the use of braces and prosthetic appliances, special techniques and equipment for the evaluation diagnosis and treatment of the physically and mentally handicapped. Psychosocial and prevocational rehabilitation of the convalescent and chronically ill patient should be an integral part of the program. In those cases in which the outpatient activity is limited, affiliation with other institutions offering training in special aspects of this field is indicated.

Quantitative Requirements: To supply an adequate amount and variety of teaching material, there should be a minimum

of 500 admissions and 7,500 patient visits to the department annually.

Applied Basic Science Instruction: Training at the graduate level in anatomy, physiology, physics, biophysics and pathology is considered essential. The training in anatomy should include functional anatomy and kinesiology. The training in physics should include radiation physics, electronics and instrumentation. Study in applied basic sciences should be closely correlated with clinical experience.

Board Requirements: The American Board of Physical Medicine requires candidates for the certifying examination to have completed an approved rotating internship, following graduation from a medical school approved by the Council on Medical Education and Hospitals, a period of study after the internship of not less than three years of approved supervised training and not less than two additional years of study and/or practice in this specialty.

The board requires that the special training following the internship include a period of study in clinics, dispensaries or hospitals recognized by the Council on Medical Education and Hospitals and by the American Board of Physical Medicine as competent to provide a satisfactory training in physical medicine and rehabilitation. During this period, the resident should be assigned directly to the department of physical medicine and rehabilitation for a minimum of one and one half years. The period of specialized preparation should include (a) graduate training in anatomy, including kinesiology and functional anatomy; physics, including radiation physics, electronics and medical instrumentation; physiology, pathology, and other basic sciences which are necessary to the proper understanding of the specialty; (b) an active experience of not less than two years in hospitals, clinics or dispensaries approved by the Council and the American Board of Physical Medicine. An additional period of not less than two years of study and/or practice in the specialty is considered necessary to complete the applicant's training. The candidate is required to pass a written and oral examination given by the board which will include questions concerning the basic sciences, clinical practice and laboratory and public health problems related to physical medicine and rehabilitation.

REPORT OF JUDICIAL COUNCIL

Dr. E. R. Cuniffe, chairman, presented as the report of the Judicial Council a revised Principles of Medical Ethics, consideration of which on motion of Dr. G. Henry Mundt, Illinois, seconded by Dr. Mather Pfeifferberger, Illinois, and carried, was postponed to a later meeting of the House.

REPORT OF REFERENCE COMMITTEE ON RULES AND ORDER OF BUSINESS

Dr. A. F. R. Andresen, New York, chairman, presented the following report:

Your Reference Committee on Rules and Order of Business, agreed unanimously to the following: First, that the House adjourn today at 12:30 p. m.; that it reconvene at 2 p. m., instead of 2:30 p. m., which is stated on the program, and that because of its effect on public relations, an executive session be avoided, if possible, but if later it be found desirable, your committee recommends that tomorrow, Tuesday, at 1:15 p. m., the House convene in executive session.

On motion of Dr. Val H. Fuchs, Louisiana, seconded by Dr. Walter E. Vest, West Virginia, and carried, the report of the Reference Committee was adopted.

REPORT OF COUNCIL ON SCIENTIFIC ASSEMBLY

Dr. Charles H. Phifer, member of the Council on Scientific Assembly, presented the following report, which was referred to the Reference Committee on Reports of Officers except the portion referring to amendments to the Constitution and By-Laws which was referred to the Reference Committee on Amendments to the Constitution and By-Laws:

To the Members of the House of Delegates of the American Medical Association:

INCREASE IN MEMBERSHIP OF COUNCIL

In its supplementary report at St. Louis in 1948 the Council on Scientific Assembly stated:

Enlargement of the Council: The Council on Scientific Assembly as now constituted consists of five Member or Service Fellows elected by the House of Delegates on nomination by the Board of Trustees (By-Laws, Division Three, Chapter X, Sec. 4. Standing Committees.—(B) Membership). Due to the increasing amount of work devolving on the Council by virtue of an additional Scientific Assembly at the Interim Sessions and because of the enlarged scope of the activities of the Council under the new By-Laws, a request is made to the House of Delegates to give consideration to enlarging the membership of the Council from five to seven. The Council also suggests, if the request for enlargement be granted, that, when feasible, one of the additional members be a general practitioner or a Fellow who has intimate knowledge of the needs of general practitioners in relation to arranging the programs for the Scientific Assembly at the Annual Sessions and at the Interim Sessions.

The Reference Committee on Sections and Section Work, to which the report of the Council was referred, reported as follows:

The advisability of granting an increase in the membership of the Council from five to seven in number was clearly apparent for reasons adequately expressed; therefore, the committee approves of such an enlargement and recommends that the indicated change in the By-Laws be presented at the next meeting of this House of Delegates for consideration at that time.

In accordance with this action of the House of Delegates, the Council submits the following amendment:

**PROPOSED AMENDMENT TO BY-LAWS, DIVISION THREE,
CHAPTER X, SECTION 4(B)**

Amend the first sentence in the second paragraph of Division Three, Chapter X, Section 4(B) to read: "The Council on Scientific Assembly shall consist of seven Member or Service Fellows elected by the House of Delegates on nomination by the Board of Trustees for terms of seven years, so arranged that at each annual session the term of one member expires, except that at the 1949 annual session, one member shall be elected for a term of five years, one for a term of six years and one for a term of seven years.

**RECOMMENDATION FOR ESTABLISHMENT OF A SECTION ON
PHYSICAL MEDICINE AND REHABILITATION**

**PROPOSED AMENDMENT TO DIVISION TWO,
CHAPTER VII, SECTION 1**

A group of physicians primarily interested in physical medicine and rehabilitation has requested the Council on Scientific Assembly to recommend to the House of Delegates that it create a Section on Physical Medicine and Rehabilitation. The Council agreed, at a meeting held on April 7, to recommend that the House of Delegates create a Section on Physical Medicine and Rehabilitation, and that the By-Laws be amended as follows:

Amend Division Two, Chapter VII, Section 1, by changing "19. Miscellaneous Topics" to "20. Miscellaneous Topics" and by adding "19. Physical Medicine and Rehabilitation."

Respectfully submitted,

HENRY R. VIETS, Chairman.

CHARLES H. PHIFER.

L. W. LARSON.

STANLEY P. REIMANN.

ALPHONSE MCMAHON.

ERNEST E. IRONS, President-Elect.

MORRIS FISHBEIN, Editor, THE JOURNAL. } Ex officio.

GEORGE F. LULL, Secretary.

NEW BUSINESS

Proposed Amendment to By-Laws

Dr. Allen H. Bunce, Georgia, presented the following proposed amendment to the By-Laws, which was referred to the Reference Committee on Amendments to Constitution and By-Laws:

Amend Division Three, Chapter XII, Section 6 (A) by adding the words "Judicial Council and" just before the words "Scientific Assembly."

Resolution on the General Practitioner

Dr. P. J. DiNatale, New York, presented the following resolution, which was referred to the Reference Committee on Medical Education:

WHEREAS, For the best interests of his patients the general practitioner at this time deserves particular consideration; therefore be it

Resolved, (1) That general practitioners should receive special training in medical colleges; (2) that internships of at least two years' duration should be arranged for general practitioners; (3) that wherever possible a hospital should contain a section for general practice, particularly those hospitals approved for intern training by the American Medical Association, and (4) that wherever possible hospitals should have general practitioners on their attending staffs.

**Resolution on American Medical Association
Assessment and Dues**

Dr. Andrew A. Eggston, New York, presented the following resolution, which was referred to the Reference Committee on Miscellaneous Business:

WHEREAS, The President of the United States, representatives of the Federal Security Agency and certain Senators and Representatives are using all possible means to achieve the enactment of some form of legislation which will include a program of compulsory health insurance; and

WHEREAS, We believe the promoters of this legislation are men not qualified to evaluate health needs or methods of providing health services but are influenced by political pressure from organized groups that are interested in "free medical care" and socialistic trends in government; and

WHEREAS, It is universally conceded that we have the best medical care in the world and the best medical schools, research centers, hospitals and public health systems; and

WHEREAS, Compulsory health insurance leads inevitably to a deterioration in the quality of medical care, to greatly increased over-all costs in providing medical care and eventually to a complete socialistic economy; and

WHEREAS, The practicing physicians of the United States who are best qualified to evaluate health needs and methods of providing medical care are overwhelmingly opposed to any system of compulsory health insurance; e.g., in Westchester County, on the basis of replies to a questionnaire sent to 1,100 physicians in the county, 95 per cent indicated unalterable opposition; and

WHEREAS, The only means of interpreting the facts concerning the hazards involved in government medicine and the cost thereof to the public is through education; now therefore be it

Resolved, That this House of Delegates of the American Medical Association recommends the establishment of annual dues for all members beginning in 1950, such dues to be available for the advancement of the Association's National Education Campaign.

Resolution on Compulsory Health Measures

Dr. R. B. Robins, Arkansas, presented the following resolution, which was referred to the Reference Committee on Legislation and Public Relations:

WHEREAS, The medical profession has expressed its firm opposition to compulsory health measures under governmental plan; and

WHEREAS, The educational program of the American Medical Association gives every evidence of promoting knowledge among the people of the United States of the dangers inherent in governmental plans for medical care; and

WHEREAS, A well established technic of so-called planners is to attempt to secure major legislation of a revolutionary type in piecemeal pattern; and

WHEREAS, S. 1411, H. R. 3942 and H. R. 4660, which would provide diagnostic and therapeutic care for all the school children of the United States, are, in effect, compulsory health insurance, and, as such, should be resisted by the American public; now therefore be it

Resolved, That the American Medical Association disapprove enactment of such legislative proposals and take appropriate measures to acquaint Congress and the public of its opposition.

Resolutions on Voluntary Health Insurance

Dr. W. B. Rawls, New York, presented the following resolutions, which were referred to the Reference Committee on Insurance Plans and Medical Service:

WHEREAS, The problem of making voluntary health insurance available to everyone is of paramount interest to every physician; and

WHEREAS, We believe that some form of a national plan is necessary in order to accomplish this end; therefore be it

Resolved, That a national enrolment agency be established under the direction of the Blue Shield and medical profession and to include an insurance company legally qualified to write voluntary health insurance in those areas where this is not available and also to act as an enrolment agency for local plans; and be it further

Resolved, That this organization develop a contractual agreement at the top level with the corresponding organization now being formed by the Blue Cross Commission for hospital insurance in order that both sickness and hospital insurance may be presented to the public.

Resolutions on Health Plan for the United States

Dr. Walter E. Vest, West Virginia, presented the following resolutions, which were referred to the Reference Committee on Insurance Plans and Medical Service:

WHEREAS, Unity of thought and action is necessary in order to develop a sound, positive and progressive program in our fight against the efforts

of political bureaucrats to introduce compulsory sickness insurance into this country, thereby debasing medical service and medical progress and enslaving the medical profession; and

WHEREAS, In order to combat successfully the threat to the freedom of medicine, of the individual and of the profession, a positive program must be proposed by the profession providing for voluntary sickness insurance, with freedom of choice of physician and hospital, preservation of the present personal doctor-patient relationship, and retention of the voluntary free enterprise system of the American way of life; therefore be it

Resolved, By the Council of the West Virginia State Medical Association that the following ten principles be presented as a positive program for the solution of the problems of medical and hospital care in our present system of medicine:

1. Extension of voluntary prepayment sickness insurance, nonprofit or commercial, to cover the rural areas. Such insurance should provide for hospital and medical and surgical care while in the hospital, as well as diagnostic procedures by qualified physicians in their offices or in clinics.
 2. Federal grants-in-aid to the states, to be disbursed at the local level, to provide for hospitalization and medical care of the indigent and medically indigent through nonprofit insurance plans.
 3. Extension of voluntary commercial health and accident group insurance in industrial and rural areas to compensate wage earners for loss of wages during illness.
 4. Expansion of agreements between employer and employee for the continuance of regular wages during personal illness.
 5. Continued study and further agreements by industry with workers for health and welfare funds similar to the one set up by the United Mine Workers of America.
 6. Expansion of public health services so that all counties or groups of counties will have a full time health unit.
 7. Liberalization of the federal hospital construction act (Hill-Burton bill) to provide additional funds on a fifty-fifty matching basis.
 8. Federal grants to qualified institutions for research in medicine and allied sciences.
 9. Federal grants to medical, dental and nursing schools for construction, teaching and expansion purposes.
 10. An educational campaign to enlighten the public concerning preventive medicine, hospitalization and medical care; and, be it further
- Resolved*, That our delegates be instructed to offer to the House of Delegates of the American Medical Association, at the annual session in Atlantic City, June 6-10, 1949, a resolution providing that the Congress of the United States be requested to enact into law a program embodying these principles.

Resolution on Establishment of Committee on General Practice

Dr. Paul A. Davis, Section on General Practice, presented the following resolutions, which were referred to the Reference Committee on Miscellaneous Business:

WHEREAS, At the meeting of the House of Delegates of the American Medical Association in Chicago in 1948 a Committee to Study Conditions of General Practice reported; and

WHEREAS, This report made certain definite recommendations for action by the American Medical Association, and also recommended that the committee be continued to carry on its work; and

WHEREAS, There has been no meeting of such committee called during the past year in spite of the fact that there are many problems in general practice to be considered; therefore be it

Resolved, That the House of Delegates specifically order that such committee be established by the incoming officers of the American Medical Association and that such meetings as may be necessary be called during the coming year to consider further the problems of general practice and to assure that the recommendations of the former committee are being carried out; and be it further

Resolved, That this committee report directly to the House of Delegates at the next interim session of that body.

Resolution on Establishment of Committee to Confer with Congress

Dr. James Z. Appel, Pennsylvania, presented the following resolution, which was referred to the Reference Committee on Legislation and Public Relations:

Resolved, That the Board of Trustees of the American Medical Association be empowered to create a committee, the membership of which is to be composed of representatives of the Board of Trustees of the American Medical Association, representatives of its House of Delegates and other leaders in the medical profession, to call a conference with members of the Congress, with a view to developing legislation that would meet the objectives of the program of the American Medical Association in its efforts to solve the problem of making medical care accessible to the American people.

Resolution on Hospital and Medical Care of Veterans for Non-Service-Connected Disabilities

Dr. R. B. Wood, Tennessee, presented the following resolution, which was referred to the Reference Committee on Legislation and Public Relations:

WHEREAS, The Seventy-Third Congress enacted a law (Section 706, Chapter 12, Title 38, found in U. S. Code 1940 edition) which reads: "Provided, That any veteran of any war who was not dishonorably discharged, suffering from disability, disease or defect, who is in need of hospitalization or domiciliary care and is unable to defray the necessary expenses therefor (including transportation to and from the Veterans' Administration facility) shall be furnished necessary hospitalization or domiciliary care (including transportation) in any Veterans' Administra-

tion facility, within the limitations existing in such facilities, irrespective of whether the disability, disease or defect was due to service. The statement under oath of the applicant on such form as may be prescribed by the Administrator of Veterans' Affairs shall be accepted as sufficient evidence of inability to defray necessary expenses"; and

WHEREAS, This legislation has led to the appropriation of large sums of money (over \$1,000,000,000) by the Congress to finance the expansion of existing Veterans' hospitals and the construction of new ones in order to meet the needs of veterans entitled to these benefits; and

WHEREAS, A large majority of the admissions to existing Veterans' Hospitals are veterans with disabilities which are not service connected; and

WHEREAS, These benefits are not equally accessible to all veterans eligible to them because Veterans' hospitals are not equally accessible to them; and

WHEREAS, The Congress of the United States enacted the Hospital Survey and Construction Act (The Hill-Burton Bill) in 1946 for the purpose of (1) conducting a study of the needs of the civilian population of the nation with respect to hospitals, and (2) to extend federal aid in the construction of needed civilian hospitals wherever needed in cooperation with civilian agencies and local governments; and

WHEREAS, The studies that have been conducted show that the nation should be divided into approximately 2,300 hospital service areas in each of which a hospital should be located if one does not exist; and

WHEREAS, Veterans become civilians when they are discharged from military service and are distributed throughout these hospital service areas in approximately the same proportion as other civilian citizens, and are counted in determining the hospital needs of a hospital service area; and

WHEREAS, It would be necessary for a Veterans' Hospital to be located in each of the several hospital service areas for these service benefits to be as accessible to veterans as they would be if administered in civilian hospitals; and

WHEREAS, These two federal hospital programs—one by the Veterans' Administration and the other by the Administrator of the Hospital Survey and Construction Act—are in conflict with each other at many points. There are conflicts in basic policies. One seeks to establish large hospitals in large centers, the other seeks to establish hospitals in hospital service areas to make them accessible to the people. There is conflict between the two systems for trained personnel. There is competition for patronage and funds. These conflicts result in the overlapping of services and in many forms of waste; and

WHEREAS, If the Veterans' Administration should construct and operate a sufficient number of veterans' hospitals to make hospital service benefits available to all veterans entitled to them under existing laws, it would create a federal hospital system of such proportions as to destroy our civilian system of hospitals; and

WHEREAS, It is the desire and purpose of this House of Delegates not to destroy or impair any benefit to which any veteran is entitled under existing laws, but rather to change the form of these benefits in such a way as to make them more readily available to veterans who are eligible to them and to bring their administration into harmony with our civilian system of medical and hospital care and financing; therefore be it

Resolved, By the House of Delegates of the American Medical Association, that we petition the Congress of the United States to enact legislation which would have the following effects:

1. Repeal Section 706, Chapter 12, Title 38, of the World War Veterans' Act and substitute therefor a new law with the following provisions: (a) that the administrator of Veterans' Affairs be authorized and directed to issue to each veteran eligible to receive such benefits, a medical and hospital service contract with a benefit provision in an amount sufficient to cover the costs of (1) necessary hospitalization in a civilian hospital that is approved for service to veterans by the Veterans' Administration and (2) necessary medical and surgical services rendered in such hospitals, on the basis of the fee schedule that applies to veterans with service-connected disabilities; or that the Administrator of Veterans' Affairs be authorized to purchase such a contract from corporations engaged in the sale and administration of such contracts if in his judgment it is feasible to do so; (b) that such contracts cover all diseases and disabilities which require hospitalization except the following: (1) disabilities covered by compensation laws; (2) service-connected disabilities; (3) chronic illness (extending over ninety days); (4) tuberculosis, and (5) mental illness; (c) that veterans with disabilities in the categories mentioned in (b) excepting those covered by compensation laws, be eligible for admission to Veterans' hospitals, and (d) veterans with disabilities which are in dispute as to whether or not they are service connected, be eligible for admission to Veterans' hospitals for study, treatment and adjudication and that the disability then be classified for these benefits according to such judgment, (e) that the eligibility of a veteran to receive the contract mentioned above be determined on the basis of his or her net income and that the net income be determined by the same methods used in determining his or her liability for the payment of federal income tax; (f) that the veteran be required to file an application for the contract on a form prescribed by the Administrator of Veterans' Affairs, in which the veteran states under oath, the pertinent facts concerning his net income and dependents; and be it further

Resolved, That the Speaker of the House is authorized and directed to appoint a Committee on Veterans' Affairs of not less than seven Fellows of the Association whose duty it will be to use their best efforts to bring about the actions above set out.

Resolutions on the Confidential Nature of Birth Records

Dr. L. D. Bristol, Section on Preventive and Industrial Medicine and Public Health, presented the following resolutions, which were referred to the Reference Committee on Executive Session for report as to their nature and later referred to the Reference Committee on Legislation and Public Relations:

WHEREAS, Physicians attending at births are required by the respective state laws to complete and file a certificate of birth and have an interest

in seeing that the confidential nature of the birth certificate is maintained and that none of the data contained therein are used to the detriment or embarrassment of the child and family concerned; therefore be it

Resolved, That the American Medical Association commends the efforts of the American Association of Registration Executives, the Council on Vital Records and Statistics, the Children's Bureau and the National Office of Vital Statistics of the Federal Security Agency to formulate a policy maintaining the confidential nature of birth records which was published in January 1949 under the title "The Confidential Nature of Birth Records"; and be it further

Resolved, That the American Medical Association urge state legislatures and registration officials to study carefully the recommendations made in this publication and wherever possible to put them into effect by enactment into law or by administrative regulation. It especially urges that the right of inspection of birth records be restricted to the registrant, if of legal age, his parents, guardian or their legal representative, health and official agencies on the approval of the official custodian of vital records or on court order.

Resolution on Inspection of Hospitals

Dr. William R. Brooksher, Arkansas, presented the following resolution, which was referred to the Reference Committee on Medical Education:

WHEREAS, The American Medical Association is the only organization representative of the entire medical profession of the United States; and

WHEREAS, The medical profession recognizes the need for investigation and accrediting of hospitals which meet high standards of medical care; and

WHEREAS, The American Medical Association now approves hospitals for intern and residency training; and

WHEREAS, Such approvals might well be extended to hospitals generally, thus providing for one agency charged with the duty of making inspections and granting approval to all institutions meeting proper standards; now, therefore, be it

Resolved, That the Arkansas Medical Society recommend to the House of Delegates of the American Medical Association that it request the Council on Medical Education and Hospitals of the American Medical Association to investigate the feasibility of extending its inspection to all hospitals within the United States, granting approval to those which meet proper standards.

Resolution on Need of Physicians for Armed Forces

Dr. C. B. Conklin, District of Columbia, presented the following resolution, which was referred to the Reference Committee on Emergency Medical Service:

WHEREAS, The armed forces are urgently in need of physicians and voluntary enrolment has so far failed to meet this need; therefore be it

Resolved, That whenever essential requirements of the armed forces cannot be met in any other way, the Council on National Emergency Medical Service be authorized to develop a method of equitable selection from among V-12 and A.S.T.P. trained physicians and those deferred from military service to complete their medical education; that the method proposed be submitted to the House of Delegates for its approval, except in an emergency when the Board of Trustees shall act on the proposal, and, further, that the mechanism approved be submitted to the federal government for its consideration.

Resolution on Free Choice of Physicians for Federal Employees

Dr. J. Stanley Kenney, New York, presented the following resolution, which was referred to the Reference Committee on Legislation and Public Relations:

WHEREAS, It is the custom of the United States Employees Compensation Commission to appoint designated surgeons in all localities where a U. S. Marine Hospital or Veterans Facility is not available for the care and treatment of injured employees; and

WHEREAS, All injured employees are directed to one of these designated surgeons when injured in line of duty; and

WHEREAS, Certain other branches of the federal government, namely, the Veterans Facilities, have recognized the free choice of physician plan in home treatment of veterans; and

WHEREAS, All injured employees in New York State enjoy this privilege under the New York State Compensation Law; now therefore be it

Resolved, That the Board of Trustees of the American Medical Association is hereby requested to seek amendment to the Federal Law on Workmen's Compensation to the effect that all covered federal employees be granted free choice of physician for injuries sustained in line of duty.

Resolution on Medical Care and Health Plans

Dr. Warde B. Allan, Maryland, presented the following resolution, which was referred to the Reference Committee on Insurance Plans and Medical Service:

WHEREAS, The Government of the United States is urging numerous health measures without consultation with the leading body of American medicine; and

WHEREAS, The American Medical Association is conducting an extensive educational program; therefore be it

Resolved, That the American Medical Association immediately initiate under its own auspices a conference of representatives of all groups, medical and lay, with the purpose of forming a joint planning committee for the preparation of a truly comprehensive plan of curative and preventive medicine for the nation.

Resolution on Membership in American Medical Association

Dr. Stephen R. Monteith, New York, presented by title the following resolution, which was referred to the Reference Committee on Executive Session for determination as to whether or not it should be considered by that committee or referred to another reference committee:

Resolved, By the Medical Society of the State of New York that the House of Delegates of the American Medical Association be memorialized to appoint a committee to study the matter of membership in the American Medical Association, where such membership is banned for other than professional or ethical reasons, and to report back to this House.

Resolutions on Amendment to Constitution of United States

Dr. E. Vincent Askey, California, presented the following resolutions which were referred to the Reference Committee on Legislation and Public Relations:

WHEREAS, America is the product of a people's faith in constitutional law designed to protect the property and enterprises of each citizen from political competition or confiscation; and

WHEREAS, Attacks on this principle have produced many governmental agencies which are now in active conflict with the individual enterprises of the American people; and

WHEREAS, Many proposals now before Congress, will, if adopted by a mere majority, further jeopardize the rights of the American people to their individual property and enterprises; and

WHEREAS, The intent and purpose of the Tenth Amendment to the Constitution was to prohibit governmental exercise of powers not specifically delegated to it; and

WHEREAS, The intention of the Fifth Article of the Constitution was to provide a means for the proper delegation of powers to government through a procedure which requires a two-thirds majority of both Houses of Congress and the approval of three-quarters of the states; therefore be it

Resolved, That we, the members of the House of Delegates of the American Medical Association, in regular session assembled this sixth day of June, 1949, exercise our constitutional power to petition the Congress to preserve the intent and purposes of the Constitution by initiating an amendment to the Constitution, for submission to the people of the various states, to provide that: The government of the United States shall not engage in any business, professional, commercial or industrial enterprise in competition with its citizens except as specified in the Constitution; and be it further

Resolved, That a copy of this resolution be spread on the minutes of this meeting, and that copies of it be sent to (1) the President of the United States, (2) members of the United States Senate, (3) members of the House of Representatives, (4) the governors of all states, and (5) two copies to the American Progress Foundation, 569 I. W. Hellman Building, 124 West 4th St., Los Angeles 13, for the record of American vigilance being compiled.

Resolutions on Medical Specialty Boards

Dr. Edward P. Flood, New York, presented the following resolutions, which were referred to the Reference Committee on Medical Education:

WHEREAS, The specialty boards in the various fields of medicine serve the purpose of setting criteria of scholarship, training and ethics; and

WHEREAS, Certification by a specialty board confers on a physician recognition of proficiency which is highly regarded by his colleagues and the layman; and

WHEREAS, To deny to a physician who meets the basic training, postgraduate and ethical requirements for entrance to the examination necessary for certification in a specialty withholds from the candidate the recognition in such specialty of his colleagues and the patients he serves thereby by inference branding him as inferior to those who are certified; and

WHEREAS, Since a specialty board certification is an extremely important factor in obtaining admittance to the staffs of most recognized hospitals, the denial of certification to a physician who meets the basic training, postgraduate and ethical requirements of the specialty board accordingly unduly restrains him in the full practice of his profession; now, therefore, be it

Resolved, That the House of Delegates of the American Medical Association recommends that all physicians who are duly licensed to practice medicine in these United States, and who meet the basic training, postgraduate and ethical requirements of a specialty board be admitted to the examination given by such board; and be it further

Resolved, That the Secretary of the American Medical Association is directed to send copies of this resolution to the president of each specialty board and the chairman of the Advisory Board for Medical Specialties.

Resolutions on Suggested Educational Device

Dr. Ralph T. B. Todd, New York, presented the following resolutions, which were referred to the Reference Committee on Miscellaneous Business:

WHEREAS, The poster reproduction of Sir Luke Fildes' painting called "The Doctor," with appropriate information beneath the picture, seems to be an effective means of bringing pertinent information to the public; and

WHEREAS, The effectiveness of this device will depend largely on the extent of distribution obtained; therefore be it

Resolved, That the Medical Society of the State of New York recommend to the American Medical Association and the National Education Campaign headquarters that a stamp type reproduction of this picture be made in color with a simple subtitle such as "Keep Politics Out of This Picture, Oppose Compulsory Health Insurance!"—this stamp to be printed in such volume that quantities could be sent to every physician in the United States to be affixed to all bills and other mail from his office and large quantities also be sent to state and county societies that maintain administrative offices to be affixed to all mail sent to the general public; and be it further

Resolved, That at least two copies of this poster be sent to all pharmacies in the United States for display together with quantities of appropriate literature; and be it further

Resolved, That suitable cuts or mats be prepared in various sizes to facilitate the reproduction of this poster on the cover of medical journals and other publications, such as industrial house organs, women's club magazines and the like; and be it further

Resolved, That arrangements be made, if possible, to have it run at frequent intervals as a free or paid slide on the various television networks and in motion picture theaters.

Resolution on Supporting the American Medical Association

Dr. Leo G. Christian, Michigan, presented the following resolution, which was referred to the Reference Committee on Miscellaneous Business:

WHEREAS, The Michigan State Medical Society with fifty-five component county societies, with a total membership of 4,960, has enthusiastically endorsed and supported the public relations program of the American Medical Association; and

WHEREAS, Every county or district society of the Michigan State Medical Society has endorsed the program and is paying the twenty-five dollar assessment; and

WHEREAS, The Michigan State Medical Society has developed a public relations program second to none, with its members enthusiastically and actively supporting it; and

WHEREAS, Certain county societies in some major states have voted to repudiate the program of the American Medical Association by refusing to pay the assessment; therefore be it

Resolved, That the House of Delegates of the American Medical Association urge the Board of Trustees, its individual members, presidents of state societies or associations, presidents and other officers of such county societies and members of the House of Delegates to use their influence on these county societies whereby a united front can be used against the foes of a free democratic government, who not only would socialize medicine, but would foist on our citizens the evils of a government by bureaucracy.

On motion of Dr. Charles H. Phifer, Illinois, seconded by Dr. George W. Kosmak, New York, and carried, the House recessed at 12:25 p. m. to meet at 2 p. m.

Monday Afternoon, June 6

The House reconvened at 2:05 p.m. and was called to order by the Speaker, Dr. F. F. Borzell.

NEW BUSINESS—(Continued)

Resolution on Affiliation of Medical Students with American Medical Association

Dr. H. B. Mulholland, Virginia, presented the following resolution, which was referred to the Reference Committee on Miscellaneous Business:

WHEREAS, The medical students of America are the source of our future doctors and

WHEREAS, They desire to make contact with the American Medical Association in an organized way; and

WHEREAS, It is desirable that they be fully informed as to the ideals, purposes and practices of organized medicine; and

WHEREAS, The medical students of the University of Virginia have effected an organization and have expressed a desire to affiliate with the American Medical Association; therefore be it

Resolved, That the Judicial Council be instructed to receive and consider communications from the medical students of the University of Virginia and the medical students of any other school and to recommend to the House of Delegates methods and procedures for providing an effective affiliation of medical students with the American Medical Association.

Resolution on Recruitment of Physicians Educated in Part or in Whole at Government Expense

Dr. David B. Allman, New Jersey, presented the following resolution, which was referred to the Reference Committee on Emergency Medical Service:

WHEREAS, Many physicians received their premedical and/or their medical education, in whole or in part, at the expense of the federal government, they being deferred from active service in the armed forces during this period; and

WHEREAS, Many of the physicians so educated have not fulfilled their moral obligation to the federal government to serve a definite period as medical officers in the armed services; and

WHEREAS, There is presently a grave deficiency in the number of medical officers now serving in the armed forces; therefore be it

Resolved, That the Secretary of Defense of the United States be urged to take appropriate measures to assure that all the above designated physicians be made available for service in the armed forces.

Resolution on Medical Personnel Requirements of the Armed Forces

Dr. David B. Allman, New Jersey, presented the following resolution, which was referred to the Reference Committee on Emergency Medical Service:

WHEREAS, The American Medical Association has been informed that there is apparently a serious deficit of medical officers to meet the anticipated needs of the armed forces, and that there appears to be no prospect, under present methods, of overcoming this apparent deficit; and

WHEREAS, The American Medical Association recognizes its responsibility to aid the government in obtaining a sufficient complement of young physicians and qualified specialists for the armed forces; therefore be it

Resolved, That the American Medical Association suggest that the National Security Resources Board be given adequate statutory authority to meet the requirements of the armed forces for medical personnel under a plan embodying the following principles:

1. Deferment of recent graduates until completion of an internship not to exceed two years;

2. Deferment of medical students to complete their medical education and an internship, the latter not to exceed two years;

3. Obligation of the physicians constituting both the above groups, on completion of internship, to accept a term of service in the armed forces equivalent to that served by draftees, regardless of their attained age at completion of internship;

4. Acquisition of the needed complement of specialists and other especially qualified physicians on a contract basis without regard to age limitations and on a salary sufficient to attract such personnel, and

5. Institution of a survey of the personnel of medical teaching institutions to the end that each institution release one or more of its staff for a period of at least one year for service with the armed forces.

Resolutions on Blue Shield Coverage of American Medical Association Employees

Dr. W. H. Huron, Michigan, presented the following resolutions, which were referred to the Reference Committee on Insurance Plans and Medical Service:

WHEREAS, The House of Delegates of the American Medical Association in regular session at the annual session in Chicago, June 23, 1948, adopted the report of the Reference Committee on Medical Service and Prepayment Insurance reading in part as follows, Part 1, paragraph 4:

"Your committee recommends, because of the above stated opinions, that at the expiration of the present contract of hospital and medical health coverage, the American Medical Association through its proper officials, make every sincere effort to procure this coverage for its employees through the Blue Cross-Blue Shield local organization. The committee understands that this coverage is and will be available"; and

WHEREAS, The officials of the American Medical Association have ignored this directive of the House of Delegates of the American Medical Association, and have secured the medical coverage from other than a Blue Shield Plan, and there is Blue Shield available locally in Chicago; therefore be it

Resolved, That the officers of the American Medical Association be hereby directed to conform at once with the instructions heretofore given them, and secure coverage for the employees under Blue Shield service immediately; and be it further

Resolved, That the House of Delegates recognize the immense progress made by doctors of medicine in establishing the Blue Shield plans, demonstrating their feasibility, and offering a logical proof that compulsory national health insurance is not necessary.

Resolutions on Associated Medical Care Plans

Dr. T. K. Gruber, Michigan, presented the following resolutions, which were referred to the Reference Committee on Insurance Plans and Medical Service:

WHEREAS, The House of Delegates in session in June 1948 placed certain restrictions on the proposed action by the Blue Shield Commission, refusing permission to form an insurance agency for national sale until submitted and approved by it; and

WHEREAS, The Council on Medical Service and the Board of Trustees of the American Medical Association on April 15, 1949, published the following: (1) The formation of a national coordinating agency representing all qualified and voluntary prepayment plans in accordance with the proposal made to the Board of Trustees by the Council on Medical Service, Feb. 10, 1949; (2) That there shall be no official connection between the American Medical Association and the Associated Medical Care Plans. However, the American Medical Association will continue to approve or disapprove all voluntary medical care plans; (3) the recognition of Associated Medical Care Plans as a trade organization of member plans and Blue Cross as occupying a similar position for voluntary prepayment hospital care plans; (4) the recognition of the responsibility of the American Medical Association to (a) promote the principle of voluntary insurance by educating the people as to their need for such coverage and by obtaining full cooperation from state and county medical organizations in the local field; (b) inform the American people of the availability of approved plans that propose to supply on a prepayment basis security against the economic hazards of serious illness; and

WHEREAS, By this action the officials of the American Medical Association are divorcing American medicine from the most outstanding and progressive move in American medicine for the past generation; that is,

making a provision so that the public may budget their health service through voluntary, nonprofit, prepayment plans; and

WHEREAS, These plans are a development of the medical profession; now, therefore, be it

Resolved, That the House of Delegates in convention assembled reverse the action of the Council on Medical Service and the Board of Trustees and reassert its endorsement of the program of a nonprofit, voluntary, prepayment medical service as opposed to the compulsory program being sponsored by government; and be it further

Resolved, That there be appointed (elected) six representatives of the American Medical Association to the Blue Shield Commission.

Resolution on Training of Interns

Dr. J. Wallace Hurff, New Jersey, presented the following resolution, which was referred to the Reference Committee on Medical Education:

WHEREAS, Most hospitals are unable to procure an adequate complement of interns; and

WHEREAS, Present trends in medical education are more concerned with the training of specialists than with the training of the general practitioner; therefore be it

Resolved, That the American Medical Association appoint a committee consisting of five members of the House of Delegates, two of whom shall be general practitioners, to study the whole internship problem, and especially to study the advisability of recommending the inauguration of a two year rotating internship training program, covering the main branches of medicine, surgery, obstetrics and gynecology with standards of teaching acceptable to the American Medical Association and the Association of American Medical Colleges as a prerequisite for licensure in the various states.

Resolution on Social Security

Dr. L. A. Alesen, California, presented the following resolution, which was referred to the Reference Committee on Legislation and Public Relations:

WHEREAS, Extension of "social security" to the self employed of the United States is under consideration by the 81st Congress; and

WHEREAS, Provision for the exigencies of old age is an individual matter which should be left to the decision of self employed individuals on a strictly voluntary basis; and

WHEREAS, So-called "social security" is in fact a compulsory socialistic tax which has not provided satisfactory insurance protection for individuals where it has been tried but, instead, has served as the entering wedge for establishment of a socialistic form of governmental control over the lives and fortunes of the people; and

WHEREAS, The private insurance companies of the country offer a great variety of programs which are available to individuals according to their individual requirements and desires; now, therefore, be it

Resolved, That the House of Delegates of the American Medical Association disapproves of the extension of so-called "social security" to physicians and surgeons and that the Secretary be instructed to forward copies of this resolution to the appropriate members of the Senate and the House of Representatives of the United States.

Proposed Amendment to By-Laws

Dr. L. A. Alesen, California, presented the following proposed amendment to the By-Laws, Division One, Chapter II, which was referred to the Reference Committee on Amendments to Constitution and By-Laws:

Amend Division One, Chapter II, of the By-Laws of the American Medical Association by striking out the words "one year" in line 3 of page 10 of the printed copy of the By-Laws and inserting therefor the words "eight months."

Resolution on General Practice Sections in Hospitals

Dr. L. A. Alesen, California, presented the following resolution, which was referred to the Reference Committee on Miscellaneous Business:

WHEREAS, The rapid and constant increase of medical knowledge in the past twenty years has necessarily resulted in greater specialization with its greater demand on hospital facilities leaving very little room for the general practitioner; and

WHEREAS, This trend is destroying the effectiveness of the general practitioner in treating the public and is undermining the prestige he has always had; and

WHEREAS, The high cost of medical care is in a large part due to this inability of the general practitioner to hospitalize and treat his patient, still the major part of the public, and this contributes greatly to the demand for socialized medicine; and

WHEREAS, These inequities have received official recognition as evidenced by the resolution passed unanimously by the House of Delegates of the American Medical Association on Dec. 10, 1946, encouraging hospitals to set up general practitioner services; and

WHEREAS, This resolution has either been ignored or ineffectually carried out by many large hospitals throughout the country; therefore be it

Resolved, That the House of Delegates of the American Medical Association reaffirm its action of Dec. 10, 1946, concerning general practice sections making this action mandatory for such hospitals, with continued approval contingent on such action, and that a copy of this resolution be sent to the American College of Surgeons with the request that that body voice approval of the resolution in its Manual of Hospital Regulations.

Proposed Amendment to Article 11 of Constitution

Dr. L. A. Alesen, California, presented the following proposed amendment to the Constitution, Article 11, which was referred to the Reference Committee on Amendments to the Constitution and By-Laws:

Amend Article 11 of the Constitution of the American Medical Association to read as follows:

Article 11—Funds: Dues and Assessments

Funds may be raised by an equal annual levy of dues or by an equal special assessment, or both, levied or assessed on each of the active members, on recommendation by the Board of Trustees and after approval by the House of Delegates. Funds also may be raised from the publications of the Association and in any other manner approved by the Board of Trustees to defray the expenses of the Association, to carry on its publications, to encourage scientific investigations and for any other purpose approved by the Board of Trustees. Failure of an active member to pay annual dues or a special assessment within the time required by the resolution levying or assessing such dues or assessments, shall subject the member to such discipline or other action as the By-Laws shall prescribe.

Resolution on Hospital Standardization

Dr. John J. Curley, Massachusetts, presented the following resolution, which was referred to the Reference Committee on Medical Education:

WHEREAS, The American College of Surgeons has been the sole agency of the medical profession in the standardization and improvement of hospitals for the past several years and has been outstanding in improving the physical plants and the practice of surgery in these hospitals and in the United States by setting the proper standards of surgery; and

WHEREAS, This House of Delegates voted in June 1948 to approve the Report of the Committee to Study Conditions of General Practice at its annual session; and

WHEREAS, In this report there was a recommendation that the American Medical Association be the evaluating agent in the following fields: (1) medical education; (2) hospital standardization; (3) intern training, and (4) resident training, and that no other medical society or organization as such should be represented in this work; therefore be it

Resolved, That this House of Delegates rescind the action taken in regards to the standardization of hospitals; that this organization go on record as praising the work done by the American College of Surgeons in the standardization of hospitals; that the Secretary of the American Medical Association be instructed to inform the Secretary of the American College of Surgeons of this action; that furthermore the American Medical Association give its unqualified approval to the hospital standardization work of the American College of Surgeons, and that this Association aid the American College of Surgeons in any way possible in its furtherance of its aim in the perfection of surgical work in hospitals and its standardization of hospitals.

Resolution on Displaced Physicians

Dr. D. M. Vickers, New York, presented the following resolution, which was referred to the Reference Committee on Miscellaneous Business:

WHEREAS, There is at present a large group of physicians who, with their countrymen, have been rendered homeless and are now living as displaced persons in care of the International Refugee Organization in Western Germany and elsewhere; therefore be it

Resolved, That a committee be appointed by the Board of Trustees of the American Medical Association to study the problem of displaced physicians in cooperation with the Displaced Persons Commission, Rochambeau Apartments, 815 Connecticut Avenue, Washington 25, D. C., the various state authorities and the International Refugee Organization of the United States, Mr. W. Hallen Tuck, Director General, Palais Wilson, rue de Paris, Geneva, Switzerland.

Resolutions on Associated Medical Care Plans and National Enrolment Agency

Dr. L. Howard Schriver, Ohio, presented the following resolutions, which were referred to the Reference Committee on Insurance Plans and Medical Service:

WHEREAS, The American Medical Association has vigorously supported all bona fide forms of voluntary health insurance, and, in the words of the Council on Medical Service, has recognized its responsibility to "promote the principle of voluntary insurance by educating the people as to their need for such coverage and by obtaining full cooperation from state and county medical organizations in the local field"; and

WHEREAS, Associated Medical Care Plans, as the federated agency of state and local medically sponsored prepayment plans (Blue Shield Plans), has diligently endeavored to further the progress and development of voluntary health insurance as directed by the Board of Trustees and this House; now, therefore, be it

Resolved, That the continued functioning of Associated Medical Care Plans as an independent federated agency representing state and local Blue Shield Plans is supported by this House of Delegates; and be it further

Resolved, That the several state and local Blue Shield Plans continue the development of an enrolment agency to act in their interest in the field of so-called "national accounts" using their best judgment (and that of sponsoring societies) with respect to the methods, means, procedure and form of organization by which the problems related to national accounts may be solved.

Resolutions on Diabetes Detection Drive

Dr. Scott L. Smith, New York, presented the following resolutions, which were referred to the Reference Committee on Legislation and Public Relations:

WHEREAS, It is within the province of the American Medical Association on a national, state and county level to direct public health education and disease detection drives for the public benefit; and

WHEREAS, Lay directed organizations have taken the leadership in these campaigns and public fund raising has become a prominent feature of these projects; and

WHEREAS, The federal government through the United States Public Health Service has already taken steps in regard to the problem of detection and education in diabetes; and

WHEREAS, Diabetes being neither contagious nor epidemic is not truly a government problem; and

WHEREAS, The American Diabetes Association, a branch of the profession of medicine, has begun a nationwide detection drive to be conducted annually and directed solely by members of the medical profession without fund raising appeals; and

WHEREAS, The American Diabetes Association has and will carry its detection drive to the people only through the American Medical Association, the state and county societies; therefore be it

Resolved, That the House of Delegates of the American Medical Association hereby records its approval of the American Diabetes Association's Detection Drive; and be it further

Resolved, That the Board of Trustees of the American Medical Association is requested to implement cooperation between the American Medical Association and the American Diabetes Association in furtherance of the annual Diabetes Detection Drive.

Resolutions on Single Membership Classification

Dr. Carl A. Lincke, Ohio, presented the following resolutions, which were referred to the Reference Committee on Miscellaneous Business:

WHEREAS, The existence of two classes of members within the American Medical Association, namely, "Members" and "Fellows," has led to much confusion among the membership; and

WHEREAS, It would seem practical and advisable to have all eligible physicians of the country united under one membership classification, with equal privileges and benefits; therefore be it

Resolved, That the House of Delegates of the American Medical Association favors a single membership classification for the American Medical Association, the annual capita dues for which shall be fixed by the Board of Trustees; and be it further

Resolved, That the Board of Trustees shall prepare the proper amendments to the Constitution and By-Laws of the American Medical Association to carry out the foregoing policy, which amendments shall be submitted to the House of Delegates for action at the earliest appropriate time.

Resolution on General Practitioner's Award

Dr. Joseph H. Howard, Connecticut, presented the following resolution, which was referred to the Reference Committee on Miscellaneous Business:

WHEREAS, There are no proper and adequate criteria set forth for the qualifications for the Outstanding General Practitioner; and

WHEREAS, No practical method of choice exists; and

WHEREAS, Any choice would of necessity be arbitrary and in most instances, by inference, reflect unfavorably on those not chosen; and

WHEREAS, It has been voted to disapprove the annual selection of an Outstanding General Practitioner within Connecticut or throughout the country; therefore be it

Resolved, That the delegates from the Connecticut State Medical Society to the House of Delegates of the American Medical Association be instructed to introduce this resolution before the House of Delegates of the American Medical Association at its annual meeting in 1949 and to oppose the continuation of the annual General Practitioner's Award by the Association.

Resolution on Child Health Programs on the State and Local Level

Dr. William Weston, Section on Pediatrics, presented by title the following resolution, which was referred to the Reference Committee on Executive Session:

WHEREAS, The Academy of Pediatrics has a particular interest in the field of child health; and

WHEREAS, It is recognized that certain deficiencies exist in this field; and

WHEREAS, It is desirable that definite programs be set up on the state and local level to correct these deficiencies where they exist; and

WHEREAS, The Academy of Pediatrics has gone on record as opposed to Senate Bill 5 or any similar bill proposing to establish a system of socialized medicine; therefore be it

Resolved, That the American Medical Association favor the development of sound child health programs on the state and local level by pediatric groups working in cooperation with the several state medical associations and local component county societies and in conformity with the Principles of Medical Ethics as laid down by the American Medical Association.

Report of Coordinating Committee

Dr. E. L. Henderson, Chairman, reported as follows, which report together with the addresses of Miss Leone Baxter and Mr. Clem Whitaker, was referred to the Reference Committee on Legislation and Public Relations:

Mr. Speaker and Members of the House of Delegates: As Chairman of the Coordinating Committee, I am supposed to make a report of that committee. As yet, I have been unable to get the formal report.

However, at this time, I felt that something much better than a report from the Coordinating Committee would be a talk from Whitaker and Baxter.

I wish to tell you, however, that following the meeting of the House of Delegates in St. Louis, we were authorized to select someone to head this educational campaign. We investigated numerous public relations firms over the country. As a result of that investigation, we finally called Whitaker and Baxter and asked them to meet the Executive Committee of the Coordinating Committee in Chicago on December 8, at which time they were employed.

You must realize that a firm of that kind must have some time to take care of accumulated business in their office, so that they were unable to come to Chicago until January 8, and they opened an office on January 10. That office had to be entirely rebuilt. I was in the office numerous times and had to walk over rugs halfway put down and everything of the kind.

On February 12, we had a formal meeting of representatives from the various states, at which time we opened the campaign. We had a great many complaints for the first two or three months. The campaign has been under way for only four months. It took time to get the office opened up and get ready. The doctors over the country were very restless. They felt that we were not doing anything, that we were too slow. But during the past six weeks or two months, I have had nothing but compliments on the Committee and on the public relations firm that we have employed.

I have been in almost daily conference with either Whitaker or Baxter by telephone or in person in Chicago, and I have never known anyone that was more interested in the cause that they were fighting for than Mr. Whitaker and Miss Baxter. They have devoted not six or eight or twelve hours a day to this work—I have been in Chicago on numerous occasions when they worked sixteen and eighteen hours a day.

This has been a terrific job to get under way, and I feel that those of you who were restless at first and who felt that we were not getting under way as rapidly as we should, should feel differently about it at this time, and I hope that you do. I should like permission to introduce Miss Baxter and Mr. Whitaker and have them address the House.

On motion offered by many, seconded by many, and carried, the House unanimously granted permission to Dr. Henderson to introduce Miss Baxter and Mr. Whitaker.

ADDRESS OF MISS LEONE BAXTER

Dr. Henderson introduced Miss Baxter, who addressed the House as follows:

Mr. Speaker, Members of the House of Delegates: Sometimes when you have a patient who is very ill, when there is no treatment which will bring quick relief, and when surgery won't meet the problem, all of you, as doctors, know what it is to do a job the hard way if it's to be done at all.

You know what it is to rebuild a body that is spent and ravaged. You know how to keep that spark of life from fluttering out.

All of you as doctors probably know a great deal more about painstaking, tedious work than you know of miracle cures!

We think it is good that you have that preparation and also the great patience born of practicing medicine because as practitioners of the kind of medicine we practice, public relations medicine, Whitaker & Baxter, unfortunately, can't offer any miracle cure for compulsory health insurance. We wish we could. This job of curing it and ending the infection will have to be done the hard way, too.

I know that all of you have diagnosed this case very carefully, and if you have you know that this is an infection that can't

be ended simply by defeating the Compulsory Health Insurance bills in Congress.

The infection goes much deeper than that. Socialization, which has been sweeping the world, has made inroads in America. For years, there has been a relentless propaganda campaign in our country, as well as in other nations, to convince people that they must depend on Government for security if they want it at all, and that security is more precious than liberty.

In the case before us, outside of the question of the people's health, which, of course, is the paramount consideration of the medical profession, one of the greatest basic issues involved is, "Is it Socialism?"

One of the claims that our opponents seem most anxious to impress on the people is that compulsory health insurance is antiseptically pure as far as the germs of socialism are concerned.

Now, President Truman may not feel that his bills are an invitation to socialism; Mr. Ewing may not feel that it is inherently socialistic. Irrespective of what you or I may feel here today in that regard, I can tell you from the standpoint of looking out at the Nation from your National Campaign Office, the people of America are looking across the Atlantic and comparing Britain's government-controlled medical system with the plan proposed here, and they are approaching the conclusion that the plan in its very essence guarantees socialism.

On one of the first days of the Congressional hearings on the proposed legislation, Senator Pepper made a formal request of your own Dr. Lowell Goin, of California, to (and I quote) "... stop calling the advocates of compulsory health insurance advocates of socialism."

Well, frankly, on the basis of reason and facts, it seems to me more important that those advocates stop calling their proposal health insurance, for, under legitimate insurance, the insured is told the exact amount of his premiums and exactly what benefits are guaranteed, and, on that basis, certainly government-controlled medicine is no more insurance than a poll tax is insurance.

But even in America, as all of you know, such false creeds make some converts. However, the great majority of American people, we think, still prize liberty and incentive and opportunity above security, above the kind of security leveled off and apportioned by the government or anybody else. But the danger lies in the fact that the advocates of socialism seldom state the issue completely and honestly, and our freedoms are not curtailed all at once but a little at a time. That is why this issue has to be fought out before the people and not just in Congress. That is the reason we have all been occupied, almost everybody in this room, putting together your National Education Campaign for the American Medical System.

We have a constructive and a challenging job to do, and the medical profession, we believe, is very well equipped to do that job. We have to restore the economic and political health of the country. We have to renew faith in the sound precepts that we know will keep America healthy and strong, and, from the standpoint of the Nation's health, protect it from those who would sacrifice it to politics.

We have another very vital job to do, and this also calls for a nationwide campaign of education. We urgently need to present the principle of voluntary health insurance to the American people. We need to expand and improve the voluntary health insurance system. We need to encourage the American people to provide themselves with prepaid medical care and to give them the facts in order to prove to them that there is nothing government can do for them in this field that they can't do better for themselves, and at less cost.

There is nothing static about medicine. I don't need to tell you that. And there is nothing static about the American way of life. New problems require new solutions, and nobody knows that better than a doctor.

American medicine, by the tremendous progress it has made in defeating disease and extending life, also has helped to create some problems in medical economics. Many of the new life-saving medical procedures are costly, and so it is vital that we increase the availability of medical care through budget-

basis medicine. That is one of the most important phases of the campaign ahead of us now.

Mr. Whitaker, in his report to you, will discuss some of the progress that has been made, the scope of the work which lies ahead, and some of the mediums which we believe should be used in getting facts to the people.

I would like to take you on a very brief excursion, however, into the field of campaign literature, as we so elegantly and somewhat inaccurately call the pamphlets, posters and leaflets and campaign materials we prepare. This happens to be my specialty in the kind of medicine practiced by Whitaker and Baxter.

Your National Campaign Office has produced some twenty-five different types of informative material for different uses in the campaign, with which you doctors and laymen and members of allied professions, friends of medicine, and your wives, Auxiliary members, have done a very excellent job of distributing 25,000,000 copies throughout the country in the past four months.

There is one specific phase of that work that I want to discuss, and that is the pamphleteering drive. Pamphlets will play a major role in getting the story of American medicine to the people and in awakening them to the danger that confronts their health standards and their medical care.

At the National Headquarters, we have discovered that throughout the country there is a tremendous public interest in this question. That public interest is clearly reflected in the prominence which the newspapers and the great national magazines are giving the issue in their columns. The people honestly want the facts, and, surprisingly, and this is very good news to Mr. Whitaker, to me and the rest of our staff, and a very unusual thing on a public issue, people seem to want a lot of facts. They have a great many questions they really want to know the answers to. That is the reason that one of our newest pamphlets, "The Voluntary Way Is The American Way," is presented in question and answer format. We have endeavored in that pamphlet to answer the 50 questions which we have found people asking most frequently on this issue.

We have a smaller pamphlet for those who prefer to assimilate their facts in smaller doses, the one that carries the picture of the doctor on the front of it. I presume you all have seen it because it has been sent, I believe, to every doctor's office in the country by this time. This is being used as a mail-enclosure piece.

Both of these were particularly designed for doctors' reception rooms and for mass distribution through all the facilities available to us. It is not necessary that people generally read either of these in their entirety. They are good for all types of people—doctors and dentists and housewives and taxi drivers and farmers and professional people and students. The whole story is there, and for those who really want the answers, they will probably find them there, and I hope that we have made it difficult for even the busiest person to read a paragraph without wanting to know more about the subject.

We are happy to report that we have had a very splendid reaction to these two new pieces of literature, and shipments to the state and county medical societies now have exceeded 5,000,000 copies, that is, in the past five weeks. They were issued five weeks ago.

The big job now, of course, is to get this material into the hands of individual doctors, friends of medicine, who are aiding in the fight, and on into the hands of the general public.

It is critically important that this phase of the work not bog down. I mention this because there has been a slight disposition on the part of a few who have not thought it through, to assume that because we have got safely past our first Congressional crisis, we may now halt the treatment.

Frankly, our field has merely shifted since our opponents have declared their intentions of making compulsory health insurance a major issue in the coming Congressional contest. That we certainly shall welcome. It permits us to take our case personally to the people, out into the grass roots of America, and that is the doctor's field, that is the proper place to determine this public issue, an issue of more vital concern to the welfare not just of the medical profession but of the whole nation, than any of us ever has seen in his lifetime.

We know that all of you, when this convention is over, as you return to your homes, can be wonderfully helpful in seeing that your state and county societies follow through, help get those pamphlets into distribution. And the national campaign needs your help, too, and the prestige in your home states and communities in encouraging every member of the profession to display that colored poster, "The Doctor," with its caption, "Keep Politics Out of This Picture." As members of the House of Delegates of the American Medical Association, if you were to set a hundred per cent example, it would be tremendously valuable. More than 40,000 doctors already have ordered the poster, and that is a wonderful response and it is a heartening indication, too, that rank and file doctors all over America are determined to play a part in this campaign.

At the rate the orders are coming in now, it appears that that "Doctor" poster will be on display in more than 50,000 doctors' offices before the end of this month. You can be very sure that the impact of that showing will be felt in the halls of Congress and in the White House itself.

I don't mind telling you now that when we first discussed this poster and placed an order for its production, Mr. Whitaker and I set our objective at 50,000. We thought if the doctors achieved that goal it would be a real accomplishment, because we had been warned by some of our friends in medicine that the doctors are rather conservative people and probably wouldn't yield very kindly to displaying a political poster in their offices, but it appears we had underestimated the doctors. They are conservative but apparently their hearts are in this fight. They believe in the freedom of the practice of medicine, and they are willing to do battle to save it.

Now, we need to raise our sights. We need to give a demonstration throughout the nation at this time of the unanimity of the medical profession.

You know and we know that Britain wouldn't have socialized medicine today if British doctors, despite the economic and political pressure placed on them, had found it possible to stick together, to act together and to prove that they knew more about the building and maintaining of the health of Britishers than the politicians knew.

We need 100,000 doctors' offices displaying this poster, distributing campaign literature, and acting actually as their own branch campaign headquarters in their own area. We want to make this poster a symbol of enlistment, a measure of the doctor's devotion to the cause of the nation's health, and a notice to patients and to other members of his profession that each doctor has taken his stand for sound medical practice.

I know you all understand that we don't think that a poster, even a dramatic poster, will win this battle. It is only one phase of a very broad campaign, a very little thing, but it is of tremendous importance, and I will tell you why.

The critics of the American Medical Association charge that the doctors of America are divided, that they don't really believe in this fight, and we need to demonstrate publicly that individually the doctors of America do believe in this fight, that they are unalterably opposed to the socialization of their profession, and 100,000 doctors' offices displaying the "Doctor" poster will be the best possible answer to our critics, and I don't need to tell you the effect this will have on the millions of patients going through those doctors' offices.

The medical profession has a vitally important story to tell, and who in the world is to tell it so well or with more truth or with more sincerity than doctors themselves?

There is another very important factor. The painting of the doctor may be old fashioned in some respects. We have had a few critical letters from doctors asking why we didn't portray a modern practitioner in a streamlined office. But there is something in that picture which represents one of the most priceless possessions you men of medicine have in your whole fight against assembly line medicine. In that doctor's face there is compassion, there is personal concern for the welfare of his patient, there is personal loyalty to the patient as a human being, and that is not old fashioned; that is something very vital and very enduring. Most of your patients don't know too much about the prescriptions you give them probably. They may not even know much about your years of preparation or your scientific accomplishments. But they have faith in you.

They want you, not some other doctor. They know you are personally concerned in their welfare and whether they get well or whether they die, and that is something you have to give that no doctor assigned from a political list and allotted patients in a similar manner ever can give. That is what this poster says, and that is the truth, and America needs to be told that truth and needs to remember it.

We are going to win this campaign. We are going to win this crusade against the absorption of the medical profession by the government. We are going to win it if we proceed in the way we have begun, keeping our eyes on the big objectives, remembering that the final force that crumpled British medicine was simply inability to get together and stay together to oppose the forces that threatened the existence of their profession.

And when it is over and the threat is behind us in this country, we are all going to lift our heads a little more proudly because this we will know, this the world will know, and this history will know, that by giving the people better medical care at less ultimate cost than any government bureau can possibly provide under a compulsory system, by having the courage and the leadership to strike out against the tide of "State-ism" that offends the principles of the majority of Americans but which so many people apathetically accept as inevitable, and by proving that this so-called trend toward "State-ism" is no more inevitable than the people permit it to be—by these things, American doctors will have saved their own profession from engulfment; they will have saved other professions from the same fate. American doctors will have saved and preserved the American way of life.

ADDRESS OF MR. CLEM WHITAKER

Dr. Henderson then introduced Mr. Clem Whitaker, who spoke as follows:

Dr. Henderson, Mr. Speaker, Members of the House of Delegates: It is a very great responsibility to represent you in this critical hour, and it is a very great privilege, too. I want you to know that Miss Baxter and I recognize the deep obligation both to this House of Delegates and to American Medicine. I think we know, for the first time, how you feel when a patient's life hangs in the balance. This is a life and death struggle, and we would all be guilty of faulty diagnosis if we failed to identify it as such.

The next two or three years will determine, in all likelihood, whether the American medical system which has kept this country healthy and strong will live or die. This isn't just another skirmish in the fight against compulsory health insurance. This is the decisive battle that will determine the fate of American Medicine for generations to come, and if the decision once goes against medicine, there will be no turning back. There will only be a tightening of the lockstep you walk in. This isn't just a disagreement over procedures in providing the people with prepaid medical care. Freedom in medicine either for the doctor or the patient simply could not survive the stultifying political controls proposed in the Truman program, and the enactment of that system would be a devastating blow not only to the medical profession but to the health of the American people.

The question at issue is whether the reputable men of American Medicine or the political medicine men in Washington will control and direct the practice of medicine in this nation.

As I think we all recognize, there is a basic issue which goes even deeper. It isn't only sound medical practice which is at stake; it isn't only the physical welfare of America that is in jeopardy. Our freedom in everything we count important is at issue.

This fight that American Medicine is waging is a fundamental struggle of free men against government domination, and it is probably the most momentous issue which will be fought out before the American people in our lifetime.

The trends toward "State-ism" in America has become unmistakable. The concentration of power in Washington is frightening, and the constant reach for more power is unending. It is only a short step from the "Welfare State" as our Washington planners envision, to the "Total State," which taxes the wage earner into government enslavement, which stamps out incentive and soon crushes individual liberty.

The danger signals are clearly visible. Already the American people are being compelled to contribute from 25 to 30 per cent of their earnings to support our sprawling governmental bureaucracy, and the program of the "Welfare State," if it is enacted, eventually will take another 20 per cent of every worker's paycheck in this country. That is not my estimate; that is the official government estimate. That would mean every one of us would work every other day for government. Then, why not every day?

That is the pattern for the evolution of the "Welfare State" and of the "Socialist State" or the "Total State." Call it what you will, that is not the American way. That is an alien way, foreign to everything we believe in, and that is a pattern for human misery and degradation.

It was inevitable, of course, that finally there would come a crucial battle in the war between those who believe in the American way of life and those who covertly seek to impose government regimentation on us. This is that battle.

American Medicine has been singled out by the socializers for this supreme test of their power. If they can win on this front, if they can impose government domination on doctors and their patients, they will have won a decisive battle in the fight for complete socialization of this country. We don't have to guess at that or speculate about it. History has taught us that, the tragic history of every great nation which has adopted socialized medicine. In Russia and in Germany the spurious promise of free medicine, socialized medicine, was one of the lures used to lull people into nonresistance, while complete enslavement was accomplished.

Britain began with compulsory health insurance on a supposedly moderate scale back in 1911. Since then the cancer of socialization has spread to almost every part of the British economy. It has eaten up the Bank of England, the cable and wireless services, civil aviation, the transportation industry, the coal industry, the electric industry and, more recently, the gas industry, and now it is about to spread to the steel industry.

There were those in Britain, when compulsory health insurance was first proposed, who thought it was a harmless experiment. And some of their cousins live here in America. But today Britain is plunging headlong toward a regimented society that will blot out every vestige of liberty for the British people, unless the tide is turned back.

This truth we know—and this truth we must some way make all America know: When medicine is socialized, the beginning of the end is in sight. It is one of the final, irrevocable steps toward complete state socialism. And at the end of that road is loss of everything that means most to free men.

This, without doubt, is the greatest emergency any of you ever has confronted in all your years of practice. Not just one life hangs in the balance, but the life of a nation is in your hands—a nation that has become the last hope of all the liberty-loving people in the world.

In all reverence, I want to say: Thank God that this House of Delegates and the American Medical Association have accepted the challenge. Thank God for the courage, the sound convictions and the tireless energy of American doctors.

This isn't just a heavy obligation that has been laid upon you, and I am sure that you don't look at it that way. This is the greatest opportunity any of us ever will have to serve America, to champion our good way of life and to play a vital part in shaping the destiny of our country. The plague of socialization, with all its demoralizing consequences, has become epidemic throughout most of the world. It has impaired and crippled the productive capacity of great nations and stripped them of their political independence. It has undermined the character, the moral fiber and the individual initiative of untold millions who were once prideful, self-reliant, self-supporting people. It has made them serfs of their own governments, dependent on government for their very existence.

In many countries, it has killed hope and maimed freedom. Here, in America, let us stop that plague. American doctors are directing the fight to stop it, just as they would fight any other scourge which threatened the health and welfare of the American people.

This is the challenging and tremendous task we have undertaken to alert and awaken the American people to the danger which threatens them; to crystallize and mobilize public opinion, so that the people's mandate on this issue shall be unmistakable, and to rekindle faith in sound, fundamental American precepts which have made this country healthy and strong, in body and in spirit.

We are making splendid progress with that work, too, I am happy to report, even though our nationwide grass roots campaign has barely begun. All over America, the people are beginning to speak out against socialized medicine, against political compulsion and against government regimentation.

It wasn't just lack of time which caused some of the advocates of government medicine to announce recently that they would not press for the enactment of their program at this session of Congress. It was lack of votes, lack of public support for their program that brought this change in their time table. It was the storm of letters from the people back home, pouring into Congress and the White House, in aroused protest against this scheme of political medicine which slowed the march of the socializers.

We still have a Congress responsive to the voice of the people, in the best American tradition, and for this we should be eternally grateful. That is our last line of defense against regimentation and the scourge of socialization.

For this, too, we can be grateful: American medicine isn't fighting alone now. This is rapidly becoming a great public crusade and a fundamental fight for freedom. The American Farm Bureau Federation, the American Legion, the American Bar Association, the National Grange, the National Association of Small Business Men, the National Fraternal Congress, with its hundreds of lodges, and the great General Federation of Women's Clubs, with its 5,000,000 members—these are just a few of the powerful public organizations which have taken their stand beside American medicine in this battle.

In less than five months, nearly eight hundred organizations in America, representing people in virtually every walk of life, have come out strongly against compulsory health insurance, and have said, in emphatic language, "The voluntary way is the American way to meet the need for prepaid health care."

That is only a beginning. State and county medical societies all over America are at work, getting the facts before public groups in their respective states and communities. Thousands of doctors are at work, carrying American medicine's story to their patients and their friends, their community leaders, their civic groups, their lodges, churches, farm bureaus, chambers of commerce, labor unions, and their clubs and their patriotic organizations. Thousands of leaders in the many organizations that have become allies of medicine are at work, too, alerting their membership and arousing other organizations, because they have made this fight their fight, in the defense of our American way of life.

We have made a good start, but it is only a start. There are eight hundred organizations on record against socialized medicine. By the end of this month, we should have at least one thousand, and by the end of this year, we want five thousand other organizations standing beside medicine.

We can't be lulled into overconfidence by developments in Congress, or a change in tactics on the part of our opponents. We can't afford to relax our vigilance until every city, town and hamlet in this country has heard the truth, and until all the citizens of this great country, no matter where they live, know the real significance of the attempt that is being made to infringe on their lives and their personal freedom.

Tens of thousands of Americans already have heard the facts, and acted on them. The thousands of letters to members of Congress prove that. The tremendous demand for pamphlets and other educational material gives further corroboration.

Already, there is a noticeable shift in public sentiment. American medicine is gradually emerging from a defensive position and is reaching the people with its affirmative campaign.

But we are still far from our objective. We are still fighting against great odds. There are millions of Americans who haven't yet heard both sides of this case, who have heard only

the government's continuing din of misleading propaganda, and it is our job in the year ahead to see that every American has the facts.

We need have no fear of the people's verdict once they have the facts, once they know the costly price they would pay for government-controlled medicine—in exorbitant taxes, in inferior medical care, in invasion of their privacy and in loss of personal freedom.

We can safely rest our case with the American people, but first we must get the facts before the people. That, I know, is the heart and purpose of your program, because your plan of action was clearly outlined in the resolution adopted by this House of Delegates on Dec. 1, 1948, directing that this campaign of public education be undertaken. That resolution reaffirmed the American Medical Association's support of voluntary health insurance to provide the people with prepaid medical coverage. Then it contained a ringing statement, declaring that the American people enjoy the finest standards of medical care achieved by any great country in the history of the world, and that the accomplishments of American medicine are the result of development by a free profession, working under a free system, unhampered by governmental control. That resolution also contained this vigorous condemnation of government medicine:

Compulsory sickness insurance, notwithstanding misleading bureaucratic propaganda, is a variety of socialized medicine, or state medicine, and possesses the evils inherent in any politically controlled system. It is contrary to American tradition, and is the first and most dangerous step in the direction of complete state socialism. The American Medical Association rejects any such scheme. We are equally certain that when the people understand the facts they also will reject it with the same finality.

Your House then laid down these specific steps in getting the facts before the people: that the American Medical Association campaign of education should disseminate all necessary information to these groups: (1) state and county medical societies and individual physicians, (2) the general public and the congress of the United States.

That, in abbreviated statement, is the framework of your campaign. That is the type of campaign American medicine is conducting—a campaign that squares with every principle of popular government and democratic action.

I reviewed the essentials of that program today, because there are some men in Washington who apparently question American medicine's right to conduct it. There has been a deliberate attempt on the part of the critics of medicine to misrepresent the American Medical Association National Education Campaign, and to convince the people that there is something reprehensible about doctors taking their case to the people.

We don't need to be too disturbed about the angry accusations of the socializers, however, because the American people have learned to discount the intemperate statements of those who resort to abuse and invective when they fear to go to trial on the merits of their case.

I believe we all anticipated, too, that when American medicine challenged entrenched bureaucracy, to force a showdown before the people on this issue, we would get "roughed up" a bit. That is part of the price of remaining free men.

The arrogance of government bureaucrats, as they reach out for increasing power over the lives of the people, is limitless, and that arrogance never has been more clearly demonstrated than in their repeated attempts to terrorize the medical profession into nonresistance on this issue. But, again let me say, thank God that American doctors have the courage of their convictions.

There is a fundamental principle of freedom at stake here, and on principle there can be no compromise. There can be no let-up in this fight until the people have spoken and until the issue has been finally resolved.

Let me put the record straight in another regard, too. This isn't a partisan fight, despite the frantic attempts of some partisan politicians to make it appear so. American medicine has staunch supporters in both major political parties in Congress. There isn't any party line drawn here. The issue is

drawn on much broader lines. Republicans and Democrats alike, who know the pattern of "State-ism" and who recognize the danger of further concentration of power in Washington, are rallying to medicine's cause.

But we would be foolhardy indeed if we underestimated the tremendous power of the government propaganda machine which is beating the drums for socialized medicine and recklessly misusing public funds in a desperate attempt to sell the American people this quack cure-all.

There are 45,000 full-time and part-time government press agents and propagandists in Washington, supported by the taxpayers at a cost of \$75,000,000 a year. That is our opposition.

Just how many of them have been ordered to devote their energies to the campaign to discredit American medicine and to promote compulsory health insurance before the people and in the halls of Congress, we haven't been advised. But we do know that there are officials and employees of the Federal Security Administration and various other government agencies, running all over America, on government expense accounts, no doubt, frantically endeavoring to create public support for the program of socialized medicine now before Congress. You will find them in virtually every state, speaking before public meetings, showing up unexpectedly whenever compulsory health insurance is under discussion, and loudly expounding the alien philosophy that only government can care for the people's needs. I am ashamed that any representative of American government would present that to the American people.

This is the type of opposition with which we are confronted. It is a little amazing that our social bureaucrats, under such circumstances, would have the effrontery to question American medicine's right to present its side of the case. It is the people's health that is in jeopardy, and who should talk to them if not their doctors?

The staff of the American Medical Association National Education Campaign, by comparison with that government brigade, seems very modest indeed. It numbers less than forty persons, including the secretaries, stenographers and telephone operators. In Washington, that staff wouldn't be considered adequate to cover a good-sized congressional district!

But this battle isn't going to be won in Washington, and it isn't going to be won in Chicago. It is going to be won by the doctors of America, by men and women like yourselves, working in their home communities, speaking before their luncheon clubs, talking to their friends and passing pamphlets to their neighbors. This is a grassroots campaign in the finest meaning of that term, and American medicine can be very proud of the type of campaign it is conducting.

It isn't an easy job. It is going to mean double duty and endless hours of hard work for tens of thousands of doctors and their friends all over this country. It is going to mean loss of sleep, loss of leisure, many evenings away from home and many frustrations and irritations. That is just part of the price of liberty. There is no substitute for personal work and personal interest in this nationwide job of public education.

It is going to mean a heavy burden on state and county medical societies, too, directing their respective campaigns, getting out publicity, keeping their speakers' bureaus functioning, securing the support of their local organizations and handling the flood of pamphlets and posters that must be distributed to doctors' offices.

Then it is going to mean all-out work for the prepaid medical and hospital plans and all the other voluntary health insurance systems, because America needs budget-basis medicine, and there is a tremendous job to be done in stepping up promotional work and sales, so that this problem can be finally resolved. For we are not just working to beat a bill, even though that phase of the fight is immediate and urgent. We're going to do something about taking the economic shock out of illness.

There are more than 55,000,000 people covered today in hundreds of voluntary health insurance systems serving this country, and the enrolment is growing by the millions every year. The American people instinctively know that the voluntary way is the American way to cope with the problem of prepaid

health insurance. They are plainly demonstrating their faith in that precept, in increasing numbers every day, by turning to the voluntary plans for the protection which they want and need.

The phenomenal growth and development of voluntary health insurance has been one of the most remarkable and significant achievements in medical economics in our times, and American doctors can be very proud of the major part they have played in that development.

While the socializers have been talking about this problem, doctors have been doing something about it. In less than two decades, the voluntary health insurance systems have left their swaddling clothes behind them and have achieved such strength and stature that the problem of prepaid medical care can finally be resolved within the next few years, if we can keep politics out of this picture.

American medicine, the prepayment systems and the insurance industry, working together, are well on the road to solution of this problem. The means of increasing the availability of medical and hospital care are at hand. The job now is largely one of public education and constant improvement in the coverage offered.

There are still millions of people who need health insurance protection but who haven't yet learned either that it is available to them or that it can be bought at a reasonable cost, and without a heavy drain on the family budget. It is part of our job in this American Medical Association National Education Campaign to get the facts to the people, to make American health insurance conscious, so that those who need budget-basis medicine as a protection against the costs of sudden illness will provide themselves with that protection.

We don't have to depend alone on ideological arguments to beat political medicine; we don't have to depend wholly on the people's inherent aversion to compulsion and regimentation. The American people, in the final analysis, always will buy the best product, at the best price, if it is properly presented. We have the best product at the best price in voluntary health insurance.

There is nothing cheap about government medicine, except its quality. It is a poor product at a premium price, with much of the medical dollar eaten up by bureaucratic overhead. We don't need to guess at that. The record of government medicine, in every country that has adopted it, is a record of shameful waste and incompetence, and steady deterioration in the quality of medical care.

We never have had to reduce our standard of living in this country to compete with peasant labor in other lands, and we don't have to reduce our health standards just to satisfy a few politicians in Washington who have lost confidence in the people's ability to care for their own needs in their own way. We are the healthiest, strongest nation on the face of the globe today, and that strength stems from the people, not from any government bureau in Washington. We just need to go to the people of this country and tell them the facts, in simple American fashion.

I might say that Miss Baxter, in addition to being the best-looking woman in my life, is also a prodigious worker, and Miss Baxter believes in a great deal of detail. I might interpose here the statement that at 2:30, on Wednesday, she will speak before the Medical Society Executives Conference and will outline in great detail the specific job which is being done—in more detail than I am going to put it to you today.

There is a lot of work to be done on every front in this campaign, but it isn't just drudgery. This is an opportunity, an inspiring opportunity. This is an emergency, and we are calling on every doctor to offer his services. There isn't a man or woman in medicine worthy of the high ideals of your profession who wouldn't respond to an emergency call if a person's life was in danger or if a family was in difficulty or a community was in trouble. But this emergency is so vast, it is hard to grasp. If it is even hard to arouse some of the doctors in America, think how much harder it is going to be to arouse all the people of this country to the full implications of this struggle.

But think what a glorious job it will be, too! We have fought two world wars in defense of our liberty, so we have no illusions about the price of freedom. No matter what the cost—in money, in energy, in extra hours and in tireless devotion to the cause—the cost of this crusade will be just a fraction of the terrific price we would pay if this fight were lost.

The price of liberty comes high, but the loss of liberty—that's a price none of us can afford to pay!

Let Whitaker and Baxter give you this strong, personal assurance: This fight can be won. It must be won, and it will be won. In the winning of it, all of you, and all of the other doctors throughout America who get into the battle, will have the deep satisfaction of knowing that you have contributed to the well-being of this nation in greater measure than you ever have had opportunity to do before. You won't just help in saving your profession. You will help in saving the country that has been good to you. You will help America.

This is the greatest challenge any of us ever has confronted. This is an opportunity to change the course of history, to defend our good way of life and to leave a priceless inheritance to all who will follow us.

We need a spiritual revival in politics. We need a new flaming idealism. We need to reconsecrate ourselves to the fundamental principles of freedom that have made America the inspiration and hope of a sick world. We need every doctor imbued with the vital importance of this cause and fighting not only for his own freedom but for all our fundamental freedoms that make life in America better than in any other land. And American medicine, I am confident, will face up to that challenge.

Introduction of Dr. Austin Smith

Dr. E. L. Henderson, Chairman, Board of Trustees, introduced to the House Dr. Austin Smith, Associate Editor of THE JOURNAL.

Report of Board of Trustees

REPORT OF COUNCIL ON NATIONAL EMERGENCY MEDICAL SERVICE

Dr. James C. Sargent, Wisconsin, presented the following report, which was referred to the Reference Committee on Emergency Medical Service except the portions dealing with amendments to the Constitution and By-Laws, which were referred to the Reference Committee on Amendments to the Constitution and By-Laws.

ELEVATION OF POSITION OF SURGEON GENERAL OF ARMY

It is with considerable satisfaction that the Council is able today to report to the Board of Trustees and the House of Delegates that the Army has elevated the position of the Surgeon General in its internal structure to a position which will guarantee that the Surgeon General is in fact the direct Medical Advisor to the Chief of Staff and the Secretary of the Army; that he will be guaranteed direct access to the Chief of Staff and to the Secretary of the Army in all medical activities at all times. This elevation in status will be applicable in all echelons of medical service within the Army structure.

DIVISION OF MEDICAL SERVICES

The Council on National Emergency Medical Service respectfully calls the attention of the Board of Trustees and the House of Delegates to a directive, dated May 12, 1949, establishing in the Office of the Secretary of Defense a Division of Medical Services to be headed by a Director of Medical Services of the Armed Forces. It is recommended that a proper note of commendation be forwarded to the President and the Secretary of Defense in recognition of this constructive and forward-looking action.

REQUEST FOR SECTION ON MILITARY MEDICINE AND SURGERY

A communication has been received, dated May 16, 1949, from the Executive Secretary of the Committee on Medical and Hospital Services of the Armed Forces to the Office of the Secretary of Defense, requesting the Council on National

Emergency Medical Service to sponsor the establishment of a Section on Military Medicine and Surgery within the structure of the American Medical Association.

The Council on National Emergency Medical Service believes there is much to justify such a Section and recommends that in its consideration the Council on Scientific Assembly seek the views of the service representatives in the House of Delegates.

PROPOSED AMENDMENTS TO CONSTITUTION AND BY-LAWS

The Council on National Emergency Medical Service desires to bring to the attention of the Board of Trustees, for action by the House of Delegates, the need for several amendments to the Constitution and By-Laws of the American Medical Association.

At the present time the medical officers of the United States Army, the United States Navy, the United States Public Health Service, and the Veterans Administration are eligible to become Service Fellows and each of these government medical services is entitled to one voting delegate to the House of Delegates.

On May 12, 1949, the Secretary of Defense established an autonomous Medical Service of the United States Air Force; the By-Laws of the American Medical Association, Division Two, Chapter IV, Section 2 (A) 2, which provide for Service Fellows, contain no provision for Service Fellow status for medical officers of the United States Air Force; therefore it is recommended that Division Two, Chapter IV, Section 2 (A) 2 of the By-Laws be amended so that the words "United States Air Force" be inserted after the words "the United States Navy."

The Council on National Emergency Medical Service desires to present the following proposed amendment calling for changes in the Constitution and By-Laws of the American Medical Association, so that the medical officers of the newly formed medical service of the United States Air Force may enjoy the same privileges and responsibilities within the American Medical Association as their colleagues in the other government services.

Neither the Constitution nor the By-Laws as presently written provide for representation in the House of Delegates of the Medical Service of the United States Air Force established by order of the Secretary of Defense on May 12, 1949.

The Medical Service of the United States Air Force should enjoy the same representation, privileges and responsibilities in the House of Delegates of the American Medical Association as that of the United States Army and the United States Navy. It is recommended therefore that Article 6, Section 2, of the Constitution be amended so that the words "the United States Air Force" be added to the first sentence after the words "the United States Navy," and that Division Three, Chapter IX, Section 1 (b) of the By-Laws be amended by adding the words "the United States Air Force" after the words "United States Navy" in the first sentence.

RESOLUTIONS ON ACTION FAVORING PASSAGE OF H.R. 3039 AND S. 1698

The following resolutions are respectfully submitted for consideration of the House of Delegates:

WHEREAS, Numerous difficulties have arisen, making it impossible for all but a very few Army, Navy and Air Force Medical Corps Reserve officers to attain the point credits necessary to complete a satisfactory year of federal service during the first year of operation of Public Law 810, 80th Congress; and

WHEREAS, It is the opinion of the American Medical Association that national security requires an active and adequate medical reserve in each of the three departments; and

WHEREAS, The present inability of medical reserve officers to attain a sufficient number of points for a satisfactory year will, through resignations and administrative transfers to the inactive reserve, seriously deplete the medical reserve forces available to our country; be it therefore

Resolved, That the American Medical Association go on record as favoring the passage of S. 1698 and H.R. 3039 and/or other suitable legislation looking toward the deferment for one year of the date on which the point requirements in said law shall become effective; and be it further

Resolved, That copies of this Resolution be forwarded to the President of the United States, to the Secretary of Defense, to the Secretaries of the Army, Navy and Air Force, to the Chairmen of the Armed Services Committees of the Senate and the House and to Senator Johnson and Representative Ford.

REPORT OF THE JUDICIAL COUNCIL

The Vice Speaker, Dr. James R. Reuling, assumed the Chair.

At the request of the Speaker, Dr. E. R. Cunniffe, Chairman of the Judicial Council, presented a revised Principles of Medical Ethics, which was adopted section by section and as a whole after amendment of Section 8 of Article IV of Chapter III by changing the word "resign" in the third line to the word "relinquish." The revised Principles of Medical Ethics as adopted by the House of Delegates reads:

To the Members of the House of Delegates of the American Medical Association:

The Judicial Council presents herewith for the approval of the House of Delegates the revised Principles of Medical Ethics of the American Medical Association:

PRINCIPLES OF MEDICAL ETHICS

"These principles are not laws to govern but are principles to guide to correct conduct." (James Percival's Principles of Ethics, 1803.)

Chapter I

GENERAL PRINCIPLES

CHARACTER OF THE PHYSICIAN

SECTION 1.—The prime object of the medical profession is to render service to humanity; reward or financial gain is a subordinate consideration. Whoever chooses this profession assumes the obligation to conduct himself in accord with its ideals. A physician should be "an upright man, instructed in the art of healing." He must keep himself pure in character and be diligent and conscientious in caring for the sick. As was said by Hippocrates, "He should also be modest, sober, patient, prompt to do his whole duty without anxiety; pious without going so far as superstition, conducting himself with propriety in his profession and in all the actions of his life."

THE PHYSICIAN'S RESPONSIBILITY

SEC. 2.—"The profession of medicine, having for its end the common good of mankind, knows nothing of national enmities, of political strife, of sectarian dissensions. Disease and pain the sole conditions of its ministry, it is disquieted by no misgivings concerning the justice and honesty of its client's cause; but dispenses its peculiar benefits, without stint or scruple, to men of every country, and party and rank, and religion, and to men of no religion at all."*

GROUPS AND CLINICS

SEC. 3.—The ethical principles actuating and governing a group or clinic are exactly the same as those applicable to the individual. As a group or clinic is composed of individual physicians, each of whom, whether employer, employee or partner, is subject to the principles of ethics herein elaborated, the uniting into a business or professional organization does not relieve them either individually or as a group from the obligation they assume when entering the profession.

ADVERTISING

SEC. 4.—Solicitation of patients, directly or indirectly, by a physician, by groups of physicians or by institutions or organizations is unethical. This principle protects the public from the advertiser and salesman of medical care by establishing an easily discernible and generally recognized distinction between him and the ethical physician. Among unethical practices are included the not always obvious devices of furnishing or inspiring newspaper or magazine comments concerning cases in which the physician or group or institution has been, or is, concerned. Self laudations defy the traditions and lower the moral standard of the medical profession; they are an infraction of good taste and are disapproved.

EDUCATIONAL INFORMATION NOT ADVERTISING

SEC. 5.—Many people, literate and well educated, do not possess a special knowledge of medicine. Medical books and journals are not easily accessible or readily understandable.

*Sir Thomas Watson.

The medical profession considers it ethical for a physician to meet the request of a component or constituent medical society to write, act or speak for general readers or audiences. The adaptability of medical material for presentation to the public may be perceived first by publishers, motion picture producers or radio officials. These may offer to the physician opportunity to release to the public some article, exhibit or drawing. Refusal to release the material may be considered a refusal to perform a public service, yet compliance may bring the charge of self seeking or solicitation. In such circumstances the physician should be guided by the decision of official agencies established through component and constituent medical organizations.

A physician who desires to know whether, ethically, he may engage in a project aimed at health education of the public should request the approval of the designated officer or committee of his county medical society.

The most worthy and effective advertisement possible, even for a young physician, especially among his brother physicians, is the establishment of a well merited reputation for professional ability and fidelity. This cannot be forced, but must be the outcome of character and conduct. The publication or circulation of simple professional cards is approved in some localities but is disapproved in others. Disregard of local customs and offenses against recognized ideals are unethical.

The promise of radical cures or boasting of cures or of extraordinary skill or success is unethical.

An institution may use means, approved by the medical profession in its own locality, to inform the public of its address and the special class, if any, of patients accommodated.

PATENTS, COMMISSIONS, REBATES AND SECRET REMEDIES

SEC. 6.—An ethical physician will not receive remuneration from patents on or the sale of surgical instruments, appliances and medicines, nor profit from a copyright on methods or procedures. The receipt of remuneration from patents or copyrights tempts the owners thereof to retard or inhibit research or to restrict the benefits derivable therefrom to patients, the public or the medical profession. The acceptance of rebates on prescriptions or appliances, or of commissions from attendants who aid in the care of patients is unethical. An ethical physician does not engage in barter or trade in the appliances, devices or remedies prescribed for patients, but limits the sources of his professional income to professional services rendered the patient. He should receive his remuneration for professional services rendered only in the amount of his fee specifically announced to his patient at the time the service is rendered or in the form of a subsequent statement, and he should not accept additional compensation secretly or openly, directly or indirectly, from any other source.

The prescription or dispensing by a physician of secret medicines or other secret remedial agents, of which he does not know the composition, or the manufacture or promotion of their use is unethical.

EVASION OF LEGAL RESTRICTIONS

SEC. 7.—An ethical physician will observe the laws regulating the practice of medicine and will not assist others to evade such laws.

Chapter II

DUTIES OF PHYSICIANS TO THEIR PATIENTS

STANDARDS, USEFULNESS, NONSECTARIANISM

SECTION 1.—In order that a physician may best serve his patients, he is expected to exalt the standards of his profession and to extend its sphere of usefulness. To the same end, he should not base his practice on an exclusive dogma or a sectarian system, for "sects are implacable despots; to accept their thralldom is to take away all liberty from one's action and thought."* A sectarian or cultist as applied to medicine is one who alleges to follow or in his practice follows a dogma, tenet or principle based on the authority of its promulgator to the exclusion of demonstration and scientific experience. All

voluntarily associated activities with cultists are unethical. A consultation with a cultist is a futile gesture if the cultist is assumed to have the same high grade of knowledge, training and experience as is possessed by the doctor of medicine. Such consultation lowers the honor and dignity of the profession in the same degree in which it elevates the honor and dignity of those who are irregular in training and practice.

PATIENCE, DELICACY AND SECRECY

SEC. 2.—Patience and delicacy should characterize the physician. Confidences concerning individual or domestic life entrusted by patients to a physician and defects in the disposition or character of patients observed during medical attendance should never be revealed unless their revelation is required by the laws of the state. Sometimes, however, a physician must determine whether his duty to society requires him to employ knowledge, obtained through confidences entrusted to him as a physician, to protect a healthy person against a communicable disease to which he is about to be exposed. In such instance, the physician should act as he would desire another to act toward one of his own family in like circumstances. Before he determines his course, the physician should know the civil law of his commonwealth concerning privileged communications.

PROGNOSIS

SEC. 3.—The physician should neither exaggerate nor minimize the gravity of a patient's condition. He should assure himself that the patient, his relatives or his responsible friends have such knowledge of the patient's condition as will serve the best interests of the patient and the family.

THE PATIENT MUST NOT BE NEGLECTED

SEC. 4.—A physician is free to choose whom he will serve. He should, however, respond to any request for his assistance in an emergency or whenever temperate public opinion expects the service. Once having undertaken a case, the physician should not neglect the patient, nor should he withdraw from the case without giving notice to the patient, his relatives or his responsible friends sufficiently long in advance of his withdrawal to allow them to secure another medical attendant.

Chapter III

DUTIES OF PHYSICIANS TO EACH OTHER AND TO THE PROFESSION AT LARGE

ARTICLE I.—DUTIES TO THE PROFESSION

UPHOLDING THE HONOR OF THE PROFESSION

SECTION 1.—A physician is expected to uphold the dignity and honor of his vocation.

MEMBERSHIP IN MEDICAL SOCIETIES

SEC. 2.—For the advancement of his profession, a physician should affiliate with medical societies and contribute of his time, energy and means so that these societies may represent the ideals of the profession.

SAFEGUARDING THE PROFESSION

SEC. 3.—Every physician should aid in safeguarding the profession against admission to it of those who are deficient in moral character or education.

SEC. 4.—A physician should expose, without fear or favor, incompetent or corrupt, dishonest or unethical conduct on the part of members of the profession. Questions of such conduct should be considered, first, before proper medical tribunals in executive sessions or by special or duly appointed committees on ethical relations, provided such a course is possible and provided, also, that the law is not hampered thereby. If doubt should arise as to the legality of the physician's conduct, the situation under investigation may be placed before officers of the law, and the physician-investigators may take the necessary steps to enlist the interest of the proper authority.

* Nicom, father of Galen.

ARTICLE II.—PROFESSIONAL SERVICES OF PHYSICIANS
TO EACH OTHER

DEPENDENCE OF PHYSICIANS ON EACH OTHER

SECTION 1.—As a general rule, a physician should not attempt to treat members of his family or himself. Consequently, a physician should cheerfully and without recompense give his professional services to physicians or their dependents if they are in his vicinity.

COMPENSATION FOR EXPENSES

SEC. 2.—When a physician from a distance is called to advise another physician about his own illness or about that of one of his family dependents, and the physician to whom the service is rendered is in easy financial circumstances, a compensation that will at least meet the traveling expenses of the visiting physician should be proffered him. When such a service requires an absence from the accustomed field of professional work of the visitor that might reasonably be expected to entail a pecuniary loss, such loss may, in part at least, be provided for in the compensation offered.

ONE PHYSICIAN IN CHARGE

SEC. 3.—When a physician or a member of his dependent family is seriously ill, he or his family should select one physician to take charge of the case. The family may ask the physician in charge to call in other physicians to act as consultants.

ARTICLE III.—DUTIES OF PHYSICIANS IN
CONSULTATIONS

CONSULTATIONS SHOULD BE ENCOURAGED

SECTION 1.—In a case of serious illness, especially in doubtful or difficult conditions, the physician should request consultations.

CONSULTATION FOR PATIENT'S BENEFIT

SEC. 2.—In every consultation, the benefit to the patient is of first importance. All physicians interested in the case should be candid with the patient, a member of his family or a responsible friend.

PUNCTUALITY

SEC. 3.—All physicians concerned in consultations should be punctual. When, however, one or more of the consultants are unavoidably delayed, the one who arrives first should wait for the others for a reasonable time, after which the consultation should be considered postponed. When the consultant has come from a distance, or when for any other reason it will be difficult to meet the physician in charge at another time, or if the case is urgent, or it be the desire of the patient, his family or his responsible friends, the consultant may examine the patient and mail his written opinion, or see that it is delivered under seal to the physician in charge. Under these conditions, the consultant's conduct must be especially tactful; he must remember that he is framing an opinion without the aid of the physician who has observed the course of the disease.

PATIENT REFERRED TO CONSULTANT

SEC. 4.—When a patient is sent to a consultant and the physician in charge of the case cannot accompany the patient, the physician in charge should provide the consultant with a history of the case, together with the physician's opinion and outline of the treatment, or so much of this as may be of service to the consultant. As soon as possible after the consultant has seen the patient he should address the physician in charge and advise him of the results of the consultant's investigation. The opinions of both the physician in charge and the consultant are confidential and must be so regarded by each.

DISCUSSIONS IN CONSULTATION

SEC. 5.—After the physicians called in consultation have completed their investigations, they and the physician in charge should meet by themselves to discuss the course to be followed. Statements should not be made nor should discussion take place in the presence of the patient, his family or his friends, unless all physicians concerned are present or unless all of them have consented to another arrangement.

RESPONSIBILITY OF ATTENDING PHYSICIAN

SEC. 6.—The physician in charge of the case is responsible for treatment of the patient. Consequently, he may prescribe for the patient at any time and is privileged to vary the treatment outlined and agreed on at a consultation whenever, in his opinion, such a change is warranted. However, after such a change, it is best to call another consultation; then the physician in charge should state his reasons for departing from the course decided at the previous conference. When an emergency occurs during the absence of the physician in charge, a consultant may assume authority until the arrival of the physician in charge, but his authority should not extend further without the consent of the physician in charge.

CONFLICT OF OPINION

SEC. 7.—Should the physician in charge and a consultant be unable to agree in their view of a case, another consultant should be called or the differing consultant should withdraw. However, since the patient employed the consultant to obtain his opinion, he should be permitted to state it to the patient, his relative or his responsible friend, in the presence of the physician in charge.

CONSULTANT AND ATTENDANT

SEC. 8.—When a physician has acted as consultant in an illness, he should not become the physician in charge in the course of that illness, except with the consent of the physician who was in charge at the time of the consultation.

ARTICLE IV.—DUTIES OF PHYSICIANS IN CASES
OF INTERFERENCE

MISUNDERSTANDINGS TO BE AVOIDED

SECTION 1.—A physician, in his relationship with a patient who is under the care of another physician, should not give hints relative to the nature and treatment of the patient's disorder; nor should a physician do anything to diminish the trust reposed by the patient in his own physician. In embarrassing situations, or whenever there seems to be a possibility of misunderstanding with a colleague, a physician should seek a personal interview with his fellow.

SOCIAL CALLS ON PATIENT OF ANOTHER PHYSICIAN

SEC. 2.—When a physician makes social calls on another physician's patient he should avoid conversation about the patient's illness.

SERVICES TO PATIENT OF ANOTHER PHYSICIAN

SEC. 3.—A physician should not take charge of, or prescribe for another physician's patient during any given illness (except in an emergency) until the other physician has relinquished the case or has been formally dismissed.

CRITICISM TO BE AVOIDED

SEC. 4.—When a physician does succeed another physician in charge of a case, he should not disparage, by comment or insinuation, the one who preceded him. Such comment or insinuation tends to lower the confidence of the patient in the medical profession and so reacts against the patient, the profession and the critic.

EMERGENCY CASES

SEC. 5.—When a physician is called in an emergency because the personal or family physician is not at hand, he should provide only for the patient's immediate need and should withdraw from the case on the arrival of the personal or family physician. However, he should first report to the personal or family physician the condition found and the treatment administered.

PRECEDENCE WHEN SEVERAL PHYSICIANS ARE SUMMONED

SEC. 6.—When several physicians have been summoned in a case of sudden illness or of accident, the first to arrive should be considered the physician in charge. However, as soon as is practicable, or on the arrival of the acknowledged personal or family physician, the first physician should withdraw. Should the patient, his family or his responsible friend wish some one other than he who has been in charge of the case, the patient or his representative should advise the personal or family physician of his desire. When, because of sudden illness or accident,

a patient is taken to a hospital without the knowledge of the physician who is known to be the personal or family physician, the patient should be returned to the care of the personal or family physician as soon as is feasible.

A COLLEAGUE'S PATIENT

SEC. 7.—When a physician is requested by a colleague to care for a patient during the colleague's temporary absence, or when, because of an emergency, a physician is asked to see a patient of a colleague, the physician should treat the patient in the same manner and with the same delicacy that he would wish used in similar circumstances if the patient were his responsibility. The patient should be returned to the care of the attending physician as soon as possible.

SUBSTITUTION IN OBSTETRIC WORK

SEC. 8.—When a physician attends a woman who is in labor because the one who was engaged to attend her is absent, the physician summoned in the emergency should resign the patient to the first engaged, on his arrival. The one in attendance is entitled to compensation for the professional services he may have rendered.

ARTICLE V.—DISPUTES BETWEEN PHYSICIANS

ARBITRATION

SECTION 1.—Whenever there arises between physicians a grave difference of opinion, or of interest, which cannot be promptly adjusted, the dispute should be referred for arbitration, preferably to an official body of a component society.

ARTICLE VI.—COMPENSATION

LIMITS OF GRATUITOUS SERVICE

SECTION 1.—Poverty of a patient, and the obligation of physicians to attend one another and the dependent members of the families of one another, should command the gratuitous services of a physician. Institutions and organizations for mutual benefit, or for accident, sickness and life insurance, or for analogous purposes, should meet such costs as are covered by the contract under which the service is rendered.

CONDITIONS OF MEDICAL PRACTICE

SEC. 2.—A physician should not dispose of his services under conditions that make it impossible to render adequate service to his patients, except under circumstances in which the patients concerned might be deprived of immediately necessary care.

CONTRACT PRACTICE

SEC. 3.—Contract practice as applied to medicine means the practice of medicine under an agreement between a physician or a group of physicians, as principals or agents, and a corporation, organization, political subdivision or individual, whereby partial or full medical services are provided for a group or class of individuals on the basis of a fee schedule, or for a salary or for a fixed rate per capita.

Contract practice *per se* is not unethical. Contract practice is unethical if it permits of features or conditions that are declared unethical in these Principles of Medical Ethics or if the contract or any of its provisions causes deterioration of the quality of the medical services rendered.

FREE CHOICE OF PHYSICIAN

SEC. 4.—Free choice of physician is defined as that degree of freedom in choosing a physician which can be exercised under usual conditions of employment between patients and physicians. The intervention of a third party who has a valid interest, or who intervenes between the physician and the patient does not *per se* cause a contract to be unethical. A third party has a valid interest when, by law or volition, the third party assumes legal responsibility and provides for the cost of medical care and indemnity for occupational disability.

COMMISSIONS

SEC. 5.—When a patient is referred by one physician to another for consultation or for treatment, whether the physician in charge accompanies the patient or not, the giving or receiving of a commission by whatever term it may be called or under any guise or pretext whatsoever is unethical.

PURVEYAL OF MEDICAL SERVICE

SEC. 6.—A physician should not dispose of his professional attainments or services to any hospital, lay body, organization, group or individual, by whatever name called, or however organized, under terms or conditions which permit exploitation of the services of the physician for the financial profit of the agency concerned. Such a procedure is beneath the dignity of professional practice and is harmful alike to the profession of medicine and the welfare of the people.

Chapter IV

THE DUTIES OF PHYSICIANS TO THE PUBLIC

PHYSICIANS AS CITIZENS

SECTION 1.—Physicians, as good citizens, possessed of special training, should advise concerning the health of the community wherein they dwell. They should bear their part in enforcing the laws of the community and in sustaining the institutions that advance the interests of humanity. They should cooperate especially with the proper authorities in the administration of sanitary laws and regulations.

PUBLIC HEALTH

SEC. 2.—Physicians, especially those engaged in public health work, should enlighten the public concerning quarantine regulations and measures for the prevention of epidemic and communicable diseases. At all times the physician should notify the constituted public health authorities of every case of communicable disease under his care, in accordance with the laws, rules and regulations of the health authorities. When an epidemic prevails, a physician must continue his labors without regard to the risk to his own health.

PHARMACISTS

SEC. 3.—Physicians should recognize and promote the practice of pharmacy as a profession and should recognize the cooperation of the pharmacist in education of the public concerning the practice of ethical and scientific medicine.

Conclusion

These principles of medical ethics have been and are set down primarily for the good of the public and should be observed in such a manner as shall merit and receive the endorsement of the community. The life of the physician, if he is capable, honest, decent, courteous, vigilant and a follower of the Golden Rule, will be in itself the best exemplification of ethical principles.

Respectfully submitted,

EDWARD R. CUNIFFE, Chairman.

LOUIS A. BUIE.

WALTER F. DONALDSON.

HOMER L. PEARSON JR.

JOHN H. O'SHEA.

The Speaker resumed the chair.

Proposed Amendment to Constitution

Dr. James Stevenson, Oklahoma, presented the following proposed amendment to Article 3 of the Constitution, which was referred to the Reference Committee on Amendments to the Constitution and By-Laws:

WHEREAS, The constituent associations forming the American Medical Association are proud to be members of the world's greatest medical organization; and

WHEREAS, No constituent association has any formal recognition that it is an integral part of the American Medical Association; therefore be it

Resolved, that Article 3 of the Constitution of the American Medical Association be amended to read, "Constituent associations are those medical associations of states, territories or insular possessions which are or which may hereafter be federated to form the American Medical Association; and such constituent associations shall receive a charter from the American Medical Association."

After announcements by chairmen of reference committees of times and places of meetings, by Dr. Ernest B. Howard, Assistant Secretary, and by the Speaker, the House of Delegates recessed at 4:50 p. m., to meet at 1:15 p. m. Tuesday, June 7.

(To Be Continued)

Hearings On Health Insurance

Senate Bills 1106, 1456, 1581 and 1679

A Condensation

MAY 23, 1949

United States Senate, Subcommittee on Health of the
Committee on Labor and Public Welfare

SENATOR JAMES E. MURRAY (chairman of the
Subcommittee) Presiding

Present: SENATORS MURRAY, PEPPER AND TAFT

Also present: SENATOR HILL

SENATOR MURRAY: The subcommittee on health is today beginning hearings on four bills. Each has to do with some or several aspects of a subject which is of utmost importance to this country, the health and physical well-being of its people.

Despite our present differences of opinion as to the extent and the kind of health problems confronting us, even though we may disagree as to the methods of solving these problems, on some things we are unanimous. We agree that there is a problem and that it is our responsibility to find a solution.

Our program these first two days calls for explanation of S. 1679, the National Health Insurance and Public Health Act, sponsored by Senators Thomas of Utah, Wagner, Pepper, Chavez, Taylor, McGrath, Humphrey and myself. This will be undertaken by Senator Thomas and by Mr. Kingsley, Assistant Administrator of the Federal Security Administration.

Senators Taft and Donnell will then discuss S. 1581, the National Health Act of 1949, sponsored by Senators Taft, Donnell and Smith of New Jersey.

Following their presentation, Senator Hill and Mr. Bugbee will discuss S. 1456, the Voluntary Health Insurance Act, sponsored by Senators Hill, O'Connor, Withers, Aiken and Morse. Then Senator Lodge will discuss his bill, S. 1106, the Medical Aid Act of 1949.

I should add that neither titles III and V of S. 1679 nor Titles IV and V of S. 1581 will be considered by this subcommittee. They have been referred to Senator Hill's subcommittee and have been studied in connection with S. 614, S. 522 and other bills relating to expansion of hospital facilities and public health service.

SENATOR MURRAY: Our first witness will be Mr. Donald Kingsley, who will present the Federal Security Agency's position on the bills before us. While we are very glad to have Mr. Kingsley appear before us, I should like the record to show our extreme regret that the Honorable Oscar R. Ewing, Federal Security Administrator, has not yet recovered sufficiently from a serious illness to be able to appear personally.

Statement of J. Donald Kingsley, Acting Federal Security Administrator

MR. KINGSLEY: We have filed reports on four bills, S. 1106, S. 1456, S. 1581 and S. 1679. The first is covered in a separate report, since it has little in common with the others and is concerned primarily with the provision of expensive drugs, diagnostic services, etc. As for the other three, we have combined our detailed observations under topical headings, comparing the different proposals as they relate to medical care, facilities, services, personnel, research, hospital construction, public health services, and maternal and child health.

We are confronted immediately by three major problems whenever we consider how to improve the health of the American people. All three are problems in economics, not in medicine. First is the problem of man power and facility shortages; second, the problem of man power and facility distribution, and, underlying all others, the problem of inadequate medical purchasing power in the hands of a substantial proportion of our families.

These recognizable segments of the total problem are the ones for which all interested groups are seeking solutions. They are closely interrelated. It is the position of the Administration that the ultimate solution of any one of them depends on finding answers to all three. That is the firm conviction which underlies the comprehensive national health program recommended by the President as long ago as November 1945, and which underlay Mr. Ewing's report to the President, "The Nation's Health." It also is the fundamental assumption, it seems to me, on which the program provided in S. 1679 is based.

First is the problem presented by the current aggregate shortage of trained health personnel and health facilities: The shortages of doctors, dentists and nurses, of clinics and hospitals. These deficiencies are real, and there is widespread agreement that they exist. There is less agreement as to why they are so acute and as to the best means of overcoming them. There is, of course, no simple, inclusive explanation. But a major contributing factor is, unquestionably, a serious shortage of medical purchasing power. We do not have more hospitals, for example—even with the expenditure of substantial federal funds to assist in their construction—because the people in many shortage areas could not support them if they had them.

Second, there is the problem presented by the inequitable distribution of the man power and health facilities we do have. This results in wide discrepancies in the availability of medical care from one community to another. The twelve states with the highest ratio of doctors to population average 1 doctor to every 667 persons, but the twelve poorest states in this respect average only 1 doctor to every 1,223 of their citizens. Consequently, if you are taken ill today in one of the twelve most favored states, you have about twice as good a chance of getting a doctor when you need him as you do in one of the twelve least favored states. Contrasts between individual states and communities within states are even sharper. Moreover, the situation is similar in respect to other health personnel, and in the case of the distribution of hospital beds the discrepancies are even more marked.

The existing distribution is generally unfavorable to the South and West and to rural areas in comparison with urban. But our most serious health problems—the highest death rates among mothers and children, for instance, the greatest incidence of disease, the most pressing need for medical man power and facilities of all kinds—these are found in precisely those areas that are so strikingly discriminated against.

The maldistribution of existing personnel and facilities aggravates the problem of providing adequate medical care to all of our people. A significant fact in connection with this pattern of distribution is that, in general, it follows closely the pattern of income distribution. By and large, the sections, states and localities with the highest ratio of health personnel and facilities are those with the highest per capita income. Conversely, the most undernourished areas from the standpoint of medical care are as a rule those with the lowest level of purchasing power. This is not surprising. Hospitals are built where they can be supported, and doctors settle where they can make a living. This means that the key to a more equitable distribution of health facilities is to be sought in some method of increasing the effective health purchasing power in the medically undernourished areas—a result which is directly accomplished through social insurance.

Third is the problem presented by the fact that a substantial portion of our people cannot afford to purchase medical care under a system in which most of the cost falls on the sick. Just what proportion of the population belongs in this category is, perhaps, a matter for honest difference of opinion. The American Medical Association has estimated that no more than 20 per cent of our people can meet the cost of a serious illness without assistance in the form of private or public aid. Whatever the number who cannot afford adequate modern care, it is substantial—certainly, at the very least, it includes that half of our population living in families with incomes of \$3,000 or less a year. In fact, under the present circumstances, only the relatively rich or the charity poor are in a position to take full advantage of the wonders of modern medicine. The great middle income group is left out in the cold, without wealth enough to meet a sudden emergency or to pay for modern preventive care, but too well off to qualify and too proud to ask for charity. They can only hope and pray that their own immediate families will be spared a serious and bankrupting illness.

It is of the utmost significance, I believe, that a common financial problem underlies all these others: the current shortage of personnel and facilities; the inequitable distribution of those we have, and the inability of large numbers of our people to utilize them fully. In undertaking to improve the nation's health, we can be confident, in my judgment, that the doctors are doing their part of the job magnificently. The problem now is one for the economist and the statesman.

I should like to turn now to what seems to me to be the central issue raised by the three major bills before your committee: that is, the various means by which all of them seek to make medical care available to those who need it. The methods proposed are different and the results would vary widely, but the broad objectives are similar.

As I read these three principal bills, my most significant impression is not that they are so widely different, but that they are so much alike.

The provisions of all of these bills reflect common recognition of the fact that today a substantial proportion of our population must depend on public or private charity or go without the type of medical care that modern science knows how to provide.

I want to stress the conviction that unless a comprehensive system of prepayment such as that provided in S. 1679 is established, it will be impossible to meet the nation's medical needs without an ever increasing measure of state medicine.

The extent to which government already is involved in the provision of medical care to individuals is often overlooked in our zeal to identify our system for the care of the sick with our business system of private enterprise.

By its very nature medical care is uneconomic. In modern times, it has never rested on the rule of the market place, because public interest has required that illness be treated somehow, whether the individual could afford it or not. From the beginning, the economic basis of medicine has been a loosely defined triple standard: first, a rough and ready sliding scale of prices for the well to do; second, private charity in various forms for the "medically indigent," meaning those who are self supporting except in emergency, and, third, government medicine and various forms of public charity for the poor. It is a makeshift system.

In spite of these catch as catch can financial arrangements, the medical profession has made remarkable progress. This is not a tribute to the system of payment, however, but to the devotion of the medical profession and to our national readiness to improvise.

Without a workable economic base on which the private practice of medicine and our voluntary hospital system could improve and expand at a pace consistent with the advance of medical knowledge and general social standards, we have turned over to government a greater and greater share of responsibility, until today some 24,000,000 citizens are receiving various kinds and degrees of medical care from the federal government alone, according to the Hoover Commission.

The expansion of government's responsibility for medical care has been steady and sure through much of our history, but until the comparatively recent past it has been confined for the most part to states, counties and municipalities. Since the turn of the century, however, the pressure on government at all levels to take over a larger and larger share of the load has been increasingly strong. The reason for this is clear.

Medical schools grew, hospitals expanded and their facilities multiplied in number and complexity. The result was more progress in fifty years than in all the centuries since Hippocrates. But as knowledge increased, as new skills were developed, the practice of medicine became infinitely more effective, and equally more expensive and beyond the ability of rich men's fees and private charity to support. The people and the profession itself turned more and more to government.

Today, government owns and operates three quarters of all the hospital beds in the United States. Government employs thousands of doctors and pays fees to many more. In addition, the taxpayers carry the full load in that vast field of medical service known as "public health," and provide large sums to support medical research and education.

We have gone so far along this road, impelled by irresistible circumstances rather than by design, that the real issue is already quite different from what it is usually presented as. The real issue is not between voluntary, private health insurance and a national system based on our social insurance experience, but rather between national health insurance and state medicine. I am convinced that nothing short of the social insurance method can prevent the further—and eventually the complete—substitution of state for private medicine. On the other hand, I believe that social insurance can prevent it, because it would establish exactly the thing that has always been lacking and which has rendered private medicine incapable of doing the full job. That is, a sound, firm, reliable economic foundation on which private medicine can expand and flourish.

I am not in any sense opposed to voluntary health insurance. I, personally, have been a subscriber for a long while. I simply am convinced that voluntary health insurance cannot do the job which all of us agree must now be done. The situation has changed radically since the American Medical Association took its original stand. Voluntary insurance has not exactly led to revolution, but neither has it halted the trend toward state medicine. On the contrary, no period in history has seen such rapid development in that direction.

Voluntary health insurance costs too much for most people to buy, and it cannot pay its own way on lower premiums. We

are told that health insurance has made gigantic strides and now affords protection to 52,000,000 Americans, or one third of the nation. The question arises, "What are they protected against?" And the answer is that less than 2½ per cent have anything even approaching the comprehensive protection that is provided for in S. 1679. Other voluntary insurance subscribers have protection ranging from next to nothing under policies with a great deal of fine print, to limited protection under several different policies for hospital, surgical and medical care. The cost is in proportion to protection, and it is not cheap.

Another question would be, "Who is protected under voluntary insurance?" Most voluntary insurance policies are issued by Blue Cross Hospitalization Plans—the American Medical Association says 32,000,000 of them—providing limited insurance for hospital care only. About 60 per cent of these policies are held by citizens of six rich industrial states which contain about 36 per cent of the total population of the United States. Only about 17 per cent of Blue Cross members live in Southern and Western states with 43 per cent of the population. Less than 3 per cent of the rural population belong. Two thirds of our people have no protection of any kind under voluntary insurance. And this after twenty years of intensive advertising and selling.

The history of health insurance proves that, if one of our objectives is the prevention of state medicine, then we ought to be extremely wary of proposals that we merely go wading in health insurance now. With all respect, for I know the sponsors have worked devotedly to solve a complex problem, this is our chief objection to S. 1456 and S. 1581, that they invite us to go wading in a stream where one must swim or sink. S. 1679, on the other hand, not only invites us to swim, but provides a set of water wings as well.

S. 1456 and S. 1581 do not place very much faith in voluntary insurance. Instead, it appears that both of them, while one requires and the other permits the use of the voluntary plans' administrative machinery, rely in effect if not in purpose on public charity—a medical dole. Moreover, both are so limited in scope that whatever beneficial effect they might have would serve merely to intensify the dissatisfaction of those who would be excluded from their benefits. S. 1456 is the more specific of the two. It bears the title "Voluntary Health Insurance Act."

Leaving out all of the provisions for state plans, etc., it provides for the appropriation of an unspecified amount of money, to be matched by the states. The state, either before or after a person becomes ill, is to give the individual a card which will entitle him to get medical and hospital care—apparently about the same extent of service he would get if he belonged to the combined Blue Cross-Blue Shield plans today. This would be far less protection than he would get under S. 1679.

Is this insurance at all, voluntary or otherwise? If the recipient were to get his card even a few days in advance of illness, presumably he could, if he chose, look on it as insurance without premiums. But as far as the state is concerned, it would merely be a requisition on the insurance plan for the purchase, through it, of whatever medical and hospital care the holder might need, within the limitations. The bill provides that payment by the state to the insurance plan must cover the full cost of whatever care the plan purchases for the holder of the card, plus the plan's administrative expenses. If this interpretation is correct, then the taxpayer, at least, must look on it, not as insurance in any sense, but as direct relief to the recipient. On that basis, it might be open to question whether the insurance plan contributes anything essential, or whether the state itself might not handle the administration more economically without the middleman.

This might be even more pertinent if the bill would make possible the payment of these public funds for the purchase of medical care through commercial, profit-making insurance companies as well as the voluntary nonprofit plans. This question arises particularly in connection with the Blue Shield plans. In some states the only service they provide is to endorse and recommend commercial insurance policies. Could public money, under S. 1456, be paid to these Blue Shield plans, to be paid by them in turn to commercial insurance companies, to be used by them in turn for the purchase of medical and hospital care for the holder of the card? I feel sure that this is not intended, but I cannot tell by reading the bill whether the answer is "yes" or "no." If the answer were "yes," then it would be pertinent to point out that in some cases as much as 70 per cent of the subscriber's payments to commercial plans go for overhead expense.

The next question is, how many will get such cards? The only ones we can be sure of are those "on relief" and those receiving unemployment compensation. These can be certified with no further investigation as being unable to pay all or part of

the cost of premiums. The rest is uncertain. It may be that some simple method of certification is contemplated but not written into the bill, even though this presumably would open the door to a great deal of waste and inequity. However, if the state is to follow the procedures worked out over the years for such purposes, then certification of those not already on the rolls as indigent will be unavoidably costly and time consuming.

SENATOR TAFT: What does your plan do for people who have no money? How do you take care of them?

MR. KINGSLEY: As I would read S. 1679 provision is made for direct service by the state to people who are on the rolls. Anybody who is not on the roll is not covered. And this question does not arise under S. 1679 as I would read it.

SENATOR TAFT: They do not cover people who are not enrolled at all, do not take care of the indigent and the poor at all, you mean?

MR. KINGSLEY: The people on the indigent and relief rolls, and therefore already identified by the state, would be taken care of, as I would read S. 1679. But the problem that arises here is one of interpretation. It may be that under these bills only the people on the relief rolls already are to be taken care of.

SENATOR TAFT: They have to pay hospitals or doctors or somebody to take care of them just as Mr. Hill's bill provides for taking care of them by private insurance funds if necessary.

MR. KINGSLEY: The question that I am raising here is one of administrative difficulty. It would seem from reading these bills, particularly Mr. Hill's bill, there are two possible interpretations. One is that it is restricted to people already on the relief rolls, already identifiable in the state, and in that event it seems that taking care of them can be best done by an amendment to the Public Assistance Title of the Social Security Act, which has already been recommended by the Administration and has been considered by the House Ways and Means Committee, and ultimately will be considered by the Senate Finance Committee.

SENATOR TAFT: In one way or another you give free medical care to the people who cannot pay for it under any of the bills?

MR. KINGSLEY: Yes, sir.

SENATOR TAFT: And whether you give it by insurance fund or a private hospital or a city hospital, I do not quite see the difference in administration. The principle is the same.

MR. KINGSLEY: I agree there is no difference in principle. The point I am attempting to develop is that if Senator Hill's bill is restricted to people on the relief rolls already, then our position would be that that could be most easily handled without the intervention of voluntary insurance systems or anything else except an amendment to the Social Security Act.

SENATOR TAFT: You cannot give them medical care by an amendment. Somebody has to give it to them, hospitals or doctors or somebody. Whether it is by private insurance fund, or private hospital, or public hospital. I do not quite see the point. They would have to take care of the poor and the indigent and the people who do not pay a tax under the insurance fund.

MR. KINGSLEY: Except, as I am sure you know, most of the existing voluntary plans do not provide anything in the way of service. They just collect money. They are just financial channels.

SENATOR TAFT: That is right, and that is what you are proposing the Government be.

MR. KINGSLEY: The next line is on the assumption that perhaps the people who are eligible under this bill are not those merely restricted to relief rolls. Beyond this, what is to be the basis for the distribution of "insurance" cards to those not already certified as indigent? Presumably, everyone else is self supporting or has been too proud to ask for charity. Is the state to seek them out and urge them to get on the rolls, to sign up as partial charity cases and accept "voluntary insurance" cards? What would be the advantage to the individual? He has exactly the same assurance of aid if he waits until he gets sick, and meanwhile he can at least nurse the hope that he will be a lucky one and will not have to admit his dependence.

Why should the state go out of its way to sign up recipients in advance, since the requirement in any case is to pay the full cost of medical and hospital services provided, plus the insurance plan's administrative expense? Since the state is to give this guarantee, is the same guarantee to apply in reverse? If not, the advantage would seem to be one-sided. In that case, I ask this question: What rates are going to be

charged? People in the lower income brackets are looked on by the insurance experts as "bad risks," and therefore chargeable at a much higher rate than is carried by most of the policies now in effect. This is one additional reason why the voluntary plans have never reached down below the upper third of the population.

It seems to me that either S. 1456 or S. 1581, if adopted, would confront the nation with a dilemma. They could be interpreted in either of two ways: to make medical care on a limited basis available only to those already "on relief," or to lift the ceiling on pauperism and include the "medically indigent" as well.

If the first interpretation is intended, then these bills would not do more than the Administration has proposed we should do for the indigent, in its recommendations for the expansion of medical care under the Public Assistance Title of the Social Security Act.

If, on the other hand, the ceiling is to be raised to include the "medically indigent" in a program of public charity, then we face a number of serious questions:

1. Is it good public policy to encourage normally self-supporting citizens to seek charity?

2. Would it be possible, without such encouragement and without in some way removing the onus which attaches to the "means test," to bring into such a scheme any significant number of persons who are now too proud and self reliant to ask for charity?

3. If such a scheme were successful in providing coverage on an adequate basis for all those who need it, would not the cost be even greater than the cost of national health insurance as provided in S. 1679?

SENATOR TAFT: This provision in your bill, on page 111, section 705, provides that the state may contract with the federal government to give these services, just as Mr. Hill's bill provides they may contract with private insurance funds.

MR. KINGSLEY: As this bill is written, Senator, in effect you have a contractual arrangement between the federal government and the state for all provisions.

SENATOR TAFT: It provides for the state care of the indigent, and a contract with the federal government, and to pay the premium to them. I do not see how that is a different principle from Mr. Hill's bill, which provides an insurance fund—the state goes to them and lets them provide the care to the indigent. I do not see the difference in the principle you are trying to make in this whole discussion when it comes to dealing with the strictly indigent. I am not speaking about the intermediate group.

MR. KINGSLEY: In respect to that, Senator Taft, this is not in every aspect, every detail, our bill. This is a bill which was prepared by the sponsors to meet the broad provisions of the President's program.

SENATOR TAFT: You are speaking of S. 1679 now?

MR. KINGSLEY: Yes, S. 1679.

SENATOR TAFT: Will you tell us then, how you would change it?

MR. KINGSLEY: It would be our position that if the Administration's recommended amendment to the Social Security Act is adopted by the Congress, which, in effect, provides for payments by the federal government to the states on behalf of medical expenditures for the indigent in the state, then there would be no need for this particular section in S. 1679, and that that would be, from our point of view, a more direct method of approaching this. S. 1679, on the other hand, offers a real solution to the major problems I outlined at the opening of this discussion.

As I suggested, however, the finest medical service is of little value, no matter where or in what amount, unless it can be maintained economically. Title VII of S. 1679 deals with this problem in the only effective way I know, by applying the method of social insurance which we have tried and tested for more than a dozen years.

SENATOR TAFT: In which field do you mean, old age pension?

MR. KINGSLEY: Yes, sir.

SENATOR TAFT: It has not been notoriously successful, I would think, when you now need a complete change in the whole system.

MR. KINGSLEY: I would say it has not kept pace; the system has not kept pace with the changes in the price level and the coverage has not been extended to the extent we would have hoped and that S. 1679 provides.

SENATOR TAFT: Not only that, but it provides less income than noncontributors get in many states already.

MR. KINGSLEY: That is right.

SENATOR TAFT: That is not a very good thing on which to base an argument that the principle should be extended.

MR. KINGSLEY: That would seem to me to be because the Congress by and large had chosen to raise public assistance benefits rather than to raise the insurance benefits. But in terms of the system I think there is no reason at all why the insurance system benefits could not have been raised to keep pace with changes in the price level, and the Administration has recommended that.

SENATOR TAFT: It was purportedly a system of insurance, and it is supposed to pay for itself, and as a system of insurance it has not and will not. Therefore, I do not see that it is any argument for insurance. The reason it has not been changed is that it was supposed to have been an insurance operation, whereas direct aid varies according to need. Now you propose to throw away the actuarial system and change the whole thing.

MR. KINGSLEY: I do not see it that way, because our proposals are also for raising the base, from \$3,600 to \$4,800, so at the same time the benefits are raised there is an increase in return in premium and return to the system, again based on changes in wage and price levels. So I think the principle is maintained in the Administration's proposals.

SENATOR TAFT: You said "by applying the method of social insurance which we have tried and tested for more than a dozen years." It did not seem to me that, as an example to be followed, that is particularly justified by our experiences.

MR. KINGSLEY: We have a difference of opinion on that point. By this method, it would establish a firm, dependable economic foundation under the whole structure of private medical practice. It would result in the establishment and the effective maintenance of doctors, hospitals and all other health personnel and facilities wherever they were justified by the number, not the wealth, of prospective patients. For the first time, it would make it economically worth while for doctors to use their talents where they are most urgently needed. No longer would the doctor be forced to hold a stethoscope on the patient's heart and pocketbook at the same time, and adjust his fees accordingly. No longer would he feel compelled to reserve the prescription of expensive treatments and drugs, regardless of their effectiveness, to those whose health permits their use. Instead, he would be completely free, for the first time, to consider each patient solely on the basis of professional judgment and not with the appraisal of a bill collector.

As for the patient, no longer would he be compelled to consider the cost of illness first and its consequences later. He would not feel hesitant, for fear of the cost, about going to the doctor at the first sign of illness, and thereby reaping the benefits of modern preventive medicine.

It is hardly necessary to picture for you the endless chain of beneficial results which would flow automatically from the mere fact that, on the enactment of this bill, almost all of the people in the United States would have the purchasing power with which to buy all the medical care they need.

There are those who fear this program, who contend that it would "regiment" the doctor, interfere with the freedom of the patient, destroy the standards of medical care and lead to socialism.

These are fearful phantoms, and not one of them could possibly materialize under the terms of this bill. Its administrative provisions guarantee the widest decentralization of authority, with full representation of both doctors and laymen. They assure that the most important decisions affecting doctors and patients will be determined by their own local representatives, in their own communities. And to make the assurance doubly binding, the bill specifically spells out and guarantees all the freedoms which we are told it would take away.

It seems plain to me that only by this method of social insurance can we effectively shore up our voluntary hospitals and our system of private medical practice, and forestall the need for a further extension of state medicine. We are moving fast in that direction, and I sincerely hope that the President's program will not be delayed too long.

SENATOR TAFT: Mr. Kingsley, I have not interrupted you, but I do not want my silence to indicate my agreement even with some of your conclusions about our bills, or with some of the general statements.

You say, "It appears to be agreed, for instance, that our present system of payment for medical care is totally inadequate." I do not agree to that at all. But there is no use in getting into an argument on the general principles of the two bills. I simply want to say that I disagree with the conclusions you make in respect to a dozen different things in the statement.

I would like to find out exactly what S. 1679 does, if that is in order at this time. Mr. Chairman.

SENATOR MURRAY: I see no objection to proceeding along that line.

SENATOR TAFT: First is Title I, Education of Health Personnel. What has the Federal Security Administration done about consulting with the various medical schools, and what recommendations have they from the medical schools or public health schools? And exactly what is the provision that you are contemplating in this bill? I notice it covers nearly 70 pages.

MR. KINGSLEY: Last year Senator Thomas put in a bill on this subject which differs from the provisions in Title I of S. 1679. This current bill differs from that because of the number of consultations we have had with representatives of medical schools and with university presidents. In fact, the university presidents and the deans of medical schools have taken somewhat different positions as to the best approach to the problem.

SENATOR TAFT: Yes. I have talked to many of them, and I found many differences of opinion. That is the reason I want to raise this question. You notice in our bill, while we did provide some temporary things for doctors only, we provided for setting up a commission to try to study the problem. I wondered what you had already done in that respect.

MR. KINGSLEY: The medical deans set up a committee, or, perhaps, we set it up in consultation with some of their leaders. About thirty medical deans met with us on several occasions and canvassed this situation. And we have also met on two or three occasions with representatives of the university presidents.

The major request, I would say, from both the presidents and the deans was for federal assistance in maintenance and operation and federal assistance for construction. There was not great enthusiasm on the part of either group for an incentive system which would require them to expand their enrolment, although that is what we are primarily interested in. The presidents, I think, are more inclined toward that. In fact, President Conant recommended to us a differential. You have the same idea in your bill, \$500 for existing enrolment, and \$750—

SENATOR TAFT: Yes. Do you think you can get much increased enrolment by that? The limit seems to be on facilities and teachers rather than on the willingness to take people.

MR. KINGSLEY: It is a complex situation, and the bottleneck in any given school may not be the one that exists in other schools. In some places it is hospital beds, and in some places they need a teaching hospital. In some places it is the laboratory facilities, and in some instances it is a matter of the university budget. So the situation needs a sort of multilateral kind of approach, which is provided in this particular title. There are, as you know, provisions here for grants for maintenance and operation.

SENATOR TAFT: First you have grants direct to the school of so much per student, \$300 per student, and \$1,700 for every student over the average in recent years, whatever the formula may be.

MR. KINGSLEY: Yes. That \$1,700 figure was arrived at by taking the average cost of medical education and the average tuition paid and subtracting the tuition from the cost. It cost the average university about \$1,750 to educate each medical student.

SENATOR TAFT: Is there any provision for grants to medical schools to increase facilities, buildings, equipment, and so forth?

MR. KINGSLEY: Yes, there are provisions as far as construction is concerned for both loans and grants, and for both construction and equipment, in Section 373. There is a provision for an unspecified amount. It is a matter of appropriation authorization in general terms for these purposes.

SENATOR TAFT: Who distributes that? That always worries me when you get a federal thing like that; every state wants a new medical school whether they are able to handle it or not.

MR. KINGSLEY: It would be distributed directly to the schools by the Surgeon General. And there is only a broad general guide as to how he would distribute it.

SENATOR TAFT: It is in his discretion entirely?

MR. KINGSLEY: At his discretion except that grants are to be made in the order of significance of their effect in alleviating shortages.

SENATOR TAFT: And he determines that?

MR. KINGSLEY: Yes, sir, it is very broad—up to 50 per cent of cost of the project.

SENATOR TAFT: Can he set up new medical schools under that authority?

MR. KINGSLEY: Yes, it would be both.

SENATOR TAFT: It seems that I remember Dr. Parran's policy in the expansion of medical schools related to the gradual addition of a certain number of medical schools to the total rather than the expansion of existing schools. Am I correct in that?

MR. KINGSLEY: I think that is right. I think originally the position was support for creation of new schools.

SENATOR TAFT: My recollection was that he figured it would take ten years to get to the point that he thought you ought to reach.

MR. KINGSLEY: I think that is about what our estimates are today.

SENATOR TAFT: Have you any estimate on the cost of these two items, \$300 and \$1,700?

MR. KINGSLEY: The Public Health Service at the moment is making a survey on need for construction among medical schools. Whether they have advanced far enough to give a figure, I do not know.

SENATOR TAFT: Was there also included here a provision for scholarships direct to students?

MR. KINGSLEY: Yes, sir, there is a provision for scholarships and for the payment of maintenance costs to medical students; maintenance allowances to medical students varied in terms of dependents in addition to a tuition payment for fees and books. That is in Section 377 and Section 378.

SENATOR TAFT: Is there any particular immediate need for that? There may be in time to come, but is there any immediate need for that in view of the tremendous number, four or five times as many, people applying for medical schools than they can take in?

MR. KINGSLEY: I would say in viewing the problem merely from the standpoint of expanding the number of trained personnel, that at the moment there is not a need for it. On the other hand, in terms of providing, of getting the best trained personnel, there is need for it. But it is a different kind of emergency, a different kind of a problem rather than a shortage problem.

SENATOR TAFT: I notice the Gallop poll showing 28 per cent of all families wanted their sons to be doctors compared to 14 for engineers, and then about 9 or 10 for lawyers and business executives.

MR. KINGSLEY: The situation in that respect, I think is different, perhaps, in connection with dentists, where a large proportion of the dental students at present are under the G.I. bill, and where they have some concern as to whether they will keep up their enrolments as the G.I. benefits fall off, and the situation with respect to nurses where there is a real need to increase the allowances apparently for student nurses in order to recruit people into that.

SENATOR TAFT: To get enough?

MR. KINGSLEY: Yes. It is quite different from the doctor situation.

SENATOR TAFT: What is this long section on practical nurse training?

MR. KINGSLEY: That provides for training in the states through the vocational education agency, and at the federal level through the Office of Education, of practical nurses who are not fully qualified nurses. They are at a lower level of occupation, as you know, in terms of specialization than a fully qualified registered nurse. But they will help to fill the gap between supply and demand for nurses at the present time or for the foreseeable future.

SENATOR TAFT: It is a shorter course?

MR. KINGSLEY: A much shorter course. There are programs, as I understand, in a number of states at the present time.

SENATOR TAFT: Isn't there \$15,000,000 a year?

MR. KINGSLEY: I believe there is a specific authorization.

SENATOR TAFT: Page 36, \$15,000,000 a year.

MR. KINGSLEY: In general, my feeling is that one of the problems in terms of shortages that we face is a tendency toward overspecialization, toward more training than is needed for a particular kind of job. If we can get what we used to call during the war a job dilution approach, less highly trained persons could do a number of these things, and that would help greatly to solve the whole problem and to reduce the cost of medical care.

SENATOR TAFT: Title II deals with medical research. This whole field of medical research is being dealt with in detail and in general, and the basic research, we were told, is supposed to be in the National Scientific Foundation's work. Do you

need any additional treatment here, or what is the purpose of putting it in this bill?

MR. KINGSLEY: There are two important points in this particular title. The tendency of the Congress has been to set up a whole series of categories of research institutes under the national institutes of health. And in each session of Congress there is a tendency to set up new ones, and it is difficult to develop a coordinated, balanced research program under that kind of an approach, because obviously the number of categories could be multiplied almost indefinitely.

Now this provision, among other things, authorizes the Surgeon General, with the approval of the Administrator, in part (d) on page 32, Section 202, to create additional institutes, and it also permits him, I believe, to abolish institutes when enough emphasis has been given to that particular point.

SENATOR TAFT: Does it include the right to grant money to private institutions, I mean nonprofit institutions?

MR. KINGSLEY: Yes, this would not change the existing authority in that respect under the national institutes of health, and those grants are for the most part direct to institutions or individuals.

SENATOR TAFT: The effect of this title would be to transfer the whole control, so to speak, of this kind of thing to the Appropriations Committee.

MR. KINGSLEY: It might have that effect.

SENATOR TAFT: They would probably insist on detailed programs there before they granted any money, I assume.

MR. KINGSLEY: We would hope that they would not, but in terms of the history of the thing so far, I think that would be a good guess.

SENATOR TAFT: You mean you would like them to give you a lump sum.

MR. KINGSLEY: Well, in terms of the development of research programs involving scientific judgment, it seems preferable to have a good deal of leeway in the Surgeon General and the directors of the National Institute of Health as to just what diseases are going to be given emphasis at a given time, but I think the point is probably well taken that the tendency of the Appropriations Committee would be clearly to write in specific restrictions.

SENATOR TAFT: What is the connection of the National Research Foundation setup, the bill the Senate passed, and now in the House, between them and the Surgeon General's activities? Would they be coordinated?

MR. KINGSLEY: That has given me a good deal of concern, not only in terms of relations with the Surgeon General, but more broadly than that because I was the executive secretary of the present Scientific Research Board a few years back, and we surveyed the whole federal research effort, and it seems to me although there is no assurance in terms of the way the bill is now drafted that the National Science Foundation should be a capstone to this whole business, and should fill in gaps and attempt to coordinate and do a balancing kind of job in the fields of basic research. It cannot go into applied research, and a good deal of research of the National Institute of Health is what I would call applied research.

SENATOR TAFT: The attempt to find the cause of cancer is all basic research?

MR. KINGSLEY: There is no question about that, but when you get into the basic part of the research it does not make much difference whether you are working on cancer or something else. Because it is basic it is the kind of thing that cuts across the board and involves a lot of things about cell growth or disease.

SENATOR TAFT: Is this Title II in a separate bill, also, Senator Murray? Did you not have hearings on a bill on some of these special diseases?

SENATOR MURRAY: We have a number of separate bills here on cerebral palsy, multiple sclerosis, rheumatism and epilepsy. They are separate bills and we held hearings on them.

SENATOR PEPPER: Leprosy, also.

SENATOR TAFT: Did you also consider a possibility of reporting out something like Title II separately, perhaps, in lieu of a lot of new institutes?

SENATOR MURRAY: Yes, to have them all in one group, and I think that those who are advocating the bills would get together and agree on some such program as that. It would make it less expensive to operate than if you had a separate institution for each one because the specialists or experts on one disease would be available for work in the other diseases. They are all men trained along the lines that would make them available for almost any kind of a study, any kind of research.

SENATOR PEPPER: Mr. Kingsley, at present neither the Surgeon General nor the Federal Security Administrator has the authority to set up a new institute as such.

MR. KINGSLEY: That is correct.

SENATOR PEPPER: They do have authority to carry on general research.

MR. KINGSLEY: That is right.

SENATOR PEPPER: But heretofore we have been proceeding on the assumption that it required statutory authority to set up an institute. We are just coming to an awareness of many other things that need to be the subject of special study in addition to the few that already are embodied in the institutes that exist, and I think the idea was to authorize an administrative setup of various institutes when funds were available, and they felt ready to move into that field without, perhaps, Congress having to pass a separate bill on each subject from time to time. Was that not what was basically behind this?

MR. KINGSLEY: That is what I would understand, plus the fact that there would be greater administrative flexibility in terms of how the research program was laid out.

SENATOR PEPPER: That is true. At the present time will you enumerate the institutes we now have.

MR. KINGSLEY: We have the National Cancer Institute, Heart Institute, Mental Health Institute and Dental Institute.

SENATOR TAFT: Is there some special provision here about the payment of salaries to thirty specially qualified workers?

MR. KINGSLEY: In the research title? I do not recall any such provision.

SENATOR TAFT: Page 47.

MR. KINGSLEY: Oh, I am sorry. I do recall that now. It is similar to legislation which has already been adopted for the National Defense Establishment, and which permits them to select a specified number of highly qualified persons and pay them above the civil service ceiling. This would do the same thing for the National Institutes of Health.

SENATOR TAFT: That is to pay not less than \$10,000 or more than \$15,000 per annum?

MR. KINGSLEY: Yes, for no more than thirty positions.

SENATOR TAFT: Those people would be supposedly technically trained scientists.

MR. KINGSLEY: They would be outstanding scientists.

SENATOR TAFT: That is not for administrative purposes?

MR. KINGSLEY: No, sir.

SENATOR TAFT: Title III is the hospital survey and construction amendments. Is that more or less the same as the bill that Senator Hill's committee has considered?

MR. KINGSLEY: I believe this identical. In general what it does is to double the amount per year, raise the amount from \$75,000 to \$150,000 of federal money per year and to extend the program beyond the five year limitation.

SENATOR TAFT: We have already recommended that bill, have we not, Senator Hill?

SENATOR HILL: No, we have not. We have concluded the hearings on it, but we have not been in executive session on it yet.

SENATOR TAFT: It will probably be dealt with separately then, at least, by reporting out a separate bill on the subject.

SENATOR HILL: That is right.

SENATOR PEPPER: Will you allow me to interrupt right there? Title III, I believe, however, does embody the Holland-Pepper amendment that we offered to the Hill bill in making it retroactive, that is a formula that is presently embodied in the Hill bill retroactive to the beginning of the program.

SENATOR HILL: That is right, and the Pepper-Holland amendment is before our subcommittee in connection with the bills that we have there.

SENATOR TAFT: Title IV, Special Aid for Rural and Other Shortage Areas. Will you explain what the proposal is to meet that?

MR. KINGSLEY: Well, this title is devised to overcome as rapidly as possible the more striking discrepancies in the availability of facilities and personnel as between different sections of the country, particularly rural areas as compared to urban, and it has a number of separate provisions under Section 402. It provides for federal grants, which might be used to guarantee minimum incomes or to guarantee operating expenses to people who will go to the shortage areas, for grants to cover their transportation and that of their families and of

household goods, and for grants to subsidize the beginnings of group practice operations.

It also provides for loans for the cost of facilities, and it provides for grants and loans for the construction and equipment of health centers and clinics and so on.

SENATOR TAFT: Why is that not covered by the hospital bill as far as health clinics are concerned?

MR. KINGSLEY: We have raised a point in that respect in our report on this bill. There is a problem in respect to gearing this into the hospital construction program. There is a provision in here that that shall be done. I cannot put my finger on it right at this moment. Oh, yes, Section 403.

Presumably this activity which would be a special activity engaged in by the National Health Insurance Board is a part of the make ready effort to get ready for full service under health insurance, would be engaged in full light of the State plans under the Hospital Construction Act, but there is a problem there. There is no question about it.

SENATOR TAFT: We have in our bill, we do have the general question, I know, of doctors not going naturally to areas where they cannot earn a living. We have simply provided that in a general state plan the state may use federal money to provide inducements to physicians and dentists to practice in areas which would be unable to attract physicians or dentists, leaving it to the states to determine the exact method in which that money might be used in the plans that they submit to the Surgeon General.

It seems to me this is a rather elaborate plan for grants and loans to all sorts of different persons. They are rather confused with the hospital plan.

MR. KINGSLEY: With respect to your first point, Senator Taft, that this bill also provides in Title VII in having provisions for state plans, for the state to submit plans to do exactly the same thing, once they get in operation, so I would read this as being a title which would be mainly applicable in the period before the health insurance system is in full operation, although it could be used at any time to help equalize differences from one section to another.

SENATOR TAFT: This assistance to farmers' experimental health cooperatives, where does that come from? Is that your development or did farm organizations suggest it?

MR. KINGSLEY: I believe that was worked out by the sponsors. I am not certain with whom they worked. The criteria for selecting particular cooperatives to assist are sufficiently broad so that we think there might be some administrative problem involved in it.

SENATOR TAFT: It runs up about \$15,000,000 a year?

MR. KINGSLEY: Ten million dollars the first year and \$15,000,000 thereafter.

SENATOR TAFT: Title V, Grants to States for State and Local Health Work, that is the local public health units section, is it?

MR. KINGSLEY: Yes, and I think that is identical with the bill that is before—

SENATOR TAFT: We are now considering it in a separate bill.

SENATOR MURRAY: That is before the Hill committee. And also Title III.

SENATOR HILL: We have concluded hearings on that bill, too, and hope to go into executive session on it this week.

SENATOR TAFT: Title VI, Research in Child Life and Grants for Maternal and Child Health and Crippled Children's Services. Part (b) grants to states, is just an extension of the existing rule on maternal and child health program?

MR. KINGSLEY: Yes, and the research title is substantially identical except for the amount involved, with a bill introduced by Senator Douglas which I think is before this committee. His bill, as I recall, provides for \$7,500,000 for research grants, and this particular title provides for \$10,000,000.

SENATOR TAFT: Has it anything to do with health?

MR. KINGSLEY: Well, the general approach here has something to do with health ultimately, but there would be no research projects specifically in, let us say, infantile paralysis or a particular disease.

SENATOR TAFT: It sounds more like psychology than health.

MR. KINGSLEY: Well, it would provide for broad integrated programs, study in terms of the effect of environment on the child, and so on, involving almost all the social sciences rather than exclusively the biologic sciences.

SENATOR TAFT: It rather seems to me to be the subject of a separate bill. Title VII is the Prepaid Personal Health and Insurance Benefits.

MR. KINGSLEY: Yes, sir.

SENATOR TAFT: Was this prepared in contrast to some of the other parts of the bill, by the Federal Security Administration in cooperation with the sponsors?

MR. KINGSLEY: Well, yes and no. It does not depart very far, with some modifications, but basically it resembles earlier bills which were prepared by, I believe, the counsel's office in the Federal Research Agency. In this particular instance, however, this is not specifically a bill which was prepared by us. In a few instances it perhaps departs in some small detail from what we would have suggested. It was prepared by the sponsors. We provided some assistance in drafting. We loaned one of our lawyers—

SENATOR TAFT: Well, do you approve of all of it? You say there are some things you might question? In what respect does it differ from the ideas of the Federal Security Administration?

MR. KINGSLEY: There are some things that need to be spelled out in more detail. There is a problem as to what is a specialist, for example, under Section 711. By and large, subject to some small details which again we have spelled out in our report on the bill, it does correspond with our views.

SENATOR TAFT: This insurance is paid—

MR. KINGSLEY: One other point, if I might interrupt. A major point seems to be that the methods of allocating funds under this title as written to the states, the methods of allocating funds are a little unprecise. Now whether they can be made more precise, I do not know. We would prefer, if a formula could be devised, an objective formula, to have such a formula. Some of our people have been working on that, but as it is written now it would be the guide to the Administrator or to the National Health Insurance Board in allocating funds as to just what basis you ought to move under, and the more precise you can make it, the less trouble you can get into.

SENATOR TAFT: How can you vary between the states? You have to provide the money that is called for by the operations system. There is no dividing of any money between the states, is there?

MR. KINGSLEY: Yes. Under this you would—

SENATOR TAFT: You insure people and give them a certain health service. Then you have got to give them that service no matter what state they are in.

MR. KINGSLEY: As this bill is written the maximum amounts which could be provided under the specific language of this bill would be a 3 per cent pay roll tax provided by workers and employees, half by each, plus the equivalent of 1 per cent of pay roll provided out of general revenue, or a total of 4 per cent which, on the basis of the present tax base, would be a total of about \$5,600,000,000, and that would have to be divided up in some way.

SENATOR TAFT: That is not in this bill, is it?

MR. KINGSLEY: I believe it is. I will have to look in the index. It is fiscal provisions, page 147. Now under (b) it reads:

There shall be appropriated to the account for the fiscal year ending June 30, 1952, and for each fiscal year thereafter—

(1) Sums equal to 3 per centum of all wages estimated to be received during such fiscal year;

(2) Sums equal to the estimated cost of furnishing dental services and home-nursing services as personal health-service benefits during such fiscal year;

(3) Any further sums required to meet expenditures to carry out this title.

I take (d) to be a general limitation on those provisions.

SENATOR TAFT: You cannot find any place where there is any tax levied.

MR. KINGSLEY: No.

SENATOR TAFT: Is that what is contemplated, do you know, a 3 per cent pay roll tax?

MR. KINGSLEY: Yes, sir.

SENATOR TAFT: There is nothing in here about dividing it between the employer and employee.

MR. KINGSLEY: I think that is correct.

SENATOR TAFT: That was left out so the bill would not go to the Finance Committee, was it not?

MR. KINGSLEY: That may have had something to do with it.

SENATOR TAFT: But to get this picture complete, there should be added to this bill, or the bill will be followed by a tax bill which levies $1\frac{1}{2}$ per cent on the worker and $1\frac{1}{2}$ per cent on each employer. Is that correct?

MR. KINGSLEY: Yes, sir.

SENATOR TAFT: What about the self employed?

MR. KINGSLEY: Self employed would pay $2\frac{1}{4}$ per cent.

SENATOR TAFT: Why do they pay $2\frac{1}{4}$ per cent against 3?

MR. KINGSLEY: Well, it is an arbitrary decision. It is their full part plus half of the employers, or the full part of the employer plus half of the worker's part.

SENATOR TAFT: Is it $2\frac{1}{4}$ per cent of their income up to \$4,800? Income derived from business?

MR. KINGSLEY: That is right, of net income up to \$4,800.

SENATOR TAFT: Now what is this 1 per cent on page 148?

MR. KINGSLEY: One per cent is a limitation on the contributions from general revenue. It provides that the maximum contribution, from general revenue in the years 1952 to 1954, fiscal year 1952 to 1954, shall be equal to $\frac{1}{2}$ of 1 per cent of aggregate pay roll, and thereafter equal to 1 per cent of aggregate pay roll. That is in subsection (d) of Section 771.

SENATOR TAFT: Well, that is the 3 per cent starting at $\frac{1}{2}$ per cent and it then goes on up to 1. That does not cover (c). What is that 1 per cent in (c)? Is that just a one year reserve?

MR. KINGSLEY: In (c) the first appropriation is the first year reserve, and thereafter whether this language says it or not, I believe the intent of that would be that there shall be an over-all limitation in terms of the contribution out of general revenue.

SENATOR TAFT: So you figure 3 per cent will come out of pay roll tax and 1 per cent out of general revenue?

MR. KINGSLEY: Or a total of 4 per cent.

SENATOR TAFT: And 4 per cent you figure on \$140,000,000,000.

MR. KINGSLEY: About \$140,000,000,000; yes, sir.

SENATOR TAFT: One hundred forty billion dollars of pay roll. Just going back to those self employed, if this thing costs 3 per cent plus 1 per cent, who pays the rest of the self-employed's money? They only pay $2\frac{1}{4}$ per cent. Do you general taxpayers pay it?

MR. KINGSLEY: I would think that comes out of general revenue.

SENATOR TAFT: I do not quite see the basis for the distinction.

SENATOR PEPPER: Mr. Kingsley, you said not to exceed 1 per cent, did you not?

MR. KINGSLEY: Yes, sir.

SENATOR PEPPER: Not to exceed 1 per cent out of the Government Treasury.

MR. KINGSLEY: As far as the self employed are concerned—well, for that matter as far as any of this is concerned, as Senator Taft points out—it would take another bill in terms of providing the money. These are our recommendations. I would certainly admit on the self employed it is a purely arbitrary type of thing.

SENATOR TAFT: I notice, in the division of national income in these economic indicators published by the Joint Committee on Economic Report, the compensation of employees is \$142,000,000,000 and that is just employees without counting the self employed.

MR. KINGSLEY: Yes, sir.

SENATOR TAFT: That is the first quarter of 1949, so that your total figure might have to be figured on a larger basis than \$140,000,000,000, I take it.

MR. KINGSLEY: Well, of course, there is no \$4,800 limitation there.

SENATOR TAFT: Yes, that is correct. That reduces the total.

MR. KINGSLEY: And I believe—at least our people tell me—that on the basis of the \$4,800 limitation, it is approximately \$140,000,000,000, maybe \$141,000,000,000.

SENATOR TAFT: About \$5,600,000,000. Do you know what the British cost is today?

MR. KINGSLEY: Well, I think it is about \$600,000,000.

SENATOR TAFT: The appropriation proposed for national health services in Great Britain for fiscal 1949 budget is 263,000,000 pounds which, multiplied by four, is \$1,053,000,000, and there are three times as many people, approximately, in the United States, so that would be \$3,160,000,000. My estimate is that the type of services and cost of living, so to speak, the payments for doctors and all, would be nearly double here what it is in England. So that would more or less accord with your general estimate of \$5,600,000,000, would it not?

MR. KINGSLEY: Yes.

SENATOR TAFT: Now that money is levied and collected by the Internal Revenue Department to be paid into the Treasury.

MR. KINGSLEY: Yes, sir, in a separate account.

SENATOR TAFT: Under this provision Congress is authorized and more or less required, I would assume, to appropriate that sum into a special fund known as the personal health services account?

MR. KINGSLEY: Yes, sir.

SENATOR TAFT: Then what happens to that?

MR. KINGSLEY: The personal health services account is then, aside from the provisions for a reserve—there are some provisions here for a reserve at the beginning of 10 per cent—aside from those provisions and later 5 per cent, that fund is allocated to the several states by the National Health Insurance Board who are undertaking to provide this program.

Now as I read the bill, I think that the states have to file a state plan and to have approval to participate in the program. Once that has been done, then this fund would be allocated to them, and that is in Section 772. It begins on page 149.

In Section 772(a) it lists the bases upon which the allocation is to be made. As I have already indicated, these are very broad, and if we could get more specific ones, we would prefer it from an administrative standpoint.

SENATOR TAFT: As a matter of fact, does not the federal government keep a complete record of millions of persons who pay these funds? Is that not all kept here in Washington?

MR. KINGSLEY: Yes, sir, that is one of the advantages of this, that so far as the same people are covered both under O.S.I. and under this, and our recommendation for expenses of coverage under O.S.I. would make them identical for the coverage provided under S. 1679, so far as the coverage is identical, the same records can be used precisely, and there would be a considerable saving in administrative costs as a result of that.

You will note on page 152 that administrative costs cannot in any fiscal year exceed 5 per cent of the aggregate. Well, that is allotments to the states, but it would be even less than that so far as the federal government is concerned.

SENATOR TAFT: The costs of indigent care of which we spoke would be in addition to this \$5,600,000,000, would it not?

MR. KINGSLEY: Yes, sir.

SENATOR TAFT: Whether it is handled under this bill, the provision to which we referred, or whether it is handled under the other bill.

MR. KINGSLEY: That is correct.

SENATOR TAFT: It would be in addition to this figure?

MR. KINGSLEY: We have estimated that our recommended amendments to the Social Security Act which the Ways and Means Committee has considered might cost as much as \$200,000,000 for indigents.

SENATOR PEPPER: For persons not fully employed?

MR. KINGSLEY: It is for persons actually on relief, so in effect they are being taken care of now by one means or another.

SENATOR TAFT: That is a very small proportion, is it not? That is only one twenty-eighth, or around 3 per cent of the total falling in that class. Is that not a very small proportion to calculate for the indigents?

MR. KINGSLEY: Of course it is on a matching proposition as far as these particular amendments are concerned, so that the states would expend at least that much.

SENATOR TAFT: Now this subject of the states, this business of the money going to the states and state plans is entirely new, is it not, in this type of bill?

MR. KINGSLEY: I believe that it is a departure from the earlier bills.

SENATOR TAFT: Is it not a fact that the states have no discretion in what they pay out, the amount they pay out or the classes they take care of? Are not the states under this bill purely agents of the federal government?

MR. KINGSLEY: In effect, yes, sir.

SENATOR TAFT: And they are guided by regulations made by the Surgeon General and the National Health Insurance Board.

MR. KINGSLEY: And an advisory board.

SENATOR TAFT: Who pays the salaries and wages of the state personnel who handle it?

MR. KINGSLEY: They are paid by the state, but the administrative costs are included in the federal money.

SENATOR TAFT: Is this not a federal program, and is not the introduction of the states in here merely an effort to make it a decentralization of administration?

MR. KINGSLEY: I would describe it as a federal program with highly decentralized administration.

SENATOR TAFT: Yet in effect the states must take orders from the federal bureau, must they not? Take, for example, regulations, say regulations setting up under what conditions a man should have the right to have the state pay for the expense of a roentgenogram. That would be governed the same in every state by regulations issued by the federal bureau, would it not?

MR. KINGSLEY: Well, on that particular illustration, I would not be certain. In general the types of regulations which can be issued—I am looking for the section now—by the National Board are rather limited and broad, and there is a good deal of authority in terms of what the state can do, and even more in terms of what the localities can do under this.

SENATOR TAFT: I read to you from pages 106 and 107, Section 702, where it says:

Medical services, hospital services, and, except as otherwise provided in subsection (p) of this section, all other personal health services specified in Section 701 shall be made available as benefits to eligible individuals in all health-service areas within the United States.

That is a compulsory requirement that the state do it, and then in (b):

If the Board, after consultation with the advisory council, finds that the personnel or facilities or funds that are or can be made available are inadequate to insure the provision of all services included as dental, home nursing, or auxiliary services under Section 701 of this title, it may by regulation limit for a specified period the services which may be provided as benefits, or modify the extent to which, or the circumstances under which, they will be provided to eligible individuals.

MR. KINGSLEY: Of course that is specific in terms of these particular things; the dental and home nursing are auxiliary services.

SENATOR PEPPER: But, Senator, you did not read line 13. You left the impression by what you read that there was a mandatory requirement to give all these services to every covered person, but in line 13 it says, "as rapidly and as completely as possible having regard for the availability of the professional and technical personnel and the hospital and other facilities."

SENATOR TAFT: I was only trying to find out whether there was any discretion left to the states at all, or whether [by] this power of the Board to make regulations and withhold or modify services, those must be uniform throughout the United States.

SENATOR PEPPER: Mr. Kingsley, there is a state agency and a local authority. As a matter of fact, it is the physician, the general physician who determines whether you get a specialist or not, for example, is it not?

MR. KINGSLEY: Yes, services of a specialist are available on referral of the general practitioner.

SENATOR PEPPER: That is on the order of a general practitioner?

MR. KINGSLEY: Yes, sir.

SENATOR PEPPER: Do not these local boards and state agencies have authority for the general administration of the program?

MR. KINGSLEY: They do, as I would read it.

SENATOR TAFT: Except that the Board may change the regulations under which they operate every day, may they not, and that applies to all forty-eight states just as if they were branches of a federal department. Am I correct?

MR. KINGSLEY: I think that is not true because of the rather specific provisions in respect to the state plans. What shall be in state plans is outlined in some detail, and I would take it that no national organization, no national administrator could refuse to approve a state plan which met those broad specifications on the basis of any regulations it would draw up itself.

Section 712, on page 113, outlines what a state plan has to contain. It has to designate a single agency for its state administration, has to provide for the designation of a state advisory committee including both professional and lay people, provide for decentralizing administration for the localities; it has to provide for a merit system for making surveys of the resources and needs of the states, for such reports as the board may require; it has to provide for safeguarding federal funds, provide for cooperation with other public agencies of the states

or its public political subdivisions which are concerned with related programs. Then it says:

"The Board shall approve any state plan which complies with these provisions."

SENATOR TAFT: In other words, the states have no right to say who they will serve and who they will not serve. All of these provisions of the state plan seem to me to be merely administrative. It does not even suggest that a state could say, "We are not going to do this or that," or say that they will not comply with the regulation made by the federal government as to the dispensation.

MR. KINGSLEY: That is correct. Anybody who is covered by this bill would have to be provided with services under a state plan. This is a national determination of coverage.

SENATOR PEPPER: Mr. Kingsley, on page 130 there is a declaration of policies, is there not, which reads as follows:

It is the intent of Congress that the benefits provided under this title be administered wherever possible by the several states, in accordance with plans of operations submitted and approved as provided in this part, and in each state insofar as feasible by the same state agency which administers or supervises the administration of the state's general public health and maternal and child health programs.

I mean it is obviously the intention of the Act as much as possible to put the finality of decision at the local level in the hands of the states.

MR. KINGSLEY: Yes, I would think that that is quite clear in terms of the way in which this whole administration section is developed.

SENATOR TAFT: And then on page 134, if the state does not submit a plan, then the federal government steps right in and does it anyway itself, is that not correct?

MR. KINGSLEY: That is correct. We start out with a complete national coverage. We then contract out of it, in effect, if the state wishes to carry out the program.

SENATOR TAFT: Well, in effect it is an attempt to say that instead of having local administrative offices under the name of the federal government, the administration is by state officers but the state officers are subject to the direction in every respect of the federal bureau which bosses the job.

MR. KINGSLEY: Well, of course I would not agree in every respect.

SENATOR PEPPER: May I call your attention to page 134, where, after the provisions of the state plan which you referred to a moment ago, the following appears:

No change in a state plan shall be required within one year after initial approval thereof, or within one year after any change thereafter required therein, by reason of any change in the regulations or standards prescribed pursuant to this Title.

Page 134, the top of the page right after the content of these state plans, then appears to be a prohibition against the federal government within a period of a year requiring any alteration in these plans. It says:

No change in a state plan shall be required within one year after initial approval thereof, or within one year after any change thereafter required therein, by reason of any change in the regulations or standards prescribed pursuant to this Title, except with the consent of the state or in accordance with further action by Congress.

So that once a state submits a plan and it is approved, the federal government cannot require it to be changed within a year after it is initially submitted. It cannot require any change in a plan once approved for a period of a year thereafter. That is correct, is it not, the language I read?

MR. KINGSLEY: Yes.

SENATOR TAFT: My suggestion was that there was not anything in the plan that anybody would care much about changing. It does not have anything to do with the actual rules by which medicine is dispensed.

SENATOR PEPPER: Now one other thing, Mr. Kingsley. Is it not the state which employs the personnel which administers the program?

MR. KINGSLEY: Yes, sir.

SENATOR PEPPER: And I believe the state prescribes the compensation, does it not, that they receive?

MR. KINGSLEY: Yes, the only provision restricting personnel so far as the state is concerned is that they shall be applied under a merit system. I would like to say in respect to Senator Taft's last comment that the federal government would regulate everything having to do with medicine, it seems to me that quite the contrary is true, that the basic things having to do with the provision of the medical services are regulated by the local community and by either the local administrative

officer or the local administrative board, whichever a state plan provides for.

It is at that point where determinations are made as to the local supply of services and as to the methods by which physicians are going to be paid, and where local complaints are heard that the real administration occurs so far as the provision of medical services is concerned.

SENATOR PEPPER: Now just to emphasize that point, to let it come from you, there is no authority in the federal government that has anything to do with the application of professional treatment?

MR. KINGSLEY: None whatever.

SENATOR PEPPER: The Government of the United States has nothing to do with the kind of treatment or the lack of treatment that a qualified physician or technician prescribes?

MR. KINGSLEY: Absolutely not.

SENATOR PEPPER: It is very clear in the intention of this Act, is it not, that there is no intention on the part of Congress or desire to grant the authority to interfere with the free choice of doctor or other technician that the patient may make?

MR. KINGSLEY: No, sir, it is quite specifically provided that there shall be no such interference.

SENATOR PEPPER: And the doctor also or the technician is also allowed a free choice with respect to the patient he serves?

MR. KINGSLEY: That is correct.

SENATOR PEPPER: And doctors and other technicians determine voluntarily whether they will come into the plan or not, do they not? They may come partially in or they may stay out altogether or they may agree to accept the fees, the standard and scale of fees that the agency pays?

MR. KINGSLEY: That is correct.

SENATOR TAFT: But as to the provision in section 717, it says that each agreement that is made with doctors or hospitals or anybody else "made under this part shall specify the class or classes of services to be furnished or provided pursuant to its terms, shall contain an undertaking to comply with this Title and with regulations prescribed thereunder,"—that is by the federal government—"shall be made upon terms and conditions consistent with the efficient and economic administration of this Title, and shall continue in force for such period and be terminable upon such notice as may be agreed upon."

Every agreement made is subject to the regulations issued by the Surgeon General.

MR. KINGSLEY: That is every agreement made under Section 716, agreements with voluntary health insurance and other organizations.

SENATOR TAFT: Also 715, agreements with individual practitioners, hospitals and others. 717 applies to both, also 714, auxiliary services.

SENATOR PEPPER: Mr. Kingsley, if there should be any reason at all for anyone to believe or fear that this power to make regulations interfered with these freedoms that we just discussed a moment ago, you would have no objection to its being written into the law in clear terms that those freedoms cannot be interfered with by regulations or any other way?

MR. KINGSLEY: None whatever. In fact, the more specifically the rule-making authority of the national board is spelled out, the better it is administratively.

SENATOR TAFT: And does the Act require the payment of this money per service, not per capita, not on a salary basis?

MR. KINGSLEY: No, sir. It provides three alternative methods on page 117 of Section 718. The local community can decide, the doctors and the patients.

SENATOR TAFT: Having once started a per capita system, does not this business of your selecting your doctor and having the doctor select you go out the window the moment you have a per capita pay system?

MR. KINGSLEY: No, because you can change it at any time. Now it is limited in this sense.

SENATOR TAFT: As a practical matter has not the experience been in England that otherwise, where you have a panel of that sort, that right practically disappears? You get away from the payment per service basis.

MR. KINGSLEY: I do not think so. Now it is limited in this sense. You have a very popular doctor in an area; obviously he is going to have to limit the number of people he can take, but he does it already. He does it under the present system. He refused patients, and to that extent I cannot go to him if he is all filled up. The same thing would be true under this.

SENATOR TAFT: You never have gone to him. The claim is if you have a doctor, you can keep him. You have never been to that doctor under the present system. If he has had you as a patient, he will always take you back, but under the panel system, he cannot.

MR. KINGSLEY: You can always keep the same doctor under these provisions if (a) you wanted to, (b) he was in the system and (c) he wanted you. If those three conditions were met, you could keep the same doctor.

SENATOR PEPPER: But if he wants to get you off of his panel as soon as you can get on some other panel, he can get you off of his panel?

MR. KINGSLEY: Oh, yes, just as now he can say, "I do not want to treat you any more."

SENATOR PEPPER: And if you do not like him and want to get off of his panel, you can transfer to another?

MR. KINGSLEY: Yes, sir.

MAY 24, 1949

United States Senate, Subcommittee on Health of the
Committee on Labor and Public Welfare

SENATOR JAMES E. MURRAY, Presiding

Present: SENATORS MURRAY, PEPPER, HUMPHREY, TAFT
and DONNELL

**Statement of Honorable Robert A. Taft, United States
Senator from the State of Ohio**

SENATOR TAFT: We have today an extensive medical system in the United States. We feel that it is a good system and that our problems should be met by constructive study and by the adoption of measures which may effect a steady improvement in that system and not try to throw away the system and begin over again.

First we have the problems of public health, research and preventive medicine. That field has been and is today the field of government primarily. There is some important private research in that field, particularly in basic medical problems. There is a good deal of scattered work in the field of public health among private, charitable institutions, but in general, of course, it cannot be done on a commercial basis and it is and should be the function of government.

I think that probably includes the diagnosis and inspection of the health of school children and other general measures directed to preventing the development of disease. The government has a wide field in which those functions can be increased and improved. I think it is the first and primary function of government to bring about that improvement.

The second feature of our general medical system is that of providing medical care. It has always been assumed in this country that those able to pay for medical care would buy their own medical service and, just as under any system, except a socialistic system, they buy their own food, their own housing, their own clothing and their own automobiles. Obviously, many families have difficulty in providing food, housing, clothing and automobiles, but no more difficulty, certainly, in providing medical care.

The general appeal in this country has always been for those who are unable to buy medical care, unable to pay for their own expenses in the medical field. We have brought about, in order to meet that situation, a great development of private charity throughout the United States, for providing adequate medical care for those who are unable to pay for it. That work has been supplemented by the states and local communities through their general hospitals, free nursing and medical service in hospitals, services of preliminary and preventive nature through public health units and, in general, the medical care has been available to a large proportion of those who are unable to pay for it in the United States. In that system there are gaps, particularly in rural districts and poorer districts, perhaps, in the cities, and we have a definite interest in trying to fill up those gaps.

It also developed recently, the realization that illness may be concentrated; illness in the case of families who can pay for medical care may be concentrated in a single year and, thus, assume the nature of a catastrophe. This has ordinarily been met in the past by furnishing the same kind of free medical care as that furnished to those who could not pay for it at all; but it has been conceived that that problem could be met by

providing medical insurance that would take care of extreme cases of illness, just as fire insurance takes care of the destruction of a single building by fire and the tremendous loss which may occur at one time, and through the insurance system can be spread over a great number of people and a great length of time. This insurance has been gradually developing on a private basis and a not for profit basis in the United States until it is fairly generally available to the people.

We believe that the present system has done an excellent job. I disagree entirely with Mr. Kingsley's statement on page 7 of his report that:

"It appears to be agreed that our present system of payment for medical care is totally inadequate."

I do not think that is at all true. We have in this system as good a system of medical care as they have in any country in the world, with the possible exception of one or two small countries where their health problems are much less complicated and much easier to deal with.

Last year, when the Subcommittee on Health had more or less these same measures before it, the Brookings Institution was requested to make a study, at the request of Senator Smith, who was then Chairman of the Subcommittee on Health of this committee. That study was made by George W. Bachman and Lewis Meriam, under the support of the Brookings Institution, and I assume this report, entitled "The Issue of Compulsory Health Insurance," will be furnished to every member of the committee, and I hope every member of the committee will read it, if they have not already done so.

The conclusions of that report are stated on page 67, and I quote [Mr. Taft here quoted the conclusions of the Brookings report.—Ed.]

SENATOR PEPPER: Is it your impression that we did a good bit to save the lives of children and mothers with the service program that we had in effect during the war where mothers were assured better medical care and attention than they had previously had an opportunity to enjoy?

SENATOR TAFT: That probably helped some, although there was a steady decrease every year all the way from 1921 to 1943. I think most of the country had a fairly adequate diet. I think it is the application of diet and medical care and the knowledge developed which has probably effected this improvement all over the world.

Our problem, therefore, is, in the first place, to improve public health measures. In that field the government has a particular responsibility. Second, to improve and make systematic medical care for all of those unable to pay. The third is to see that insurance is available for those who desire it and who are able to pay for it. Those, I think, are the main purposes of the bill which we have introduced.

Turning to S. 1581, Title I establishes a National Health Agency. It attempts to combine in one division all of the health activities of the federal government, excepting the military and veterans' health. The authors of the bill feel that health is not a welfare problem, primarily, that it is a problem of providing medical care and health services of all kinds to reach all the people in the country; the fact that some are able to pay and others are not able to pay affords reason for your assistance but it does not justify the placing of all health activities under a Department of Welfare.

I may say that the report is more or less in accord with the Hoover Report on Medical Activities, made in March 1949, whose first recommendation is:

To accomplish these purposes, the Commission recommends the establishment of a United Medical Administration into which would be consolidated most of the large-scale activities of the Federal Government in the fields of medical care, medical research, and public health (in which we include preventive medicine).

On that issue the Commission was somewhat divided. They voted 8 to 3 in favor of that particular recommendation regarding the establishment of a separate Bureau of Health. Two other Commissioners dissented from placing of the military health operations within the Federal Department of Health. I think that is a question of reorganization more than of health activity.

SENATOR PEPPER: Senator, what do you put under this agency which is not now under the jurisdiction of the Federal Security Administrator?

SENATOR TAFT: Nothing. The Children's Bureau has been transferred already under the previous plan. We direct the Director of the Budget to make a study of the activities of the several departments and agencies of the federal govern-

ment to determine whether any activities of departments and agencies relating to health, in the interests of economy and efficiency of administration should be transferred to the agency, and to complete such study and report the results to the Congress on or before Dec. 31, 1949. The Veterans Administration is the most important overlapping activity.

SENATOR PEPPER: But your bill would make the Health Agency have cabinet status, would it?

SENATOR TAFT: No, it is an independent agency and I understand it is so under the Hoover Commission report. I personally have supported the idea of a Department of Health, Welfare and Education, as you know, and I would not object to putting this Health Agency into such a department.

My only view is that if we did that, it should be a distinct bureau of that agency and that the head of the health activity, the Health Bureau, should be responsible directly to the secretary who sat in the Cabinet, that he should have direct access to that secretary and not have some intermediate undersecretary or others through whom he would have to go.

The bill I supported here last year had that provision, three undersecretaries, one for health, one for education and one for welfare.

Various other parts of the bill cover this question of public health. Some of them are not before this committee, but we feel that the public health end of the bill and of the activities of this committee are just as important as the general problem of medical care. The authors of the bill have always favored the various bills for increased research in cancer, heart, psychiatry, dentistry. I cooperated with Senator Hill in writing and rewriting the Hill-Burton bill after Senator Burton was appointed to the Court, and we have generally favored the measures which gave government aid in this general field of public health.

Title IV of this general bill extends the hospital bill, gives more money for the general purposes of the Hill-Burton bill and provides an easier matching process by which poorer states are more able to match than they are under the present bill. Title V deals with the general question of medical education, which is coming before this committee by more direct testimony shortly. Title VI deals with the problem of providing more personnel for health service, and it seems to be universally agreed that more personnel is necessary as health service is expanded.

SENATOR PEPPER: What is your plan of aid?

SENATOR TAFT: I have talked to deans of medical schools, to members in other schools and representatives of other schools; I am on the Board of the Yale University, and one of our headaches is the Medical School, which draws tremendously on all the funds of the University. I cannot find any general agreement as to just what ought to be done.

We finally came to the conclusion that there ought to be a major study by a commission of distinguished men from all walks of life to try to work out the best possible system of giving federal aid to medical education. The problem of federal aid to higher education is a problem that has never been thoroughly studied or considered.

We set up here a commission of sixteen commissioners, including the Surgeon General of the Public Health Service, the Commissioner of Education, the Chief Medical Director of the Department of Medicine and Surgery of the Veterans Administration and a representative of the Medical Services of the National Military Establishment—that makes four of them—and twelve commissioners to be appointed by the President, who shall be persons not otherwise in the employ of the federal government. Eight of those shall be persons outstanding in the field of medicine, dentistry, nursing, public health or higher education who are familiar with the problems of man power in the health professions. The other four may be any public citizens.

We feel that there should definitely be such a study on an extremely impartial basis. We are not satisfied with the studies made up to date by the Federal Security Administration.

In the meantime, because it was evident that doctors were insufficient in number, we provide a direct subsidy to all established medical schools of \$500 for each student enrolled up to the average past enrolment of the school, and \$750 for each student in excess of the average past enrolment, to give encouragement to increase, but not the wide difference proposed by the Federal Security Administration of between \$300 and \$1,700.

SENATOR PEPPER: Do you allow any assistance for the enlargement of existing medical schools or construction of new ones?

SENATOR TAFT: No, we only did this temporarily because it takes so long to educate a doctor. We felt that the nurses could be left out, although we have no objection, on proper evidence of their great necessity, of inserting those other people. We left them out because we did not have the evidence and because we felt that in most cases those persons could be taken care of in a shorter time.

SENATOR PEPPER: You do not make provision in your bill for scholarships for students?

SENATOR TAFT: No. Yesterday Mr. Kingsley testified there was no emergency about that. You have four or five times the number of applicants who are able to pay their way through. This commission would consider the question of scholarships, would consider the question of aid in the construction of medical schools and the equipping of medical schools.

In the meantime to try to stimulate and help some schools which might go on the rocks completely and to encourage them to keep up their enrolment and perhaps increase it somewhat, we have this additional money. Most of them take the position that they cannot increase their enrolment without having increased facilities and that the effort to give schools \$1,700 for new students is an incentive to them to put on more than they could properly educate, which is likely without increased equipment to result in a decrease in the quality of medical education.

SENATOR PEPPER: You mean to include then for future study, at least, provision of additional training facilities for dentists, technicians, nurses, etc.

SENATOR TAFT: I wonder if it can be shown that there is an emergency. You see, this provides this aid for three years while this study is being made. We hope it might be completed sooner than that, but it provides for three years.

We would not object, on proper evidence, to including temporary aid for some of the other things such as, particularly, public health and, perhaps, graduate school students in medical schools.

I have been appealed to on the ground that we ought to do something for graduate study to provide teachers. They say, "We can get students, but we have no teachers to take care of them and this aid should be extended in particular to graduate students aiming at becoming teachers in medical schools."

SENATOR PEPPER: In a lot of areas such as, for example, in my state, I am afraid it is going to be impossible to start a medical school, which we feel we should have, unless we can get some assistance in providing facilities, buildings and equipment.

SENATOR TAFT: Dr. Parran had a plan for building up the number of medical students by adding about ten schools, I think. Certainly, this commission should consider such a provision. But, of course, if Florida wants a school, it is likely that every one of the other thirty states that do not have one would want one. We would probably have too many medical schools unless we developed them in a regional way, and there might not be a sufficient number of teachers to teach in them.

Title V of our bill, on page 42, is similar to the bill which increased the federal aid to states for local public health units. That is covered by Senator Hill's bill. Title III was the provision of health service to the schools, the bill which has already been passed by the Senate.

I think that if this session of Congress could pass those four bills separately—the hospital bill, the school health services, the local public health units, the hospital bill, also the medical education bill—that we would have accomplished a tremendous step forward.

SENATOR PEPPER: That medical recruitment, could not we give some impetus to that?

SENATOR TAFT: I am not purporting to lay down a program. These four things are what we picked out as the most important.

SENATOR PEPPER: If we make our program really outstandingly creditable, if we could add a beginning on health insurance, it certainly would be a fine accomplishment, would it not?

SENATOR TAFT: I understood the chairman of this committee has stated he does not expect this session of Congress to deal with it.

SENATOR PEPPER: Let's not take that as official, though.

SENATOR TAFT: Now, I come to the medical care plan, which is Title II of the bill. The first part of this title is a provision for an appropriation of \$5,000,000 for a survey to be made by the states on a matching basis on the providing of medical care in that state.

That is similar to the provision which we had in the hospital bill and which I think has been a most valuable provision, probably the most valuable provision of that bill.

The difficulty with medical care and the whole medical situation in this country is that it has been purely a casual growth, a hospital built here, some service started there, and the thing has not been ordinarily coordinated, even at the state level.

One of the objections to just throwing in a system of national health insurance and taking over the whole thing from a national standpoint is that we practically relieve the states of any further responsibility; and the scope of the national study, to my mind, will prevent its being as valuable as a survey made by each state of the particular detailed provision of medical care in each section of that state. The problem of medical care is different in different localities and different states.

Different states have different kinds of people and different medical problems for different kinds of people. We have not gone so far in the general problem of medical care that we can say that any solution is the ultimate solution. There may be many different kinds of solutions, and one solution may be suitable for one state and another for another state. *I do not think we need to go down the Socialist Party Line on a national pattern to provide a system of medical care, and we should encourage the states to develop the particular system each state thinks is desirable.*

Part B is the general provision providing for medical care. It follows the general plan of federal aid to the states, leaving as much discretion to the states as possible and complete control of administration and complete control of the selection of the kind of plan they want to adopt.

The essence of the state plan is set forth on page 16, paragraph 5, where it says that the plan must set forth, in order to get federal aid, a statewide program designed and calculated:

(A) to provide, within five years, medical and hospital services without discrimination to all those families and individuals in the state unable to pay the whole cost thereof;

(B) to provide dental services as far as practicable to such persons;

(C) to encourage the development of voluntary medical, dental, and hospital insurance plans operated not for profit;

(D) to provide for the establishment and staffing of general diagnostic facilities and the improvement of existing diagnostic facilities; and

(E) to provide inducements to physicians and dentists to practice in areas which, without such inducements, would be unable to attract needed physicians or dentists.

In regard to "D," that is somewhat of an overlapping, and it may or may not be desirable to continue it in this bill. It covers the school health inspection, for instance, and health units, and various other provisions, and the hospital bill itself also, which permits the setting up of clinics.

In regard to "E," that is instead of providing the national system which is set up in S. 1679.

I might continue:

The services provided for under subparagraphs (A) and (B) may, at the option of the state, be furnished in one or more of the following ways: In institutions, in the home, or in physicians' or dentists' offices. Such program may also provide for the furnishing of such services by means of payments (in the nature of premiums or partial premiums or the reimbursement of expenses or otherwise) by the state to any voluntary medical, dental, or hospital insurance plan or other plan operated not for profit. Such program may include and take account of services rendered or to be rendered by governmental subdivisions of the state, and by private non-profit organizations, and may provide for payments to such subdivisions or organizations for services furnished to families or individuals. Such program may provide for the collection of proper charges of less than the total cost of such services (whether provided by the state, governmental subdivision, private organization or non-profit fund) from persons unable to pay in whole, but able to pay part therefor.

The essence of the plan is to see that every state provides free medical service for all those people in the state who are unable to pay the cost thereof.

SENATOR PEPPER: Do you mean as well as all those who are unable to pay the whole cost thereof?

SENATOR TAFT: Yes, to pay the whole cost thereof, and then they may provide for collecting part of that cost back.

The dental services are not made compulsory. That is, there is no provision that they have to extend dental services to everybody. The problem of dental service is a very expensive one and it is a question of how far we should go in it. It is still somewhat experimental. Those most interested in dental services do not seem to think we should provide a universal requirement of dental service at the present time.

In general, the plan is intended to provide for those who are unable to pay, leaving those who are able to pay for their medical service the job of paying for that medical service.

SENATOR PEPPER: Do you prescribe any standards of ability to pay?

SENATOR TAFT: No.

SENATOR PEPPER: Is not that the difficulty you encounter?

SENATOR TAFT: It seems to me that is something that can be determined and will be determined in cooperation between the states and the federal department. What can a man pay? I do not know. The general theory is that medical care—I do not know whether it is the general theory, but take the cost of the proposed S-1679, suggesting 4 per cent of the payroll. That would suggest that a man can afford to pay 4 per cent of his income for medical care.

SENATOR PEPPER: Senator, you mean our bill?

SENATOR TAFT: Yes.

SENATOR PEPPER: It is 3 per cent and then 1 per cent, not to exceed 1 per cent, out of general taxation.

SENATOR TAFT: General taxation. He will pay that 1 per cent some other way but, in general, 4 per cent. I see no reason why a family should not pay 4 per cent for medical care. That means a \$2,500 family would pay \$100, for which they could buy general medical and hospital insurance at the present time for the family. That suggests a standard. I would not want to write such a standard into the bill. It seems to me that has to be worked out as you go on and will, of course, vary.

In housing, the general provision is that a man can afford to pay 20 per cent for housing. That is a kind of a rule of thumb adopted in the housing bill. If he cannot get decent housing for 20 per cent, then he is eligible for public housing. I see no reason why you should not have some such standard developed gradually in medical care, but I would prefer not to put it in the bill itself.

Now, in general, what we are trying to do is to improve the providing of medical care to the poor, which has always been a function of Government. So we give Federal aid to do that job and we encourage the making of a survey to determine exactly what the job shall be. The purpose in general is to extend and improve the present medical system for such people and to make available to others some kind of voluntary insurance, if they wish to take that insurance.

I do not agree at all that insurance should be forced on them if they do not want to take it any more than insurance for fire or insurance for any other activity in life is forced on those who may or may not want that service.

SENATOR HUMPHREY: Have we not forced on people insurance against automobile accidents in many states?

SENATOR TAFT: That is more for the people to whom they may do a direct injury. It is to protect the person they run into. That is a different matter.

SENATOR HUMPHREY: Is it not a bit of an analogy? Illness is not just a matter of the individual. It is also a community problem of some kind.

SENATOR TAFT: I do not see the parallel.

SENATOR HUMPHREY: I was only referring to the principle of compulsory insurance.

SENATOR TAFT: I think we should retain the freedom of, we will say, 75 per cent of the citizens to choose their own kind of medical care, decide whether they want medical care or not, determine how they will get it, and the person from whom they are going to get it; I think we ought to preserve the rights of states and local communities to decide, free from federal domination, the kind of medical system they want and the extent of the activity in which they are going to be engaged. I think we ought to preserve the freedom of the medical profession to work out its own solutions, because I think in the long run it is much more likely to develop good medical service than a system administered under the direction of the state. This plan is designed for that purpose.

I am going to contrast it to S. 1679 and then I will be glad to answer any questions.

Completing this, the distinction between this plan and the Administration plan is shown somewhat by the character of the regulations on page 24: "The director is authorized to make such administrative regulations as he finds necessary to carry out the provisions of this title."

We set up a National Medical and Dental Care Council of twelve members. If a state plan does not meet the approval of the Director, the state is not left solely subject to his arbitrary judgment, but may appeal to the National Medical and Dental Care Council, which Council has the right to approve the plan in spite of the Director if they decide that it complies with the general provisions which I have read relating to the nature of the plan.

In contrast to S. 1679, the first tremendous contrast is that between state control and national control. Under S. 1679 there is a state plan. There did not used to be. There did not used to be any pretense of a state plan in the earlier drafts of the bill we have had in past years, but this state plan relates only to personnel and administration.

The state is subject and its officers are subject in every respect to the regulations made by the National Bureau, made by the Surgeon General, and the National Council, whatever the body is that makes the regulations. The state is in effect only an agent to carry out the national plan.

It is an attempt to decentralize the administration. I would say that is certainly an improvement over attempting to have a completely federal bureau, although it has this disadvantage: It does split up the responsibility.

Under our theory, if the state does not do the job, the state is responsible, the governor is responsible, the legislature is responsible.

I want to call attention to this fact: I do not think there has ever been a successful national administration of a regulatory operation extending to every family and every farm and every person in the United States. I do not believe we have ever made a success of it. The country is too big to make a success of it.

We had the W.P.A., and it went out in a blaze of condemnation and disapproval. We had the O.P.A., and that went out in general national disapproval because the attempt to make regulations in Washington to cover the entire United States is a job that I do not think any government can successfully do. The national bureau is too far away.

I think we are bound to get rid of rent control shortly for very largely the same reason, and that is not nearly as extensive as it is contemplated that this shall be.

The reason I got elected in 1938 was largely that the farmers deeply resented the extreme federal regulation on what they could raise and what they could not raise, which reached its height in 1937 and then steadily decreased after that and disappeared entirely during the war. I just do not believe that the national government can do a good job in that field and I do not think the people will stand for it for any considerable length of time.

It is suggested that S. 1679 is insurance. We are not setting up insurance. I suggest to you that S. 1679 is not insurance at all, but it is taxation. We levy a payroll tax, 1½ per cent, according to Mr. Kingsley, on the employer, 1½ per cent on the employee, and 1 per cent more on the general taxpayer. I do not think that by any stretch of the imagination can be said to be insurance.

Insurance is a system by which you pay to spread your risk and you pay for the risk what the risk is worth. Under this plan you do not pay with any relation to your risk.

You may take a family of five persons and a man has an income, we will say, of \$2,000; he will pay, he and his employer, for that insurance \$60.

On the other hand, a single man earning \$4,800 will pay about \$150 for a risk or service asked for about one fourth or one fifth of what the other man gets for \$60. It has no relation to insurance at all.

To a certain extent it may be argued that these persons are paying slightly in relation to the services that they receive. However, I do not think even that is true, because the tax on the employer, without any question, is passed on in the price of the goods to the consumer of the goods. It cannot be otherwise.

SENATOR PEPPER: How do you describe the Old Age and Survivors' Insurance Plan now?

SENATOR TAFT: It is a tax for which we give free medical service. It is somewhat related, again, to what you pay, but distantly related. People who have been paying 1 per cent in the last ten years admittedly are not paying one fifth of the actuarial value of what they are going to get from that benefit.

We threw away the whole actuarial basis eight or ten years ago and said that we could not carry that out in the national plan. It is a tax for which we give free service, and that is what this is. This is a tax. The government is taxing the people \$6,000,000,000 and, in turn, giving them free medical service, just as they tax the people some such similar sum and give them free education. It is the same system.

SENATOR PEPPER: What does your bill do but tax the people and give them free medical service?

SENATOR TAFT: It does not give free medical service to those who can pay for it. This is not insurance. The 1½ per cent tax on the employee is not insurance because employees figure their salaries in take home pay and their trading with the employer is based on take home pay, and the 1½ per cent is passed over to the employer and on to the consumer. So far as I can see, nobody gets anything for nothing. We levy taxes equal to about 4 per cent of the payroll, or about \$6,000,000,000, according to Mr. Kingsley; that tax is reflected in the price of goods, and you pay for it through the increased price of goods; or, if you want to put it another way, in a decreased standard of living in other respects.

You pay for your medical care through the government instead of paying directly. But the only point I want to make is that it is not insurance. It is a tax which brings in \$5,600,000,000, to the federal government, or \$5,800,000,000, and then pays all the doctors in the country and the hospitals to give free medical service to all the people in the country, whether they can afford to pay for it or not.

I cannot see why the system will not be much more expensive in the end than the system that we now have, because the purpose is to provide a great many more services. Inevitably, you are going to have to pay the cost of those services. You may be able to reduce doctor's fees somewhat, but I do not believe the total amount of that would involve any tremendous sum. Otherwise, there is no possible saving, and there certainly must be a general increase, which is a burden on the public. Nobody can tell what the expense may be. This insurance plan does not cover those who are unable to pay, does not cover the indigent, at least, because there is a kind of provision here to take care of it outside of the insurance fund altogether.

In our particular bill we estimate that cost will run up from \$150,000,000 the first year to \$300,000,000 at the end of five years.

SENATOR PEPPER: You surely cannot hope to accomplish your purpose, that the states shall set forth a statewide program designed and calculated to provide within five years medical and hospital services without discrimination to all those families and individuals in the state unable to pay the whole cost thereof, without a federal contribution for it in excess of \$300,000,000 maximum.

SENATOR TAFT: I would not guarantee the \$300,000,000 maximum, but you must remember I wholly dispute the fact that we are starting now. Seventy-five per cent of these people or 80 per cent already getting medical service without any federal aid. States are providing it.

Every general hospital in the United States is providing it. Doctors are giving free care to a certain extent. This is not new. If you match the \$300,000,000 with about \$300,000,000 from the states, that is \$600,000,000, and add that to what is already being spent for free medical care to those unable to pay for it, I do not see why the \$600,000,000 will not be reasonably adequate to take care of it. I would hate to guarantee the figures, because we are talking about uncertain figures.

SENATOR PEPPER: Did not the American Medical Association in 1939 say that two out of three of our people were unable to pay the cost of serious illness?

SENATOR TAFT: I do not know what they said, but if what they meant was that one year they might have a heavy burden, that might be, but a large number of those people can take out insurance and will take out insurance; others are able to pay, I think. Some people believe in insurance and some people do not. It has been sold pretty well to the American people.

SENATOR PEPPER: I thought this ought to be made clear in the statement of issues involved, that S. 1679, the so-called National Health Insurance bill, with all of the disadvantages—and there is much that can be said against it—I think it would first have to be admitted that it covers more people, that it is proposed to make available medical care to more.

SENATOR TAFT: Everybody.

SENATOR PEPPER: It does have the broadest coverage. I think you gentlemen should take one or the other horn of the dilemma: Either say the great masses of the people do not need help or you should tell them your plan is going to cost several

billion dollars out of the public treasury if everybody needing help gets it.

SENATOR TAFT: That I would wholly deny. I do not know what the states are spending on this, but it must be two or three billion dollars. We are proposing to add \$600,000,000 to fill up the gaps for those unable to pay.

Your proposal would provide free medical care to everybody. That is socialization of medicine. The providing of free medical care to those unable to pay for it is not socialization. It never has been. We have always done it. Just as we provide relief to those unable to buy food, just as we propose to provide housing for those unable to provide housing. That is an effort to take care of people who are left behind in our general economic system, which I think on the average produces much the highest standard of living.

When you attempt to give free medical service to everybody in the United States, most of whom are perfectly able to pay for it, you are socializing medical service. If you are going to socialize medical service, I do not see why you should not gradually go on and provide food for everybody, provide housing for everybody.

SENATOR PEPPER: Now, the Senator has been making that statement for a long time, and it has colored the public thinking. Is it not a fact that under the Senator's bill a great many people will get assistance out of the public treasury who may not pay any tax at all into the public treasury; whereas, under S. 1679 every recipient is a taxpayer under that proposal, paying part of his regular income?

SENATOR TAFT: All the indigents do not pay.

SENATOR PEPPER: Yours is the bill which proposes to give people something out of the public treasury without exacting any return from them.

SENATOR TAFT: That is what you do now. You do it in every city in the United States. There is not a city that has not got a general hospital where somebody unable to pay can get service.

SENATOR PEPPER: Then medicine is already socialized and you are going to make it more so.

SENATOR TAFT: That is not socialization, to take care of people who are unable to take care of themselves—

SENATOR PEPPER: That is nearer socialization than insurance.

SENATOR TAFT: You do not have necessarily a choice between the two. You have, as I see it, a free enterprise system, the basis of which is incentive, payment for the value of the work that you do. That system, I think, has increased our production and our standard of living more than that in any other country in the world.

SENATOR PEPPER: We agree to that.

SENATOR TAFT: But since it is based on that, you will have a certain proportion of the people who fall behind, either because they cannot work or are not able to pay; perhaps they are no good and cannot work; perhaps they are working and making things that people just will not pay enough for so they can get a living wage out of it; and to say that a free enterprise system which proposes a minimum decent living is socialism is a misuse of the term.

I think that is charity, if you want to call it that, government charity, if you want to call it that, but I feel strongly that it is an essential and proper part of a free enterprise system, as in contrast to socialism.

When you provide a free service to everybody in the United States out of the government treasury, that is socializing that activity. You have socialized primary and secondary education. It is provided out of taxes to anybody who wants it, whether they can afford to pay for it or not.

The Post Office is a socialized business today. But I object to extending that socializing principle into the providing of medical care.

SENATOR PEPPER: Yet that is what you are doing. You are proposing out of the federal treasury, state and local, to give the medical services to those who cannot pay for them at all and to give the difference between what they can pay and what the services cost.

SENATOR TAFT: I do not think there is any use arguing. I do not think I can state more clearly the position I have stated.

SENATOR PEPPER: I say this, and it is my honest observation on your measure: With all the great virtue it has, you are forced to the logical necessity of saying, "We are only going to help the people in the lower income brackets or in the admittedly indigent class," and I had understood before you had said there was about 20 per cent of the people who could

not pay for medical costs and you were going to try to help those people. That is perfectly consistent with our traditions and our past practices. But that ought not to be sold to the American people as a plan that will provide adequate medical care to everybody in this country.

SENATOR TAFT: My general proposition is that if you increase your doctors and facilities and public health, that the medical care will be available to those who can pay for it with entire adequacy. I think practically it is available today with adequacy. But I think it can undoubtedly be improved, and I think also that you can meet a particular problem of emergency illness by making available voluntary insurance to everybody who wants it.

SENATOR PEPPER: When you pass above the 10 per cent or 20 per cent, there are about 10,000,000 people in the country who earn less than \$1,000 a year; you would have to include all those people and, I suppose, everybody who earns less than \$2,000 a year.

SENATOR TAFT: I think your figures are obsolete today, Senator. Those income figures have all changed, and they are not satisfactory.

SENATOR PEPPER: When you get above the admittedly indigent class in the case of catastrophic illness that comes to beset a family or an individual, you are going to have to give, if you carry out your objective here, assistance out of the federal treasury, state and national treasuries, to at least two thirds of the people of this country, and that is going to cost a large sum of money from the federal treasury.

SENATOR TAFT: Yesterday Mr. Kingsley made the statement that the average income of half of the families is \$3,000. There are about 35,000,000 families, so I think you will find that my figure of 20 per cent is not far wrong.

I would be perfectly willing to admit, that perhaps an additional group of people, by reason of a catastrophic illness or accumulated illness in a family, become unable to pay, so you would add 5 per cent more. It might be 25 per cent of the population. The costs under the British Government plan, which government adopted your plan in effect, were 60 per cent more than they planned. They had to increase the budget 60 per cent.

SENATOR PEPPER: Because people rushed in to get dental and medical care they never had a chance to get before.

SENATOR TAFT: I have a letter from an English doctor that I thought was rather interesting on that subject. It is from a doctor in St. Lawrence's Hospital, Caterham, Surrey, dated April 12, 1949, addressed to me. It reads:

I am of course a stranger to you. My only excuse for seeming to interfere in the future policies of the United States is that I spent my childhood and college life in and around Boston, Mass., up to the presidency of your esteemed father.

I am a physician and I wish to do what little I can to warn the people of the United States to avoid a National Health Service as it has prostituted medicine in Great Britain. The poor public has been converted into hypochondriacs en masse and it was bad enough prior to July 5th, 1948, but now it is terrible.

Doctors' waiting rooms are packed with Britishers and foreigners waiting for a bottle of Epsom salts—cheap iron tonics and cough mixtures, false hair, spectacles, false dentures and some chemists are persuaded to substitute beauty preparations for prescriptions.

The above is not, however, the worst. This service has led to a marked determination in the treatment of the sick people—the doctor who is paid about \$4.00 a year for each person is so busy that he has no time to examine them.

It is not a question of stripping the patient to the skin—the patients now are either not examined at all or are examined with their overcoats on.

But in reality this does not worry the average patient. A visit to the Panel Doctor becomes almost automatic and he wastes up to 4 hours waiting for his turn and usually demands his favorite bottle of medicine.

Thus the doctor has deteriorated to being the patient's obedient clerk. Millions of dollars are wasted every year in useless and cheap medicine which is a danger to the public and a source of income for the drug store.

This is paid for by a compulsory levy of \$1.25 a week. When the patient is too sick to work he gets \$6.25 a week which is not sufficient to pay for a furnished room of a very low standard over here. A very ridiculous sum; if a commercial insurance company charged the same the patient would receive \$35.00 a week for 11 months and \$15.00 per week indefinitely afterwards.

I would be pleased to help to fight this impending injustice in the United States.

SENATOR PEPPER: That doctor did not add what income he was making, did he? Since we at this table, you and your distinguished colleague, are not entirely insensible to political considerations, we might be interested in knowing that the Conservative Government has not dared to attempt to repeal

or advocate the repeal of that system, and recently there was a member of the House of Commons belonging to the Labor Party, a Labor Lord, who was here, and a member of the Conservative Party, who is not at all in sympathy with the general program of the Labor Party, all three told us that the health legislation in England did more to win for the Labor Party a recent election in a Conservative middle class constituency than anything else they had to rely upon in that election.

SENATOR TAFT: I notice the Labor Party, however, suffered rather a serious setback in two recent local elections. Possibly the people may have changed their minds. This is a national medicine, as against local and state control. This is government medicine as against the existing system, which I believe has been a successful system on which we should work for improvement.

You would have to have a tremendous body of clerks to keep count of about 70,000,000 different medical services every year in the United States. If you do that, then you pass to a system in which a certain number of patients, some hundreds of patients, are assigned to every doctor and go through on a perfectly automatic basis.

This is no reflection on the medical service of the Army and Navy, but the G.I.'s that I have talked to who got medical treatment, apart from the battle stuff, which, of course, was exceptional, were certainly exceedingly unfavorable. I do not think any of them felt they were getting any personal consideration whatever.

I think the result of the system is bound ultimately to lead to a salaried doctor force.

The International Labor Office, which is the principal international proponent of sickness insurance, admits this insurance is not really insurance and will not remain so for long. In their book entitled "Approaches to Social Security," they say this:

The fact is that once the whole employed population, wives and children included, is brought within the scope of compulsory sickness insurance, the great majority of doctors, dentists, nurses, and hospitals find themselves engaged in the insurance medical service, which squeezes out most of the private practice on the one hand, and most of the medical care hitherto given by the public assistance authorities, on the other. The next step to a single national medical service is a short one . . .

I think inevitably what we are proposing here at a cost of \$5,600,000,000 a year or more is the providing of free government medicine, free medical service, through government employees. I cannot see any outcome to it except ultimately the direct employment of all doctors on a salary who are engaged in this particular work.

In general our bill is based, as I say, on the theory that we will fill up the gaps in the present system, which has been a successful system, try to improve it in every way, spend energy on improving the public health services, in preventive medicine. I do not think we should throw away a successful American system and begin all over again on a new kind of medical system which has not, at least up to date, proved to be a success in any country in the world.

SENATOR PEPPER: You do not advocate or never have advocated repeal of the present Old Age and Survivors' Insurance?

SENATOR TAFT: No, but I would rewrite the whole thing, and I would be in favor, I think, under the present system of fixing it at a low rate and then making available a voluntary system to everybody who wanted to go above that, to integrate with that all of these other plans that are set up by this company and that company or by this union and that union. The whole subject ought to be, in my opinion, completely reconsidered, and I hope the Congress may do it.

SENATOR PEPPER: Is there any outstanding difference between your proposal and 1679? If a person wants to get medical or hospital or dental care under your bill and he wants public health to pay the bill, he has to satisfy some social worker or what some would call a bureaucrat as to his inability to pay, and he has got to make a disclosure about all that he has and all he can make. There are many people who do not like to come in and say they are either paupers or to a degree incapable of paying their bill.

SENATOR TAFT: This is an attack on the so-called means test.

SENATOR PEPPER: I know it, but if the Senator will let me present the other, that is what everybody has to do who gets any benefit under your bill; whereas, under 1679, he has his income, he may be self employed, then he becomes entitled by virtue of having made those payments—and the poorest person

who is employed gainfully by paying a percentage of what he makes is brought within the system—he is freed of the ignominy of having to meet the means test. Those distinctions do exist, do they not?

SENATOR TAFT: No, because your system does not take care of your indigent. The indigent have to take a means test to prove they have not any money.

SENATOR PEPPER: That is somebody who is not employed.

SENATOR TAFT: Yes, but they have to take that test.

SENATOR PEPPER: We separate those people. They are not in this bill.

SENATOR TAFT: The second thing is this: What is this means test? We have it in every provision for taking care of people who are not able to pay for what they get. We have it in housing and it is not any longer a difficult thing. Practically everybody pays an income tax. What it amounts to today is: What is your income? What are your wages? That is the extent of the means test in housing, that is the extent of the means test practically in any field today. You do not have that kind of searching examination that social workers used to give under the relief program.

One has already made a return to the federal government. What a man's income is today is perfectly ascertainable. That is what we base our housing on. Everybody who goes into public housing has to give those figures. They are not humiliated. All they have to do is go in and say, "I am employed by so-and-so, and these are my wages."

SENATOR PEPPER: If that is the criterion, why not tell the American people that your proposal proposes to give help to everybody making less than \$2,500 a year or making less than \$2,000?

SENATOR TAFT: That is not the rule. There would be different rules in different places, different rules in different states. It would be gradually worked out. I certainly would not want to prescribe a national figure any more than in housing. One of the big objections of the real estate interests is that they want a national figure. We said every state and every city is different, as is the case here.

SENATOR PEPPER: You agree that the one who pays the tax, whatever you call it, under 1679 does not have to be subject to a means test by a social worker or a bureaucrat?

SENATOR TAFT: No, and neither does anybody else. This means test is just a red flag. It is something which is at the base of our aid to those who are unable to pay, our aid in relief, our aid in housing, our aid in medical care today. You have the same thing in every general hospital in the United States today.

SENATOR HUMPHREY: Is it not true that the degree of indigency is always variable?

SENATOR TAFT: Yes.

SENATOR HUMPHREY: You do have this flexibility all the time as to just where the lines are of application of your particular plan.

SENATOR TAFT: You have a choice. Either you have a means test or you give your service free to all people in the United States, and that means that instead of paying, I would say, \$1,200,000,000 for free medical care, you are going to have to pay \$5,600,000,000, plus a lot of state assistance. You have the choice between socializing the service and adopting a means test.

SENATOR HUMPHREY: I am not in opposition to your plan as far as it goes. I think the real argument is whether or not this is an adequate extension of medical care to meet the health needs of our people.

SENATOR TAFT: I agree, that is the question, because your plan does not take care of the indigent, either. You have got to impose a means test there.

SENATOR HUMPHREY: The means test has already been imposed in terms of the social agency that just certifies them as being available for the insurance plan.

I would like to go back to one point because, just as you said about the means test, it is a bit of a red flag that is waved around at times; I think there have been some other things that have been said here that are red flags and it would be good to get them cleared up. For example, the term "Government medicine." Now, under the proposal of the National Health Insurance Program the medicine is not government medicine, the medicine is free medicine, private medicine; it is administered by private doctors; it is administered in the Presbyterian Hospital, or Catholic Hospital, or Baptist Hospital.

SENATOR TAFT: It is paid for by the government.

SENATOR HUMPHREY: It is paid for by the people.

SENATOR TAFT: No, by the government. The government pays for it and the government furnishes that service, and somebody in Washington makes all the regulations saying what you are entitled to, whether you are entitled to an x-ray in this case or that case, whether you are entitled to penicillin for this disease or that disease.

SENATOR HUMPHREY: That is not the case, you know.

SENATOR TAFT: That is the case in England. Those are the regulations in England.

SENATOR HUMPHREY: This is the United States of America, and the bill, S. 1679, provides for local use or for the local regulations as to the extent of medical care.

SENATOR TAFT: No, it does not.

SENATOR HUMPHREY: And the practice of medical—

SENATOR TAFT: It does not. You find it does nothing of the kind. The regulations are made by the National Board and the state administrators have nothing to do except comply with the regulations of the National Board.

SENATOR HUMPHREY: The matter of the standards of health care and the cost of payment are determined by local boards.

SENATOR TAFT: Not at all.

SENATOR HUMPHREY: Only administrative regulations as pertains to the use of the money and to the payment of the money are made by the national office, and I think that ought to be crystal clear. One other thing I want to point out is: We need a definition of the word "socialism." I have heard this word "socialism" kicked around. What is the orthodox meaning of "socialism"?

It is not what we have been talking about here this morning. It is state ownership of the means of production and distribution. That is basic, elementary economics from Garver and Hansen, Text Book, Economics No. 1.

Now, if there is any socialized medicine in this country, it is to be found in a municipal hospital. If there is any socialized medicine, it is in a state hospital or in a university hospital. If there is any other socialized medicine to be found, it is to be found in the Veterans hospitals.

SENATOR TAFT: I do not agree at all.

SENATOR HUMPHREY: Whether you agree or not, the point is the economists define socialism as state ownership of the means of production and distribution.

SENATOR TAFT: If the Government undertakes to levy all the taxes and furnish free educational service, then they have socialized education.

SENATOR HUMPHREY: They hire the teachers and they own the buildings, they own the means of production and the means of distribution. Under this program they do not hire the doctors, nor do they own the hospitals or the drug stores.

SENATOR TAFT: Under this program they do hire the doctors and they own many of the hospitals, and they can employ private hospitals, if they wish to do so.

SENATOR HUMPHREY: That is the present situation. This program does not provide for the government ownership of hospitals. It does not provide for the government hiring of the doctors.

SENATOR TAFT: But it provides for the government paying—

SENATOR HUMPHREY: —money for paying hospitals and doctors.

SENATOR TAFT: It provides for the government paying everybody's hospital bill and, therefore, it socializes the furnishing of medical service.

I do not think there can be any question that this is the socialization of medicine and also the nationalization of medicine. Whether this is desirable or not, is a legitimate argument, but that is what it is.

SENATOR HUMPHREY: When we discussed federal aid to education, there was testimony that in the State of Vermont there were certain private academies and that under the Federal Aid to Education bill this money would, through the state department of education, go to those private academies.

Are you going to say that those private academies, supported by tax funds, are the same thing as a public school system where the teachers are hired by the state department of education, where the buildings are owned by the local board of education? We made a differential.

SENATOR TAFT: Of course, it is not the same thing, but, on the other hand, that education in those schools is furnished free to those children by the State of Vermont and, therefore, their education is socialized to that extent, at least. I suppose the actual ownership of the school may make it more extreme socialism than otherwise.

SENATOR HUMPHREY: Let us assume that every single person in the United States, by some magic, took out a policy with Metropolitan Life Insurance Company for complete hospital and medical care. Would that be bad?

SENATOR TAFT: I think it would be a great mistake.

SENATOR HUMPHREY: I am happy to hear your point of view on it. I think it would be quite wonderful if the cost was not too much.

SENATOR TAFT: I think there is a good basis for health insurance, for voluntary insurance, in a large group of population, but I would say not all of them.

SENATOR HUMPHREY: Of course, this plan provides for about 85,000,000 people.

SENATOR TAFT: This interests me. I probably have had less trouble than most. Usually I have to go to doctors for colds. Why should the government furnish me with free medical service for colds? I would have been just as well off if I had gone to bed and not gone to a doctor in every case. I do not see why I should buy insurance to have that provided free because that is what the insurance rates would be based on: the fact that a lot of people want to do that and go when it is not necessary to go.

It would be unfortunate to have everybody in the United States take out voluntary insurance, because there are a lot of people who find it much cheaper not to do it.

SENATOR MURRAY: Senator, I took out health and accident insurance about forty years ago and carried it until I got to be 65, and then discontinued it.

SENATOR TAFT: I took out a disability insurance policy when I was a fairly young man, and I was paying \$170 a year and have been ever since and never got a cent back. I got to the point where it was going to run out, too. That is all right. I think probably at the time it was justified, but if I had not taken it out before I was 40 or 45 years old, it would have been a mistake.

SENATOR HUMPHREY: You used the term "free medicine." What do you mean by "free medicine"? When you are collecting \$6,000,000,000 in taxes, it is not free, is it?

SENATOR TAFT: You pay for it through taxes.

SENATOR HUMPHREY: Just like public schools. One is taxed whether one has children or not.

SENATOR TAFT: If you pay for things, you pay for the thing you buy at the time you buy it. If you are taxed, you pay for it in taxes. But as far as providing that particular service, it is free at that time. You can take it or not, and you do not pay a cent for it, and that influences a lot of people to go and get it free and if they had to pay for it, they would never go and get it. That is why you have had the tremendous run on the doctors in England.

To go back to the question in regard to the regulations, 1679, page 107, says that this National Board "may by regulation limit for a specified period the services which may be provided as benefits, or modify the extent to which, or the circumstances under which, they will be provided to eligible individuals."

It is absolutely necessary, if you are not going to have the expense run away with you, to limit that service, to say that a doctor cannot prescribe a very expensive medicine except in certain cases, just as the British Government does today. You have got that problem. You have got the problem right now of the fiscal officers in the British Government telling the hospitals that they cannot have so much money next year. They have to cut down this or that service and change the regulations.

I do not know whether they will provide free toupees and free eyeglasses or not, but those things are all going to be the subject of national regulation under this bill, and every state and every local officer is going to have to be bound by it.

SENATOR HUMPHREY: The reason for that is to eliminate abuses.

SENATOR TAFT: You have got to do it. That does not change the fact that you do it and that you have a completely regulated national system.

SENATOR HUMPHREY: They surely regulate the kind of medicine that you are talking about. If you have ever spent

one day or one hour in a general hospital, you know there are all kinds of regulations as to the kind of services that are offered.

SENATOR TAFT: Those are the things about getting free service. If you pay for it, you get what you want.

SENATOR HUMPHREY: Even in the best hospitals you get that kind of regulation. You have standard medical practice in the best hospitals. I spent a good share of my life filling prescriptions, and I can assure you I have some idea about the kind of medical care that is offered in even the best hospitals.

SENATOR MURRAY: What I am afraid of is that under your bill, if you are going to provide socialized medicine for 20 per cent of the people, the other 80 per cent, observing that situation, are going to begin to demand that socialized medicine be extended to the rest.

SENATOR TAFT: One great trouble about all welfare service is that you may gradually lead the people to think the government should support them all and to pay all their expenses. If you get to that point, you have lost the whole system of liberty in the United States, because when the government supports them all, it will tell them how to live, and that is the reason I am opposed to extending it further than we have already. We have got a pretty good extension. In a way we are now taxing about 25 per cent of the people's income, and to that extent we have taken away their freedom, and they have got 75 per cent of it left, to spend their money the way they want to spend it. I hate to see that go further in any substantial amount. I think we can afford \$300,000,000 for this job.

SENATOR MURRAY: I think, Senator, that the other 60 or 80 per cent of the people who will be observing this socialized medicine that you are providing are going to move in and demand that it be extended to the country.

SENATOR TAFT: You may be right, but that does not make the demand right.

SENATOR MURRAY: Already the labor organizations of the country are beginning to demand that their health be taken care of and the health of their families through increased wages and provisions for health and security, so that it seems to me that our bill is the more reasonable bill, the bill that is going to provide a system of medical care in which the people pay for it.

SENATOR HUMPHREY: I think, Senator, that a payroll tax is a restriction and is an impediment to the ever increasing demands of people for more and more services. Where you can take a lump sum out of the general treasury, there is no doubt in my mind that is a greater inducement to people's thinking they do not have to pay for it, but when they see it deducted from their check every week, they know they are paying for medical care.

SENATOR TAFT: They go in at the time of the next bargaining settlement and make the employer pay that much more, and they usually will. He has to look at it as take-home pay, just as they do.

Statement of Honorable Lister Hill, United States Senator from the State of Alabama, Accompanied by George Bugbee, Executive Director, American Hospital Association

SENATOR HILL: I have with me here this morning Mr. George Bugbee, executive director of the American Hospital Association, who has made a great contribution in the drafting and the work on this bill that I shall discuss.

Through the Senate Committee on Labor and Public Welfare, of which we are all members, the Senate and the Congress of the United States have the opportunity to enact legislation and do more for the health of the American people than any Congress in our history.

On us rests the responsibility to give the Senate a legislative program that can be put into operation promptly and effectively and meet the urgent health needs of the nation.

We can give recognition to the importance and complexity of the health problems of our modern industrial civilization by creating a Federal Department of Health and Welfare. The Secretary of Health and Welfare would give new direction and new coordination to the functions of our federal agencies for health. He would provide the leadership and speak with the authority of a member of the President's Cabinet.

With the passage of the Hospitals Survey and Construction Act in 1946, the nation undertook for the first time a nationwide program of planned and coordinated hospital construction. Today nearly eight hundred hospitals, health centers, nurse

homes and other hospital facilities are being built or have been approved for construction under the Act.

Recent hearings on S. 614 to amend that Act, held by the subcommittee of which I am chairman, have revealed that even this program of construction must be enlarged to meet the need for hospitals and health centers. Unless the program is enlarged federal participation will not keep pace with the rapidly expanding programs of the states. Our subcommittee plans within the next few days to submit to the full committee a favorable report on S. 614 to double the amount of federal aid, increase the aid to individual projects and permit the states to channel greater aid into their low income or rural counties and communities.

Preventive medicine through the public health services is a basic part of any modern health program. Yet last year some 40,000,000 Americans had no public health service. Another 85,000,000 had only doubtful protection from inadequately financed and understaffed health units. And only 10,000,000 of our 146 million people had the protection of full time, professional health departments.

Hearings on S. 522, the bill to provide increased federal aid to local public health units which our subcommittee plans to report favorably within the next few days, have convinced the members of our subcommittee that the ramparts of national health begin in the local health offices. Yet only one in ten of the local health offices is staffed and financed to carry on a reasonably adequate program. The strategic and vital importance of local health offices to the nation's health was emphasized at our hearings by Dr. James E. Perkins, managing director of the National Tuberculosis Association. Dr. Perkins declared:

The National Tuberculosis Association has long held the opinion that effective tuberculosis control can be achieved only if there are adequately staffed and adequately financed full time local health services. We know enough about tuberculosis today to rid our nation of the disease if there were local health officers and public nurses in the field to follow up each case and assure treatment. The chief function of our Association is educational. But education falls down if there are no x-ray machines and other facilities and not enough people in the local health agencies to actually do the work.

The Senate, as we know, already has passed and sent to the House the School Health Services bill reported by our committee, the Committee on Labor and Public Welfare, which provides for medical and dental examinations for every school child and, in some cases, medical and dental treatment. Through this measure and S. 522, the local Public Health Services bill, we can carry to the grass roots—farm and cross roads, town and city—protection against tuberculosis, malaria, typhoid and undulant fever, syphilis, infantile paralysis and the epidemic diseases. We can discover and correct many of the physical defects and ailments in our children at the all-important school age.

Medical research is health protection for tomorrow. The medical colleges, the privately endowed foundations and many private industries are carrying on great research work. The federal government is lending its support to research through the National Institute of Health, the National Heart Institute, the National Institute of Dental Research, the National Mental Health Act and the Atomic Energy Commission. I think we ought to go forward, and in many other fields that is a challenge for the federal government to help and do research work.

The Senate Committee on Labor and Public Welfare reported to the floor and guided through the Senate the National Science Foundation bill. This bill must be passed by the House and signed by the President, and provide a single agency for correlating and coordinating the vast research of the nation.

The success of our health programs is ultimately dependent on the training and experience and qualifications of the people who direct the programs. The finest hospitals and health centers, the ultimate in medical knowledge, are useless without doctors and nurses and trained workers.

America is suffering a man power shortage in the field of health. There are less than 200,000 active physicians for a population of some 146,000,000 people. The shortage of dentists, nurses, technicians and public health workers is equally serious. I strongly urge a comprehensive program; this committee has before it as one title in this bill that matter, and I hope they will bring forth a separate bill on this question of federal aid for scholarships, for grants to the schools and colleges for additional teachers, and grants to the states for expansion and construction of medical schools to train the doctors, dentists, nurses, sanitary engineers, technicians and health workers of all kinds that are so badly needed.

Surely, as the Senator from Ohio said in his statement, a bill of this character should be reported to the Senate by this

committee so that the Senate can act on it in this session of Congress, looking to its enactment at this session of Congress.

Our committee should not forget that the underlying foundation of the health of any nation is the soil and the food we obtain from the soil. I believe the committee will agree that an essential part of any health program must be steps to restore and maintain the health-giving minerals and nutrients of the soil—the objective of the National Soil Fertility bill, which some of us are sponsoring in the Senate.

There is a further step necessary to a comprehensive program of health for the American people—the provisions of adequate hospital and medical care for the individual.

This is the objective of S. 1456, the Voluntary Health Insurance bill sponsored by myself and Senators O'Connor of Maryland, Withers of Kentucky, Aiken of Vermont and Morse of Oregon. You are familiar with the Hospital Survey and Construction Act and its program. The Voluntary Health Insurance bill will perform the same initial service in providing hospital and medical care that the Hospital Survey and Construction Act is now providing in the building of hospitals and health centers.

The bill will not do this through a strange and untried system of compulsion. The bill strengthens and builds upon our existing medical institutions—the tried and tested methods of American medical practice and the voluntary prepayment health insurance plans which more than a third of our people have found effective and trustworthy.

The sponsors of the bill believe that the present system of medical care has been too valuable, too effective and too useful through the years to throw it aside for a new system which might not work. We sharply disagree with the statement of Mr. Kingsley yesterday that this present system is totally inadequate for the American people. We believe it is the course of wisdom first to examine our existing health and hospital and medical resources. Then to strengthen and build upon them. This the bill will do.

The purpose of S. 1456 is to bring adequate hospital and medical care within the reach of every American through the system of voluntary participation in prepayment health insurance plans. The bill will provide government-supported membership in health insurance plans for those who cannot pay. It will stimulate and encourage participation by self-supporting persons. It provides for surveys which will be the basis for programs to meet the shortage of doctors, especially in rural areas, and to determine the need for additional diagnostic facilities and the need for additional facilities for treatment of mental illness, tuberculosis and chronic diseases.

The federal phases of the program will be administered by the Surgeon General of the United States Public Health Service. Within six months after enactment of the bill the Surgeon General shall issue broad regulations—these are broad regulations such as we have today under the Hospital Survey and Construction Act, and the committee knows these are really broad, laying down broad policies, with the real control and administration in the hands of the states. These broad regulations establish: the general standards of eligibility of persons unable to pay subscription charges for health insurance; the general types of hospital and medical care to be provided under the program; the general standards for participation by voluntary prepayment plans; the general standards for participation by nonprofit prepayment plans; the general methods of encouraging and assisting in popular enrolment in the prepayment plans within the states.

A Federal Hospital and Medical Care Council composed of ten persons—two doctors, two hospital administrators, two prepayment plan officials and four representatives of consumers—will share responsibility with the Surgeon General in developing these broad policies of the program.

In the states the program will be administered by a state agency, which may be the same agency now administering the Hospital Survey and Construction program in the state. This agency will have a council with representation similar to that of the Federal Hospital and Medical Care Council.

Within the states—and I want to emphasize this—regions will be designated in which complete hospital and medical services should be made available. In many cases these regions already have been established under the operation of the Hospital Survey and Construction Act. Within each region a Hospital and Medical Care Authority will operate as a unit of the state agency. The regional authority will be composed of persons residing within the region and shall include representation from as broad a segment of the population as possible. The regional authority will encourage coordination of all health facilities and

services in the region and will recommend means for their effective use in serving the areas.

I cannot overemphasize that matter of coordination. As Senator Taft recalls, we had testimony as to what has been done in Rochester, N. Y., and that area in the coordination of hospitals and facilities in and around that outlying area. We also had testimony about certain coordination down in North Carolina, all of which was most interesting and challenging, showing what can be done if you tie those hospitals, those diagnostic facilities, the clinics and these other facilities together so as to provide a well rounded medical care program available for all the people.

The Voluntary Health Insurance program will be financed through federal funds and a variable percentage of funds provided from state and local sources under the formula used in the Hospital Survey and Construction Act. This formula allocates a greater percentage of federal funds to the states with lower per capita income.

The immediate aim of S. 1456 is to provide protection for people of limited income by giving them service cards in voluntary prepayment plans which will entitle them to the same kind of hospital and medical care as those who are able to purchase such protection on a voluntary basis.

The plan has three advantages. In the first place, it has been too often the case that persons receiving care at government expense receive an inferior quality of care which has often been called "charity care." By providing service cards to these people we avoid the necessity of identifying them as recipients of government assistance at the time they need hospital care, and we provide that they receive the same high quality of care as is today available to persons who purchase prepayment protection.

The second advantage is that an individual may apply for prepayment protection for himself and his dependents at any time, whether or not hospital and medical care is needed at the time. The determination of need is made easier and does not complicate an emergency situation. There is criticism of the "means test" because of the embarrassment and delay to an individual at the time he is ill.

The third advantage is that persons of limited income are encouraged to pay part of the cost of their hospital and medical care. Medical protection would be assured, however, through the state health insurance agency while the individual contributed to his protection within his own financial limits. It is important that we maintain this sense of individual responsibility. The independence of our people has been America's strength and this is one way to maintain and encourage that independence.

Another basic purpose of the bill is to stimulate and encourage every self-supporting citizen to protect himself and his family against the cost of hospital and medical care by voluntary enrolment in prepayment plans.

The mostly costly illness the average person is likely to encounter is that requiring hospital care. The cost of hospital or medical care under existing prepayment plans runs about \$5 a month for the worker and his family. The hidden costs of a government program would in the end be a greater burden on the average person. We can only imagine the infinite and vexing details of control that would have to be established for operation of a vast compulsory system affecting the lives and health of all the American people.

About a third of the American people now have some form of health protection through voluntary health insurance plans. A recent survey shows that an estimated 52,500,000 persons are protected by voluntary hospital coverage; more than 26,000,000 have voluntary surgical expense coverage, and nearly 9,000,000 have medical expense coverage. More than 31,000,000 of the nation's 58,000,000 employed civilians are insured under some form of voluntary protection against loss of income due to sickness or accident.

These plans have been built up under which a third of the people have some form of coverage and there has not been, so far as I have been able to observe, any great campaign of any kind to build them up. I never hear anything about these plans on the radio, I do not see anything about them in the newspapers; there has not been any great effort to build up these plans. These plans can be built up. And that is what I want to see done. I want to see the American people do this job. The fact that there has been very little or no encouragement, and certainly no campaigns on behalf of these plans, if there is a place in our American way of life for the voluntary system, here is a voluntary program that cannot be ignored.

With universal participation voluntary health plans can provide more comprehensive protection than they do now, that is self evident. The more members they have, the more, members are taken in, the more extensive can be the protection they give. The bill gives assistance to the states to survey the extent of enrolment and to develop methods of broadening protection and increasing the number of persons enrolled. The bill provides for payroll deduction of subscription charges for federal employees who request it, and encourages similar voluntary deduction for state and local government employees.

The greatest impetus, I think the life insurance companies will tell us, that was ever given the life insurance in this country was when the United States Government established War Risk Insurance during the World War. By that act of the government the people became insurance conscious and thousands of persons bought life insurance who never bought it before. Whenever you provide for membership by your federal employees and your state and city and county employees, you have given a tremendous impetus, you have given a great impact to voluntary prepaid insurance.

SENATOR HUMPHREY: The Social Security Act had that effect, too, did it not?

SENATOR HILL: It did. When persons enrolled in prepayment plans become unemployed, subscription charges will be paid during the period of unemployment compensation. In other words, when they are unemployed, these subscription charges will be carried on for them just as though they were on some payroll.

In its broadest effect the bill will stimulate the coordination and full use of the nation's health resources. The bill does this by assisting the states to survey their needs and to integrate the use of their hospitals and medical facilities in order to provide the greatest possible service for the greatest number of people.

In this the Voluntary Health Insurance bill follows the tested pattern of the Hospital and Health Center Construction Act. Before ground was broken or foundations laid for a single hospital, the first year under that Act was spent taking inventory of hospital and health center needs in each state. Once the facts were in hand, the states were able to move promptly with a construction program suited to their particular needs.

The proposed surveys under the Voluntary Health Insurance bill will, I am sure, reveal different needs for different areas. Some areas may find that the network of hospitals, health centers, diagnostic clinics and the supply of doctors and nurses and skilled technicians can provide a well rounded medical service. Other areas may need additional services or facilities in order to provide proper care. Cooperative use of certain facilities may be desirable for some areas. All of these matters can best be determined by the people right on the scene.

The bill provides that the federal government pay half of the cost of the following types of surveys by the states and the local communities:

Surveys of existing diagnostic facilities. Proper diagnosis is a necessary element of medical care and the growth and development of diagnostic clinics will be encouraged, especially in rural areas, so that such services will be available to everyone.

Surveys of existing facilities and services and financing for mental illness, tuberculosis and chronic diseases. The surveys will provide the basis for programs to increase and improve these facilities, at present considered primarily a state responsibility.

Surveys of areas which at present do not have adequate medical care because of economic inability to support a medical practice. We know that many areas, especially rural sections, have not been able to attract the doctors they need, and this is a matter of deep concern to all of us.

When the states have determined their needs, the states and the federal government then can and must take definite, intelligent action. From our experience with the Hospital and Health Center Construction Act we know that the surveys have led to specific programs to meet the deficiencies revealed.

It is the responsibility of this committee to submit legislation on which the Senate and the Congress can act. The health needs of our people demand action.

S. 1456 is a bill that can be passed, and passed now. The reaction to S. 1456 shows the people are ready for this program. It has general support and it has approval from the medical and hospital professions—whose aid and cooperation are essential to the success of any broad program of hospital and medical care.

The Voluntary Health Insurance bill builds on our traditional medical practices and makes use of our free American medical institutions.

There can be no doubt about the fact that, under these practices and under our free American medical institutions, our people have enjoyed the highest quality of medical care of, certainly, any comparable nation in the whole world. The bill enlists the voluntary prepayment health insurance plans which now serve a third of our people.

The program under the bill can be put into operation immediately to benefit those most in need of hospital and medical care. We have the doctors, nurses and hospital facilities to proceed with the program. At the same time, the bill recognizes the practical limits to the medical care which can be immediately provided and does not precipitate the nation into a program of universal medical care definitely beyond the capacities of our present health resources.

The bill is flexible and fosters the growth of the national health program to meet new needs and new conditions. As present programs go forward and increase the number of doctors and nurses and provide additional hospitals and clinics, we can provide in an orderly manner for expansion of the services which will be made available under the bill.

I have faith in the American people—their wisdom, their self reliance, their ability to do for themselves. The more we challenge and encourage and stimulate the people, the more they will respond, the more they will do for themselves.

The Hospital Survey and Construction Act has been inspiring proof of the ability and the desire of the people to act for themselves. Among the forty-eight states, Mississippi and Alabama and North Carolina have perhaps the finest programs for hospital construction. Yet these are among the lowest states in the income of their people.

Through the Voluntary Health Insurance bill the federal government will give financial aid and encouragement, leadership and wise guidance to the medical care program. But we rely on the initiative and ability and resourcefulness of the people by placing full control and administration of the programs in the hands of the states and the local communities. The details of the programs will flow from the needs, the customs and the determinations of the people. Democratic government must be government "by the people" as well as government "for the people."

This Eight-First Congress has the opportunity to stand with the great Congresses of American history—with the Sixty-Third Congress of Woodrow Wilson's first term, which enacted the income tax law, the anti-trust law, created the Federal Trade Commission and the Federal Reserve Board, and provided for popular election of United States Senators; with the Seventy-Third Congress of the historic Hundred Days in 1933, which with bipartisan support enacted the many great laws that lifted our nation from depression, and with the Seventy-Seventh Congress, which with bipartisan support responded to Pearl Harbor with the laws that mobilized our nation for global war.

SENATOR TAFT: What is the matter with the Eightieth Congress?

SENATOR HILL: Well, since the Senator has asked the question, I would like to answer it off the record.

[Discussion off the record.]

SENATOR TAFT: The Seventy-Ninth Congress passed the hospital bill.

SENATOR HILL: The Seventy-Ninth was outstanding. The health of the people is the greatest resource of any nation. We can render no greater service to the people of America, and to the people of the world who look to a strong America for leadership to peace, than to enact this legislation for the health, the strength, the self reliance and the happiness of our nation.

Let the Senate Committee on Labor and Public Welfare—our committee—give leadership and bring forth the legislation to make this Congress the great health Congress.

(To Be Continued)

Coming Medical Meetings

American Association of Railway Surgeons, Chicago, Drake Hotel, June 30-July 2. Dr. Chester C. Guy, 5800 Stony Island Ave., Chicago 37, Secretary.

Montana State Medical Association, Butte, Aug. 1-4. Dr. Herbert T. Caraway, 115 N. 28th St., Billings, Secretary.

West Virginia State Medical Association, White Sulphur Springs, The Greenbrier, Aug. 4-6. Mr. Charles Lively, 1031 Quarrier St., Charleston, Executive Secretary.

Washington Letter

(From a Special Correspondent)

June 20, 1949.

National Health Legislation Hearings Resumed

Congressional hearings on national health legislation were all but at a standstill during the week ended June 18. On June 16 and 17, the health subcommittee of the House Interstate Committee heard witnesses on federal aid to medical research. During the same week the corresponding subcommittee of the Senate Labor Committee held no public hearings but, instead, held conferences on subsidization of medical, dental and nursing education with representatives of the American Medical Association, Association of American Medical Colleges, American Dental Education, American Nurses' Association and other organizations.

Both Senate and House subcommittees were scheduled to resume hearings on full scale beginning June 20 and probably continuing with little interruption almost until the session's end. Congress is expected to adjourn late in July, possibly early August.

Witnesses tentatively scheduled to appear before the Senate subcommittee, of which Senator James E. Murray is chairman, late in June include Dr. George Baehr and Dr. Howard Craig, for the New York Academy of Medicine; Dr. Bernard C. Meyer, Physicians Forum; Dr. Joseph S. Wall, American Academy of Pediatrics, and Dr. E. L. Young and Dr. John Peters, Committee of Physicians for Improvement of Medical Care.

Senators Ives and Flanders Push Their Health Bill

Favorable action on the national health bill sponsored by ten Republican members, the most distinctive feature of which is a plan for federal support of voluntary prepayment plans, has been strongly recommended by two members of the group. They are Senators Irving M. Ives (N. Y.) and Ralph E. Flanders (Vermont). Their bill is known as S. 1970.

"This bill is diametrically different from the compulsory health insurance bill offered by the Administration," said their joint statement. "This program would be a voluntary one. It would place and preserve primary responsibility for the development of adequate health services in the states and local communities, where the needs are most accurately known and best can be met, rather than at the remote federal level.

"This pattern of medical service for our people is designed to give the maximum in assistance, without regard to an individual's income, and with the minimum of government direction, control and centralization. The financial relationship among the doctor and hospital and patient will be not through government as in the Administration's proposal, but through voluntary health plans."

National Science Foundation Bill Indorsed

Passed by the Senate early in the present session of Congress, the National Science Foundation bill (H. R. 4846) was favorably reported on June 14 by the House Interstate Committee. Estimated cost of effectuating the program is \$15,000,000 in 1950 and \$25,000,000 annually thereafter.

"The need to establish a National Science Foundation is today more urgent than ever," said the report. "Our national health, prosperity and welfare and, indeed, our national defense are dependent on pushing forward the frontiers of basic science."

Committee Approves Wider Use of Indian Hospitals

On June 14 the House Committee on Public Lands approved and sent to the floor for action a bill (H. R. 4815) authorizing admittance of non-Indians into Indian hospitals under certain conditions. The legislation was precipitated by a "critical situation" at Winslow, Ariz., where the town's only private hospital was forced to close because of lack of operating funds. Winslow adjoins the Navajo Indian Reservation.

"The town's need for a general hospital is aggravated by the fact that Winslow is on a transcontinental highway on which numerous traffic accidents occur," said the committee report. "A 50-bed hospital operated by the Indian Service has had during the past year an average use of only 29 beds. Under existing regulations, the Indian hospital can accept emergency cases but must remove such patients as soon as they begin to recuperate."

H. R. 4815, if enacted, will authorize the Secretary of Interior to make Indian hospital facilities available to the population on a reimbursable basis and provided that Indians' health needs are properly served. The measure also permits contractual arrangements for treatment of Indians in private hospitals and by private physicians.

New Department of Welfare Proposed

The Children's Bureau and the Office of Vocational Rehabilitation are included among units of Federal Security Agency which would be transferred to a new Department of Welfare under provisions of a bill (S. 2060) introduced by Senator Joseph R. McCarthy, Republican, of Wisconsin. The bill is the latest of several government reorganization measures now pending in Congress, most of which owe their genesis to recommendations of the Hoover Commission. Another bill, introduced a short time earlier, would transfer U. S. Public Health Service (now an F.S.A. component) and practically all Army, Navy and veterans' hospitals to a United Medical Administration, a step also recommended by the Hoover Commission.

New Method of Microsectioning Demonstrated

First public demonstration of a new method in ultramicrotomy was conducted June 13 at the National Bureau of Standards. The technic, developed at the Bureau by S. B. Newman, Emil Borysko and Max Swerdlow, is described as an inexpensive practical means of preparing minutely thin sections of cancerous or other biologic tissue for study with either the light or electron microscope.

Eugene W. Scott Executive Head of Committee

Eugene W. Scott has been appointed as the first full time executive secretary of the Interdepartmental Committee on Scientific Research and Development, whose task is to coordinate research operations of the various federal agencies. He is the holder of a Ph.D. degree in organic chemistry and, until his latest appointment, served as assistant executive secretary of the Research and Development Board of the National Military Establishment.

Dr. Baumgartner Assumes Children's Bureau Post

Dr. Leona Baumgartner was inducted June 2 as associate chief of the Children's Bureau, succeeding Dr. Martha M. Eliot. Among her responsibilities will be administration of \$18,500,000 in federal grants to states to improve maternal and child health services and services to crippled children. A pediatrician, Dr. Baumgartner formerly was in charge of the Bureau of Child Hygiene, New York City Health Department. "Her practical knowledge of how to do a community health job will be immeasurably valuable," stated Federal Security Administrator Ewing.

Veterans Administration Announces Intern Program

Plans have been announced by the Veterans Administration for maintaining 259 internship positions in 13 of its hospitals beginning in July 1950. Two of the institutions will launch "pilot" programs in July of this year. They are at McKinney, Texas, and Chamblee, Ga., and are affiliated, respectively, with Southwestern Medical College and Emory University.

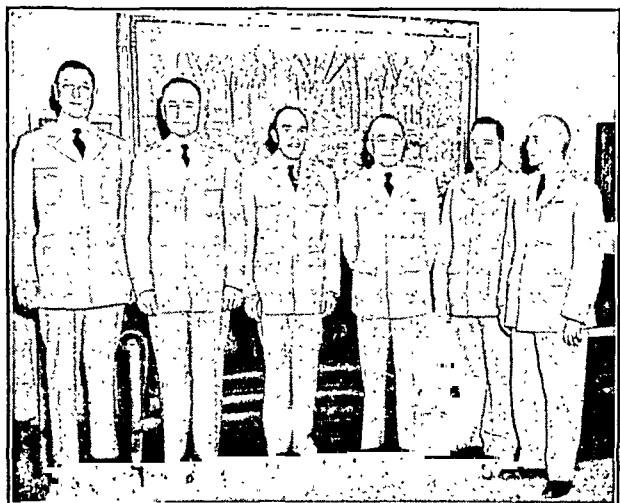
GOVERNMENT SERVICES

ARMY

SERVICE FOR DISABLED VETERAN DOCTORS

The Surgeon General has written to physicians who are drawing compensation as a result of war wounds and who are considered physically able to render professional service, inquiring of their willingness to serve the Army Medical Department in a civilian capacity. This step was taken in view of the Army's present critical need of physicians and dentists. The letters stated, "It is possible for you to be employed in a civilian status without conflicting with the Federal Dual Compensation Status, as you can, in addition to the Civil Service pay, continue to receive your disability retirement benefits." Recipients were asked to state their availability, and their first, second and third preference for appointment in any geographic area or any Army hospital on either a full or part-time basis.

FOUR NEW MEDICAL GENERALS



Four brigadier generals received promotion to the rank of major general in ceremonies held in the office of Major General Raymond W. Bliss, Surgeon General of the Army. Shown (left to right) are Major General Thomas H. Green, Judge Advocate of the Army, who assisted Major General Bliss in the presentation; Major General Walter D. Love, Deputy Chief, Dental Division, Surgeon General's Office; Major General George E. Armstrong, Deputy Surgeon General; Major General Paul H. Streit, M.C., U.S.A., Commanding General of the Army Medical Center; Major General John M. Hargraves, Deputy Air Surgeon General, and Major General Bliss.

NATIONAL GUARD TO PARTICIPATE IN GRADUATE PROGRAM

National Guard medical officers will participate in the regular Army's Graduate Professional Education Program under arrangements completed with the Surgeon General. An initial quota of ten residencies in orthopedics and three in physical medicine has been assigned the National Guard. The courses, which will begin on July 1, 1949, will involve a full year of graduate professional training at Army General Hospitals at full pay and allowances.

Plans are under study for expanded participation of National Guard medical officers in the army program of graduate medical study, which provides approved training in the various fields of medical and surgical specialties. The National Guard has vacancies in Army and Air units of about 1,200 doctors and dentists in grades from first lieutenant to colonel. The 1949 medical and dental graduates have been invited to take advantage of the opportunities for service and training available as medical officers in the National Guard.

OFFICERS ACCEPTED FOR ADVANCED TRAINING

The following Medical Department officers have been accepted for advance training by the civilian schools and hospitals indicated. The first in the list is a colonel, the next two are lieutenant colonels, the fourth a captain, and the remainder first lieutenants.

Name	Institution	Training
William H. Amspacher	Baylor University, Houston, Texas	Training in surgery
Raymond T. Jenkins	American College of Chest Physicians, Chicago	Course in Diseases of the chest
Orland S. Olsen	New York University, New York City	Dermatology and syphilology
Thorwald R. Anderson	University Hospital, University of Nebraska, Omaha	Residency in pathology
Clifton W. Arrington	Provident Hospital & Training School, Chicago	Residency in medicine
Donald S. Wilkins	State University of Iowa Hospitals, Iowa City	Residency in anesthesia
Robert W. Spaulding	St. Mary's Group of Hospitals, St. Louis	Residency in urology
Gerriet A. Janssen	University of Nebraska Hospital, Omaha	Residency in obstetrics and gynecology
Donald H. Giesler	Kansas City General Hospital No. 1, Kansas City, Mo.	Residency in general medicine
Richard M. Fox	University of Minnesota Hospitals, Minneapolis	Residency in anesthesia
Paul W. Dale	Colorado Psychopathic Hospital, Denver	Residency in psychiatry
John G. Boutselis	St. Mary's Group of Hospitals, St. Louis	Residency in obstetrics and gynecology
Miles E. Thomas	Kansas City General Hospital, Kansas City, Mo.	Residency in pathology
James H. Sands	University of Minnesota Hospitals, Minneapolis	Residency in medicine
Lloyd J. Gregory Jr.	University of Texas Medical Branch Hospitals, Galveston	Residency in internal medicine
Dick D. Wetzel	Salt Lake County General Hospital, Salt Lake City	
Warren E. Porter	City Hospitals, Baltimore	Residency in neurology
Charles H. Meeks	Medical College of Virginia, Richmond	Residency in anesthesiology
John K. Leach	Lakewood Hospital, Lakewood, Ohio	Residency in medicine
Blackburn S. Joslin	University of Maryland Hospital, Baltimore	Residency in pediatrics
Lewis E. Jones	Norfolk General Hospital, Norfolk, Va.	Residency in medicine
Walter W. Hannah	City Hospitals, Baltimore	Internship in medicine
Hugh P. Curtis	City Hospitals, Baltimore	Internship in surgery
Norman J. Cole	City Hospitals, Baltimore	Residency in surgery
Joseph Allison	Queens General Hospital, New York; then Coney Island Hospital, Brooklyn	Fellowship in pediatrics Residency in pediatrics

EXHIBIT ON ATOMIC WARFARE

The exhibit on the Medical Aspects of Atomic Warfare prepared by the Medical Departments of the Army, Navy and Air Force was loaned to the Canadian Armed Forces, at the request of the Canadian Minister of National Defense, for display at the annual convention of the Canadian Medical Association, at Saskatoon, June 13-17. The exhibit comprised material collected from Hiroshima and Nagasaki. Accepted principles of civil defense are listed, and means by which the Armed Forces medical services can cooperate with civil defense are demonstrated. Representatives of the Army, Navy and Air Force accompanied the exhibit.

A similar exhibit was displayed by the Medical Departments of the Armed Forces at the American Medical Association convention in Chicago in 1948, and was later placed in the Museum of Science and Industry, Chicago, where it was seen by more than 300,000 persons.

Medical News

(Physicians will confer a favor by sending for this department items of news of general interest: such as relate to society activities, new hospitals, education and public health. Programs should be received at least two weeks before the date of meeting.)

CALIFORNIA

Society News.—The California Society of Pathologists at their second annual meeting in Los Angeles May 8 installed Dr. Robert J. Parsons of Oakland as president and chose Drs. Alvin G. Foord of Pasadena as president-elect and H. Russel Fisher of Los Angeles, secretary-treasurer.

Faculty Changes at Stanford.—The following professors will retire from their active teaching duties at Stanford University School of Medicine, San Francisco, September 1 with the title emeritus: Dr. George D. Barnett, professor of medicine; Dr. Charles H. Danforth, professor and executive, department of anatomy; Dr. James R. Dillon, clinical professor and chief of the division of urology; Dr. Harold K. Faber, professor and executive of the department of pediatrics, and Frank W. Weymouth, Ph.D., professor and executive, department of physiology. Dr. John K. Lewis has been promoted to professor of medicine and will succeed Dr. Barnett on the Stanford Service at the San Francisco Hospital. The new clinical professor and chief of the division of urology will be Dr. Henry Weyrauch, member of the faculty since 1937. Dr. John A. Anderson will succeed Dr. Faber as professor and executive of the department of pediatrics. He has held a similar position at the University of Utah for the past five years. William W. Greulich, Ph.D., will succeed Dr. Danforth as executive of the department of medicine. Dr. Rodney R. Beard has been promoted to professor of public health and preventive medicine and will succeed Dr. Charles E. Smith as executive of the department. Dr. Smith has resigned, effective September 1, to accept an appointment in the Graduate School of Public Health at the University of California, Berkeley. Dr. Jefferson M. Crismon, associate professor of physiology, has been appointed acting executive in the department of physiology.

COLORADO

Health Director Retires.—Dr. Amos L. Beagler, the first director of health of Denver public schools, will retire June 28. He was named head of the health department when it was formed in 1923 and has built it up so that the department includes health rooms in every school, thirty-six nurses, two full time and seven half-time physicians.

Dr. Rovenstine to Lecture.—The Phi Delta Epsilon Graduate Club of Denver is sponsoring its first lecture to be held at Denison Auditorium, University of Colorado Medical Center, June 27 at 8 p.m. Dr. Emory A. Rovenstine, chairman of the department of anesthesiology, New York University-Bellevue Medical Center, will speak on "The Abuse of Hypnotics and Analgesics."

Radio Council Receives Award.—The Rocky Mountain Radio Council has been awarded a special citation for Service to Education through Radio by the George Foster Peabody Awards Committee. Jack W. Lewis, associate director of the council and writer of both the Colorado State Medical Society programs, "Man and Medicine" and "Dr. Tim, Detective," accepted the award. The council is an organization which specializes in the production of educational programs. A large measure of the council's public service has been of a medical nature.

CONNECTICUT

Connecticut Hospital for Alcoholic Addicts.—Construction of the first hospital in the United States devoted solely to the study, treatment and rehabilitation of alcoholic addicts began in Hartford in March. The project will be under the direction of the Connecticut Commission on Alcoholism, which will operate the building and organize and supervise its services. The building, which will cost \$423,500, will be located near the J. J. McCook Memorial Hospital.

Expand Psychiatric Guidance of Students.—A gift of \$2,000,000 from the Old Dominion Foundation of Washington, D. C., will allow Yale University to expand its work in psychiatric guidance of students. Yale's present program of psychologic and psychiatric assistance to students is under the supervision of Dr. Clements C. Fry, head of the division of psychiatry and mental hygiene of the Yale Department of Health. Dr. Fry will be in charge also of the expanded program. In discussing his division, Dr. Fry emphasized that

"the ultimate objective from the research point of view is to establish at Yale a center for the thorough study of the young adult within a psychiatric, psychologic and sociologic framework." The functions of the Division of Psychiatry and Mental Hygiene will be expanded in several directions: clinical, research, training, education and publication. On the clinical side the division will carry on and expand the work now being done in the prevention and treatment of the emotional problems of students. The staff will be enlarged, and closer relationships will be maintained with members of the university community. In the field of research, according to Dr. Fry, "the fundamental goal is the systematic observation and measurement of the emotional characteristics of the age group represented by students." In the field of training the division will function as a center for psychiatrists, clinical psychologists, physicians and social workers. In addition, such undertakings could be sponsored as postgraduate courses in neurology and psychiatry for physicians, nurses and social workers; and a summer course in college mental hygiene may be conducted in 1950 as a special supplement. If available funds are sufficient, it is planned to publish a journal devoted to problems and developments in college mental hygiene and to the results of the research and other work carried on by the division.

ILLINOIS

Another Downstate Cancer Clinic.—The twenty-fifth downstate Illinois cancer diagnostic clinic, located in the Good Samaritan Hospital, Mt. Vernon, began operation June 7 and will now receive patients on the first Tuesday of each month. Of the twenty-five cancer diagnostic clinics now functioning downstate, twenty-two are state aided. In Cook County there are two cancer clinics which are maintained solely by local funds. Dr. G. Howard Gowen, chief of the state division of cancer control, stated that on the basis of the present population Illinois should have forty more cancer diagnostic clinics throughout the state. The U. S. Public Health Service and the American Cancer Society in February of this year recommended that such a clinic be established for every 100,000 persons.

Chicago

Raymond B. Allen Awards.—Drs. Kurt Glaser and Edmund F. Foley have been chosen by seniors at the University of Illinois College of Medicine as recipients of the Raymond B. Allen Instructorship Awards. The award for excellency in didactic instruction was given to Dr. Foley, a professor of medicine. Dr. Glaser, an instructor in pediatrics, was honored for clinical teaching. The awards were established in 1948 by the Medical Student Council in honor of the former executive dean of the university's Chicago Professional Colleges.

Poliomyelitis Team Activated.—The Northwestern University poliomyelitis team is ready for action. The medical school unit is on call to aid polio-stricken communities anywhere in the United States. With Dr. Emil D. W. Hauser, assistant professor of bone and joint surgery, as its director, the team is assigned to duty and its expenses paid by the National Foundation for Infantile Paralysis. The crew has been on duty five years and has served in Boise, Idaho, and Rockford and Peoria, Ill. Services of the team include medical consultation to doctors of the affected community; teaching local hospital nurses proper bed posture for patients and the administration of hot packs; and instruction in physical therapy techniques of muscle reeducation and general functional exercises. The team is prepared to stay on duty up to six weeks, or until its work of organization, teaching and medical assistance is completed. Subsequently, the assistant orthopedist of the unit will remain in the stricken city as long as he is required. Members of the 1949 team, in addition to Dr. Hauser, are Dr. Arthur F. Abt, associate professor of pediatrics; Dr. Erwin J. Cummins, orthopedist; Miss Meredith Nordschow, instructor in physical medicine; Miss Anne Prochaska, chief physical therapist; and Mrs. Jean Sciora and Miss Lucille Kurzawa, physical therapists. In addition, provision has been made for the services of a medical social worker if the need arises. Other teams similarly organized under the National Foundation are those of Stanford and Harvard universities and the D. T. Watson School of Physical Therapy, Leedsdale, Pa.

MAINE

State Medical Meeting.—The Maine Medical Association held its annual meeting at Poland Spring House, Poland Spring, June 19-21, under the presidency of Dr. Forrest B. Ames, Bangor. Out-of-state speakers included: Paul A. Chandler, Boston, Glaucoma; George Gaillard, White Plains, N. Y., Allergy, and Chester Keefer, Boston, Antibiotics. The guest speaker at the dinner Monday evening was William A. Richard-

son, Rutherford, N. J., who spoke on "Free Medicine in Britain." Dr. Joseph S. Lawrence, director, Washington Office, American Medical Association, was the guest speaker at the dinner Tuesday evening.

MARYLAND

Dedicate Doctors Hospital.—Dedication ceremonies were held for the Doctors Hospital in Baltimore May 12. The hospital, a new structure with a capacity of 75 beds and 34 bassinets, was erected in 1947 through the efforts of a few physicians and in 1948 was reorganized under the control of a lay board of trustees. It is to be the policy of the hospital to cater to the general practitioners who make up a large majority of the more than fifty physician staff. It is the only hospital in Baltimore that has a clinical department of general practice. The dedication dinner address was delivered by Dr. Fred W. Kratz, chief of Office of Medical Program, the U. S. Public Health Service, who spoke on "The Role of Small Hospitals in Medical Care."

MASSACHUSETTS

New Department of Legal Medicine.—Dr. Walter W. Jetter, pathologist for the department of mental health and assistant professor of legal medicine at Harvard University, Boston, has been selected head of a new department of legal medicine at the Boston University School of Medicine, effective July 1. Dr. Jetter received his M.D. degree from the University of Buffalo (N. Y.) School of Medicine in 1931 and his M.S. in medicine in 1938 from the same school. Formerly he was pathologist at the university's Buffalo City Hospital and the Tauton (Mass.) State Hospital. In 1940 he was named state pathologist for the department of mental health and has been director of legal medicine for Massachusetts in that department. For the past nine years he has been active in conducting medico-legal autopsies for the state police and local and county medical examiners.

MISSISSIPPI

State Medical Election.—The Mississippi State Medical Association recently installed Dr. Braxton B. O'Mara, Biloxi, as president, and chose Dr. Billy S. Guyton, Oxford, president-elect for the coming year. The association will hold its 1950 convention in Jackson next May.

Community Honors Physician.—A community-sponsored program was held at the Magnolia Methodist Church May 15 for Dr. George W. Robertson, in recognition of his service as a practicing physician in the community since March 1899. Guest speaker was Dr. James P. Wall, Jackson, a past president of the Mississippi Medical Association. Dr. Robertson, a graduate of the Vanderbilt University Medical School, Nashville, Tenn., 1897, was presented a 50 year service award by Dr. Aubrey V. Beacham of Magnolia.

NEW JERSEY

Hospital Training Program.—The Intern and Resident Training Program at Atlantic City Hospital includes daily clinical conferences, at which teacher-clinicians from leading medical centers discuss diagnostic problems from the hospital wards. All licensed physicians and medical students may attend. The program for the summer lists the following visiting physician speakers:

June 27-July 1, A. McGehee Harvey, Baltimore.
July 4-9, tentative.
July 11-15, John Royal Moore, Philadelphia.
July 18-22, Robley D. Bates Jr., Richmond, Va.
July 25-29, Charles L. Brown, Philadelphia.
August 1-5, William G. Leaman, Philadelphia.
August 8-12, Robert W. Heinle, Cleveland.
August 15-19, Thomas M. Durant, Philadelphia.
August 22-26, Frank Mayfield, Cincinnati.
August 29-September 2, Alexander Marble, Boston.

NEW YORK

Health Officer Retires.—A testimonial dinner was given recently honoring Dr. Edward E. Gillick on his retirement after more than 30 years as health officer of Niagara Falls. Dr. Archibald S. Dean, regional health director, Buffalo, said that Dr. Gillick has made notable contributions to the development of generalized public health nursing, pasteurization of milk, reduction of tuberculosis and the eradication of smallpox and diphtheria in Niagara Falls.

New Infirmary at Craig Colony Opened.—The first building under New York State's postwar construction program to increase facilities of the department of mental hygiene is ready for occupancy. It is a 200 bed infirmary at Craig Colony, the department's institution for epileptics at Sonyea, Livingston County. The infirmary, equipped with all modern facilities for complete medical care, was officially opened June 9. Dr. Willard H. Veeder is director of Craig Colony, which now houses

about 2,224 epileptic patients and provides full medical care, including special treatment for convulsive disorders. Children of school age receive instruction in academic subjects so far as their capacities for learning permit, and occupational therapy is prescribed for patients of all ages. The colony is one of the 27 institutions under jurisdiction of the Department of Mental Hygiene. The state's building program will increase the capacities of several of these institutions, which include 20 hospitals for the mentally ill and 6 schools for mental defectives.

New York City

Medical School Increases Tuition to \$750.—Beginning with the academic year 1949-1950, the New York University College of Medicine will increase its tuition fee from \$650 to \$750.

Sculpture Presented to Hospital.—A sculptured head of the late Dr. Hugh Auchincloss was presented to Presbyterian Hospital June 13 by members of his family. His brother, Charles, made the presentation to Charles P. Cooper, president of the hospital. Dr. Auchincloss' contributions to the advancement of surgery were extolled by his former associate, Dr. Allen O. Whipple. Members of the school of nursing, Eleanor Lee and Margaret Eliot, spoke of Dr. Auchincloss' gift of letters, pictures and other souvenirs concerning Florence Nightingale. The mementos are kept in a specially designed room off the library of the nursing residence. Dr. Auchincloss died Sept. 21, 1947, after more than 35 years' association with the surgical service of Presbyterian Hospital.

Personals.—Among alumni who have earned the New York University Alumni Meritorious Service Award for 1949 for distinguished service to the University is Dr. Ralph L. Dourmashkin, New York. He was cited for his efforts in behalf of the New York University-Bellevue Medical Center Fund and the Dr. Hannah M. Stone Memorial Fund.—Dr. John M. Converse has been presented the Cross of Officer of the Legion of Honor and the Croix de Guerre for service to the French Army as a plastic surgeon during World War II. Awards were presented at the headquarters of the French delegation to the United Nations.—Dr. Emery A. Rovenstine, professor of the department of anesthesiology, New York University-Bellevue Medical Center, received the degree of Doctor of Science from Wabash College, Crawfordsville, Ind., at commencement ceremonies June 5. He was graduated from the college in 1928.—Dr. Oscar D. Ratnoff has been awarded the Montefiore Hospital Henry L. Moses Alumni Prize of \$500 for work during 1948 on "Proteolytic Enzyme in Human Plasma." The award was made on Alumni Day at the Hospital June 1.—Dr. Leonard P. Wershub was reelected president of the Alumni Association of the New York Medical College, Flower and Fifth Avenue Hospitals, at the annual meeting June 7. The Alumni Award was presented to the dean of the college, Dr. J. A. Werner Hetrick, class of 1918, for outstanding achievement and devotion to the college.

OKLAHOMA

State Medical Election.—The Oklahoma State Medical Association has chosen the following officers for the coming year: Drs. George H. Garrison, Oklahoma City, president; Ralph A. McGill, Tulsa, president-elect, and Lewis J. Moorman, Oklahoma City, treasurer. Dr. John F. Burton also of Oklahoma City was elected as delegate to the American Medical Association with Dr. Malcolm E. Phelps, El Reno, as alternate.

Preceptorship Program Under Way.—The first group of senior medical students began work under the preceptorship program of the University of Oklahoma School of Medicine, Oklahoma City, June 20. Senior medical students will be given an opportunity to observe general medical practice in smaller communities of Oklahoma. It is hoped that such experience will encourage students to consider locating in the smaller towns. Each senior student will spend 11 weeks in one of 18 towns in Oklahoma under the supervision of physicians. The program will extend the senior year to 44 weeks instead of the present 32 weeks. The preceptors are members of the general faculty of the school of medicine. The program was worked out jointly by the alumni association of the medical school, the Oklahoma State Medical Association, and the faculty of the school.

PENNSYLVANIA

Enlarge County Hospital.—Ground was broken for Delaware County Hospital's new addition early in May. The addition is to cost \$665,000 and will add 65 beds. The construction concludes years of effort on the part of a small group of hospital officials, friends and enthusiasts. The sum of \$200,000 is being secured by a federal grant.

Philadelphia

Medical School and Hospital to Affiliate.—Germantown Dispensary and Hospital and Jefferson Medical College and Hospital announce a proposed affiliation under which the two institutions will combine their efforts and will cooperate with each other in major activities. The affiliation does not constitute a merger. The institutions will maintain their separate identities and continue their business affairs under their respective governing boards and officers. They agree to joint consultation at the appropriate level on "all matters arising in connection with any activity of either institution which would directly and substantially affect the other institution to the end that the decisions shall be approved by both." A formal agreement approved by the boards and staffs of the two institutions is planned to go into effect within the next few months. Advantages expected to result are: Germantown, being in a position to offer to its physicians an opportunity to teach and develop specialties under the auspices of an outstanding medical college, will increase its standing and efficiency in the community. Hospital staffs will be enlarged and improved by providing that certain personnel will be on the staffs of both hospitals. Jefferson Medical College, now short of available beds for teaching purposes, will use Germantown's facilities for clinical training of its medical students. Jefferson Hospital, now crowded, will use some of the 400 Germantown hospital beds not now occupied. The agreement will provide for eventual joining of the medical staffs of the two hospitals and for eligibility of all present staff members of the Germantown hospital for teaching positions at Jefferson Medical College. There will be a free exchange in rotation of resident physicians between the two hospitals with respect to all services.

GENERAL

Poliomyelitis in Adults.—The National Foundation for Infantile Paralysis reported June 1 that the trend toward a higher proportion of poliomyelitis cases among adults continued during last year's epidemic. A survey based on cases from 22 states and the District of Columbia showed 17.8 per cent of 15,151 persons stricken in those areas were over 20 years of age. The United States had 27,894 cases last year.

National Health Council.—At the annual meeting of the National Health Council in New York on March 25, the National Foundation for Infantile Paralysis was voted an active member of the group. Its president, Basil O'Connor, New York City, was made a member of the group's executive committee. Dr. Hart E. Van Riper, New York City, medical director of the foundation, and Joe W. Savage, executive director, were named to the Health Council's board of trustees. Objectives of the council are the promotion of greater cooperation between medical and public health groups and the furthering of plans through which the entire community health program may be expanded.

Special Society Elections.—At the meeting of the American Gynecological Society at Hot Springs, Va., May 16-18, Dr. Joseph L. Baer of Chicago was elected president, Dr. Robert A. Kimbrough of Philadelphia treasurer and Dr. Norman F. Miller of Ann Arbor secretary. The next meeting of the society will be held at the Greenbrier Hotel, White Sulphur Springs, W. Va., May 11-13, 1950.—The American Geriatrics Society at its recent meeting in Atlantic City chose the following officers: Dr. Hollis E. Clow, White Plains, N. Y., president; Dr. Malford W. Thewlis, Wakefield, R. I., secretary; Dr. Elmer T. Gale, Narragansett, R. I., assistant secretary, and Dr. Richard J. Kraemer, Providence, R. I., treasurer.—The officers of the New England Dermatological Society for the coming year are Dr. Francis P. McCarthy, Boston, president; Dr. Leonard E. Anderson, Springfield, Mass., secretary, and Dr. Mildred L. Ryan, Brockton, Mass., treasurer.

Poliomyelitis Report.—According to the U. S. Public Health Service, the reported incidence of poliomyelitis declined from 155 cases the preceding week to 139 for the week ending June 4 (corresponding week last year 149, 5 year median for the week 71 cases). The following states reported increases of 5 or more cases currently: Oklahoma (from 7 to 19 cases), Tennessee (from 0 to 6), South Dakota (from 1 to 7) and Massachusetts (from 2 to 7). The largest numbers of cases in Texas have occurred in Tom Green and Bexar Counties, with Hidalgo County next; about half of the total cases reported in Texas to date have occurred in these three counties. A total of 1,757 cases have been reported in the United States to date this year, as compared with 1,226 last year and a 5 year median of 956 for the corresponding periods. The total since the average seasonal low point of the disease is 834, as compared with 878 last year and a 5 year median of 414 for the corresponding periods.

Foundation to Merge with Heart Association.—Preliminary steps for merging the American Foundation for High Blood Pressure with the American Heart Association have been approved by the boards of both groups, it was announced June 13. The high blood pressure group will become a section of the American Heart Association's Scientific Council and will be known as the Council for High Blood Pressure Research. Other sections within the association's Scientific Council now include the Section on Circulation and the American Council on Rheumatic Fever. The staffs of both groups will undertake a joint study to recommend methods of integrating personnel and operations of the two present organizations. When such arrangements have been mutually approved, the foundation will dissolve.

World Health Organization to Open Office in Alexandria.—Delegates and observers from twenty countries and territories met in Cairo, Egypt, during the second week of February to set up a World Health Organization Regional Office for the Eastern Mediterranean. Sir Aly T. Shousha, Pasha, Egypt's undersecretary of state for health and chairman of the Executive Board of the World Health Organization, was unanimously nominated director of the regional office to be established on July 1 at Alexandria. The office will have at its disposal a budget slightly over \$100,000 for the first six months. For the first quarter of 1949 advisory services are being provided to Pakistan for malaria control, to Pakistan and Egypt in tuberculosis and maternal and child health, to Egypt and Turkey for venereal disease and to Ethiopia for training programs in public health and sanitation. In addition more than thirty study fellowships have been granted to medical personnel from the area.

Fellowships for Latin-American Physicians.—The American College of Physicians and the W. K. Kellogg Foundation, with the cooperation of the U. S. Department of State and of medical schools in the United States, Canada and Latin-American countries, will inaugurate a program of postgraduate medical fellowships. Outstanding young physicians will be nominated to the college and foundation by local committees in the countries to the south, and those to whom fellowships are awarded will be brought to this country for a year or more of special training. The first fellows will begin their studies in the autumn of 1949. Eligibility requirements include citizenship in the country from which application is made and familiarity with its culture and economy, graduation from an acceptable medical school and completion thereafter of an internship of twelve months or more, ability to use the English language and assurance of a subsequent teaching affiliation with a medical school in the native country. Those needing some training in English will be assigned to a special course for the purpose in the United States.

The W. K. Kellogg Foundation will provide each fellow with a monthly stipend adequate for his basic living costs, an allowance for necessary travel within this country or Canada and will defray tuition charges. In view of the pressing need of Latin-American medical libraries, the foundation will reimburse the fellow for the cost of required textbooks on condition that they become the property of the medical school in which the fellow will teach on his return home. Representatives of the foundation will visit the fellows at intervals after their return home to evaluate the end results of their training and to offer any possible assistance to improve teaching, research and practice in internal medicine in their own countries.

Marriages

JOHN J. BLUMBERG, Elizabeth, N. J., to Miss Beverly Gayle Terry in Washington, D. C., May 21.

CLEMENT C. CURD JR., Ramsey, N. J., to Miss Patricia Ann McInerney of Brooklyn, April 18.

SILAS OWENS THORNE JR., Durham, N. C., to Miss Lucy Lee Kennedy of Kerr, May 21.

ALBERT J. PASCALE, Richmond Hill, N. Y., to Miss Maryann Giosa of Forest Hills, May 21.

CLOYD DINSMORE VAN HOOK to Miss Betty Ora Monroe, both of Ogden, Utah, May 7.

C. ROLLINS HANLON to Dr. Margaret Mary Hammond, both of Baltimore, May 28.

ARTHUR S. THURM to Miss Lorraine Northey, both of Trenton, N. J., May 26.

RODGER R. ENGEL, Santa Ana, Calif., to Miss Juanita Moore of Long Beach, recently.

Deaths

Robert Spann Cathcart ☉ Charleston, S. C.; born in Columbia, Sept. 25, 1871; Medical College of the State of South Carolina, Charleston, 1893; professor emeritus of surgery at the Medical College of the State of South Carolina, which he joined in 1913; member of the founders group of the American Board of Surgery; member of the House of Delegates of the American Medical Association in 1908 and 1909; past president of the Southern Surgical Association, South Carolina Medical Association and the Tri-State Medical Association (North and South Carolina and Virginia); a founder, a life member and from 1916 to 1943 a member of the board of governors of the American College of Surgeons; served during World War I; retired surgeon in chief at Roper Hospital; surgeon at the Citadel for many years, the South Carolina Power Company, Atlantic Coast Line Railway and the Seaboard Air Line Railway; died April 29, aged 78, of carcinoma of the larynx.

Louis Claiborne Posey ☉ Birmingham, Ala.; born in Marvel, Ala., Sept. 12, 1910; Harvard Medical School, Boston, 1935; specialist certified by the American Board of Pathology, Inc.; member of the Southern Medical Association, American Society of Pathologists and Bacteriologists and American Society of Clinical Pathologists; founding fellow of the College of American Pathologists; on the faculty of the University of Alabama School of Medicine; served in the medical corps of the U. S. Naval Reserve during World War II; affiliated with the Employees' Hospital of the Tennessee Coal, Iron and Railroad Company in Fairfield, South Highlands Infirmary, East End Memorial Hospital, Children's Hospital and St. Vincent's Hospital; died April 30, aged 38, of heart disease.

Dudley White Palmer ☉ Cincinnati; born in Cincinnati February 5, 1877; Medical College of Ohio, Cincinnati, 1906; formerly on the faculty of the University of Cincinnati College of Medicine; served during World War I; past president of the Cincinnati Academy of Medicine; member of the American Surgical Association; fellow of the American College of Surgeons; member of the founders group of the American Board of Surgery; on the staffs of the Christ Hospital, Cincinnati General Hospital, Deaconess Hospital and the Good Samaritan Hospital; died April 23, aged 72, of cerebral hemorrhage.

John Ten Broeck Bird ☉ Spokane, Wash.; Northwestern University Medical School, Chicago, 1909; specialist certified by the American Board of Internal Medicine; affiliated with Sacred Heart, Deaconess and St. Luke's hospitals; died in Victoria, B. C., Canada, April 21, aged 67, of coronary thrombosis.

Marion Martin Brown ☉ Mexia, Texas; Medical Department of Tulane University of Louisiana, New Orleans, 1907; fellow of the American College of Surgeons; member and past president of the state board of medical examiners; formerly member of the state board of health; past president of the Central Texas and Limestone County Medical societies; past president of the local chamber of commerce; founder of Brown Hospital, where he died April 20, aged 65, of arteriosclerosis.

Roy Hammond Cantrell, Dallas, Texas; Baylor University College of Medicine, Dallas, 1931; member of the American Medical Association; an officer in the Air Corps during World War II; served with the Veterans Administration; died in the Veterans Administration Hospital April 21, aged 46, of melanoma of the brain, pancreas and kidney.

Leonard Clare Chamberlain, New Orleans; Medical Department of Tulane University of Louisiana, New Orleans, 1901; at one time on the state board of health; member of the American Medical Association; affiliated with the Southern Baptist Hospital; physician for the police department; died April 28, aged 71, of cerebral hemorrhage.

Grover Cleveland Chamness ☉ Zeigler, Ill.; Barnes Medical College, St. Louis, 1906; died April 20, aged 63, of coronary heart disease.

Percy Wells Cobb, Sappington, Mo.; Western Reserve University School of Medicine, Cleveland, 1902; formerly on the faculty of Washington University School of Medicine in St. Louis; served in the regular army; died April 18, aged 75.

Frank M. Coyne, Philadelphia; Maryland Medical College, Baltimore, 1907; member of the American Medical Association; died April 11, aged 66.

Morton Everett Cummings, Malden, Mass.; Harvard Medical School, Boston, 1901; member of the American Medical Association; died April 20, aged 73, of carcinoma of the prostate.

John Forrest Dillon III, Montgomery, Ala.; Washington University School of Medicine, St. Louis, 1936; member of the American Medical Association; on the staffs of Fitts Hill Hospital and St. Margaret's Hospital, where he died March 20, aged 42, of uremia.

Kinton Francois Dorion, Lawrence, Mass.; School of Medicine and Surgery of Montreal, Quebec, Canada, 1902; member of the American Medical Association; died recently, aged 73, of coronary thrombosis.

Byron Eugene Farwell, Palm Springs, Calif.; State University of Iowa College of Medicine, Iowa City, 1929; member of the American Medical Association and the Michigan State Medical Society; died March 10, aged 45, of pulmonary tuberculosis.

Ralph Moody Funkhouser, Indianapolis; Indiana University School of Medicine, Indianapolis, 1912; served during World War I; on the neuropsychiatric staff of the Veterans Administration in Indiana and Illinois; on the staff of the Veterans Administration Hospital in Hines, Ill.; died in Methodist Hospital February 27, aged 64, of carcinoma of the pancreas.

Harold Ellsworth Gillett, Ramsey, N. J.; University of Maryland School of Medicine and College of Physicians and Surgeons, Baltimore, 1916; died February 18, aged 56.

Eugene Edwin Gloor ☉ Aromas, Calif.; College of Medical Evangelists, Los Angeles, 1923; died in Salinas, March 18, aged 52, of a reaction following a transfusion.

Alfred Fredric Gray, Little Rock, Ark.; Memphis (Tenn.) Hospital Medical College, 1908; member of the American Medical Association; affiliated with Baptist State Hospital and St. Vincent Infirmary; died April 22, aged 68, of coronary occlusion.

George Edward James, Selbyville, Del.; University of Maryland School of Medicine and College of Physicians and Surgeons, Baltimore, 1909; served during World War I; member of the American Medical Association; on the medical board of Beebe Hospital in Lewes; died April 20, aged 66, of heart disease.

Joseph Thomas Jones, Houston, Texas; University of Virginia Department of Medicine, Charlottesville, 1920; member of the American Medical Association; died in St. Joseph's Infirmary, April 12, aged 54, of cerebral hemorrhage.

George H. Jordy, Hanover, Pa.; Baltimore University School of Medicine, 1898; died in Jefferson Hospital, Philadelphia, April 18, aged 75.

Henry Frederick Kammann, San Marino, Calif.; Chicago College of Medicine and Surgery, 1910; died April 30, aged 62, of coronary occlusion.

Samuel Solomon Keller, Saginaw, Mich.; Detroit College of Medicine and Surgery, 1914; affiliated with Saginaw General, St. Mary's and St. Luke's hospitals; died in Gulfport, Miss., April 18, aged 66, of heart disease and diabetes mellitus.

Thomas Neal Kitchens, Warm Springs, Ga.; Louisville (Ky.) Medical College, 1891; served as mayor of Warm Springs; formerly affiliated with the Georgia Warm Springs Foundation; died April 23, aged 86.

William Bernhard Kowenstrot, Milwaukee; Wisconsin College of Physicians and Surgeons, Milwaukee, 1904; also a pharmacist; died April 26, aged 74.

Walter Phillip Kriechbaum, Burlington, Iowa; Northwestern University Medical School, Chicago, 1914; certified by the National Board of Medical Examiners; died in Norbury Sanatorium in Jacksonville, Ill., recently, aged 58, of coronary thrombosis.

Willis Hess LeFevre ☉ Lancaster, Pa.; Medical College of Virginia, Richmond, 1913; specialist certified by the American Board of Otolaryngology; member of the American Academy of Ophthalmology and Otolaryngology; fellow of the American College of Surgeons; past president of the Lancaster City and County Medical Society; past president of the city board of health; on the staff of Lancaster General Hospital, where he died April 29, aged 60, of cerebral hemorrhage.

Harry Fritz Leibert ☉ Bethlehem, Pa.; Medico-Chirurgical College of Philadelphia, 1904; specialist certified by the American Board of Radiology, Inc.; member of the Radiological Society of North America and the American College of Radiology; served during World War I; police surgeon and civil service commissioner; affiliated with St. Luke's Hospital; died April 12, aged 65.

James Francis Loughran, Lowell, Mass.; Harvard Medical School, Boston, 1896; member of the American Medical

Association; on the staff of St. John's Hospital; died April 17, aged 79, of arteriosclerotic heart and kidney disease.

Arthur Marcus McElhannon • Sherman, Texas; University of Texas School of Medicine, Galveston, 1912; fellow of the American College of Surgeons; on the staff of St. Vincent Hospital, where he died April 21, aged 67, of coronary occlusion.

John H. McLean, Caddo Gap, Ark.; Gate City Medical College, Dallas, 1905; member of the American Medical Association; past president and for many years secretary of the Montgomery County Medical Society; died April 25, aged 79.

Samuel Hoskins McLean, Jackson, Miss.; Medical Department of Tulane University of Louisiana, New Orleans, 1893; fellow of the American College of Surgeons; served as secretary and executive officer of the Mississippi State Board of Health; for many years county health officer; for many years physician for Belhaven College; died April 21, aged 77.

Edwin A. McManus, Mesick, Mich.; Michigan College of Medicine and Surgery, Detroit, 1898; member of the American Medical Association; past president of the Wexford-Messaukee Counties Medical Society; president of the village of Mesick for many years; health officer; on the staff of Mercy Hospital, Cadillac; died April 11, aged 85, of prostatic hypertrophy and uremia.

John W. Medley, La Harpe, Ill.; College of Physicians and Surgeons, Keokuk, Iowa, 1898; member of the American Medical Association; died April 10, aged 77, of heart disease.

Peter Meier, Crescent Springs, Ky.; American Medical College, St. Louis, 1913; served during World War I; formerly member of the board of health in Covington; on the staff of St. Elizabeth Hospital in Covington, where he died April 25, aged 72.

Robert Asa Melendy • Chicago; the Hahnemann Medical College and Hospital, Chicago, 1906; fellow of the American College of Surgeons; on the staff of the Chicago Memorial Hospital; died April 24, aged 66, of coronary occlusion.

John Whitworth Melvin, Camden, Miss.; Medical Department of Tulane University of Louisiana, New Orleans, 1911; served during World War I; died in St. Dominic's Hospital in Jackson April 29, aged 61, of a head injury received in a car accident.

Thomas Ralph Moye, Sanford, Fla.; Atlanta College of Physicians and Surgeons, 1899; member of the American Medical Association and the Medical Association of Georgia; died April 5, aged 75, of cerebral hemorrhage.

John Michael Murphy • Brockton, Mass.; Tufts College Medical School, Boston, 1906; died in the Goddard Hospital April 24, aged 68.

William Alex O'Brien, Chicago; Medical College of Virginia, Richmond, 1918; died April 7, aged 57, of lobar pneumonia and arteriosclerotic heart disease.

John Joseph O'Shea, Weehawken, N. J.; Columbia University College of Physicians and Surgeons, New York, 1930; member of the American Medical Association; served during World War II; on the staff of St. Mary's Hospital in Hoboken; died in New York April 9, aged 43, of heart disease.

Kate E. Peckardt, Chicago; Chicago Medical College, 1885; the Hahnemann Medical College and Hospital, Chicago, 1889; member of the American Medical Association; died March 23, aged 88, of chronic myocarditis and arteriosclerosis.

Philip Sheridan Pile • Latrobe, Pa.; Baltimore Medical College, 1905; served as a member of the board of education and the board of health; died April 11, aged 78, of coronary occlusion.

William James Quinn • Eureka, Calif.; Cooper Medical College, San Francisco, 1905; formerly city and county health officer; on the staff of General Hospital; died April 12, aged 72, of cerebral hemorrhage.

Walter Latham Rathbun • Cassadaga, N. Y.; Yale University School of Medicine, New Haven, 1903; member of the American Trudeau Society and the American Clinical and Climatological Association; medical superintendent of the Newton Memorial Hospital; died April 28, aged 71.

Rudolph Robert Remark, Sinking Spring, Ohio; Eclectic Medical College, Cincinnati, 1920; member of the American Medical Association; formerly mayor; served during World War I; died April 16, aged 70, of chronic myocarditis and arteriosclerosis.

Florence A. Amidon Richardson, Omaha; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1895; served as juvenile court physician; died in the Douglas County Hospital April 16, aged 81, of bronchopneumonia, arteriosclerotic heart disease and hypertension.

Marie Riegger, Philadelphia; Woman's Medical College of Pennsylvania, Philadelphia, 1901; died in Lankenau Hospital March 22, aged 75.

Grover Moss Rogers • Kingsport, Tenn. (licensed in Tennessee in 1915); died in Kingsport Hospital April 10, aged 64.

Leopold Miller Rohr, Jamaica, N. Y.; University and Bellevue Hospital Medical College, New York, 1908; served during World War I; formerly district health officer; died in the U. S. Naval Hospital, St. Albans, April 6, aged 63, of coronary thrombosis and cerebral accident.

Leon Rosenwald • Kansas City, Mo.; Marion-Sims College of Medicine, St. Louis, 1893; an Associate Fellow of the American Medical Association; died in the Wheatley-Provident Hospital April 21, aged 77, of arteriosclerotic heart disease.

Roxette Landis Runk • Takoma Park, Md.; American Medical Missionary College, Battle Creek, Mich., and Chicago, 1906; specialist certified by the American Board of Otolaryngology; member of the American Academy of Ophthalmology and Otolaryngology; for many years associated with the Washington Sanitarium and Hospital, where she died April 18, aged 77, of myelogenous leukemia.

Dawsey Ryan, Bernie, Mo.; St. Louis College of Physicians and Surgeons, 1904; died in Galatia, Ill., April 8, aged 67, of cerebral hemorrhage, hypertension and arteriosclerosis.

Clarence Elmer Sanders • Kansas City, Mo.; University of Kansas School of Medicine, Kansas City, Kan., 1907; served during World War I; on the staff of St. Mary's Hospital, where he died April 28, aged 63, of carcinoma.

Charles Hassiepen Sanderson • Philadelphia; University of Pennsylvania School of Medicine, Philadelphia, 1909; on the staff of Fitzgerald Mercy Hospital, Darby, Pa., where he died April 12, aged 64, of pyelophlebitis and peritonitis.

Paul Edward Santangelo, Brooklyn; Fordham University School of Medicine, New York, 1921; member of the American Medical Association; served during World War I; on the staffs of Prospect Heights Hospital, Cumberland Hospital and the Brooklyn Cancer Institute; died April 25, aged 50, of hypernephroma of the right kidney with generalized metastasis.

Augustus Bernhard Santry • Little Falls, N. Y.; University of Maryland School of Medicine, Baltimore, 1896; an Associate Fellow of the American Medical Association; formerly mayor; on the staff of Little Falls Hospital; for many years health officer; died April 23, aged 81.

Elizabeth Rice Sawyer, Valhalla, N. Y.; Western Reserve University School of Medicine, Cleveland, 1948; intern, Grasslands Hospital; died in the Neurological Institute of the Columbia Presbyterian Hospital, New York, April 5, aged 24.

Joseph Schwarz, New York; Magyar Királyi Ferencz József Tudományegyetem Orvostudományi Kara, Szeged, Hungary, 1929; member of the American Medical Association; died February 25, aged 49, of tumor of the brain.

James Sutherland • Spokane, Wash.; Trinity Medical College, Toronto, Ont., Canada, 1891; an Associate Fellow of the American Medical Association; fellow of the American College of Surgeons; served as president of the staff of Deaconess Hospital, where he died March 31, aged 84, of coronary occlusion.

Grant D. Walker • Eldon, Mo.; American Medical College, St. Louis, 1890; served as president of the Miller County Medical Society; died March 24, aged 81, of malignancy of the pancreas.

John Wertheimer, Waterbury, Conn.; University and Bellevue Hospital Medical College, New York, 1918; member of the American Medical Association; on the staff of St. Mary's Hospital, where he died April 16, aged 55, of probable pulmonary atelectasis.

J. Cliff Wetherill • Weston, Ohio; Starling-Ohio Medical College, Columbus, 1909; served during World War I; formerly county coroner; died April 26, aged 65, of coronary thrombosis.

Stephen Stockton Woolston, Tuxedo Park, N. Y.; University of Pennsylvania School of Medicine, Philadelphia, 1929; died in New York April 3, aged 46, of a fractured skull received in a fall.

Rennie Wright • New Braunfels, Texas; University of Texas School of Medicine, Galveston, 1913; past president of the Comal County Medical Society; for many years city health officer; served overseas during World War I and was awarded the French Croix de Guerre; recipient of the Silver Beaver Award; died April 22, aged 60, of coronary occlusion.

Foreign Letters

PARIS

(From Our Regular Correspondent)

April 30, 1949.

Foreign Doctors Permitted to Practice on Condition of Reciprocity

A bill has been adopted by the General Assembly which permits certain foreign practitioners to practice medicine and dentistry in hospitals established in France by foreign organizations and recognized as of value to the public. This law stipulates that a properly qualified subject of a foreign state may practice his art in France by order of the Minister for Public Health and Population. Authorization to practice will be granted to the individual candidate. One of the requirements is knowledge of medicosocial laws applicable to France. Such authorization can be withdrawn at any moment.

International Congress on Neurology

The fourth International Congress on Neurology will be held September 5-10 in Paris. On the agenda will be discussion of the anatomy of the thalamus by Professor Le Gros Clark, Oxford, and the physiology of the thalamus, by Professor J. Lhermite, Paris. Also under discussion will be diseases caused by filterable viruses, including the general problems of neurotropic viruses, by Dr. Albert B. Sabin, United States; the viruses responsible for poliomyelitis, by Dr. Sven Gard, and viruses in herpes zoster, lymphocytic choriomeningitis and rabies, by Dr. Pierre R. Lepine, Paris. Surgery for the relief of pain will include discussions of operations on the sympathetic nervous system, by Professor R. Leriche, Paris; cordotomy, tractotomy and radicotomies, by Professors Sjöqvist, Sweden, and Krayenbuhl, Switzerland, and surgical treatment of migraine, by M. G. F. Rowbotham, England. Other topics include electroencephalography, by Professor F. Brehmer, Brussels; electroencephalography in (1) neurosurgical diagnosis, by Dr. Herbert Jasper, Montreal, Canada, and (2) psychomotor epilepsy, by Dr. F. A. Gibbs, United States; electromyography in neurologic diagnosis of (1) diseases of the central nervous system, by Dr. F. Buchtal, Copenhagen, and (2) diseases of the peripheral neuron and the muscles, by Dr. Harvey, London.

The general secretary of the congress is Dr. Raymond Garcin, 19 rue de Borgogne, Paris.

Obesity

At a meeting February 11 of the Medical Society of Paris, Albert P. Netter and associates described a condition the chief features of which are progressive obesity, long-standing fever, headache, accelerated pulse, pseudohyperthyroid excitability and occasionally a goiter. Despite the obesity and the usually low basal metabolic rate, the latter symptoms and signs sometimes lead to the erroneous diagnosis of toxic diffuse goiter (Graves' disease). The syndrome usually occurs during puberty or immediately after a pregnancy. In the first case, the authors point out the etiologic role of primary tuberculosis. The trouble seems to be due to a lesion or functional disturbance of the hypothalamus (Netter, A.; Mathé, G.; Pottier, R., and Dinot-Laulanié: Obesity with Fever, Pseudohyperthyroidism and Headaches, *Bull. et mém. Soc. méd. d. hôp. de Paris* 65: 111-117, 1949).

Etienne May and A. Netter found in all forms of obesity a great increase of the venous blood pressure contrasting with a normal arterial blood pressure. In many instances, the spinal fluid pressure varied according to the venous blood pressure. This increase of venous blood pressure seems to be one of the factors of water imbalance in obesity (to be published in *Bull. et mém. Soc. méd. d. hôp. de Paris*).

New Technic of Vitamin Therapy

While studying chronic tetany, L. Justin-Bezancon, H. Klotz and P. Barbier (Bichat Hospital) developed implantation in vitamin therapy (only used, up to now, with hormones). In 7 cases of parathyroidal deficiency they noted a remarkable therapeutic effect obtained through the subcutaneous implantation of a pellet (of an average of 75 mg.) of vitamin D₂. The hypercalcemia which develops last five to seven weeks in chronic tetany and spasmodophilia. This action has been controlled in the acute tetany of a parathyroparal dog. The administration of vitamin D₂ by implants has a better effect on calcemia in chronic tetany than the oral administration; in several patients, the same dose given undivided, by means of an implant, increased calcemia by 10 per cent, whereas divided in five daily oral doses the calcium rate has not been altered. Up to now, a strong dose does not seem to act better than a weak one. In most cases, they used the 75 mg. dose, which avoids the state of functional inhibition of the parathyroid. If the hypercalcemia rate obtained appears to be excessive (above 120 mg.), it can be lowered by means of estradiol benzoate. The authors think that the operative inclusion of one pellet of vitamin D₂ would also be indicated in thyroid surgery, in order to avoid the eventual accident of acute tetany; it would also be possible, in this manner, to insure the administration of calciferol (vitamin D₂) to certain mental patients sometimes difficult to control.

An Arthropod as Vector of Tularemia

On February 18 G. Girard presented to the Medical Society of the Paris Hospitals the first case in France in which it had been possible to demonstrate the role of an insect as the vector in the transmission of tularemia. The disease began a few days after the patient had been bitten by a tick, which he tore away from his skin and which has been identified as *Dermacentor marginatus*. A direct connection between the seat of the bite and an adenopathy, the absence of the handling of hare or of any suspect animal, excludes any other mode of contamination. This tick is an ectoparasite of wild animals; e. g., fox, wild boar, polecat, deer, two species of which were responsible for several human cases of tularemia in the "Côte d'Or," a district adjacent to the one inhabited by the patient. The author has emphasized that henceforth *Dermacentor marginatus* is to be considered as a vector of tularemia in France. Further observations may define its importance as a virus reservoir.

Streptomycin in Tuberculosis of Bone and Joint

Professor E. Bernard, P. Padovani and A. Lotte have treated with streptomycin 20 patients with osteoarticular tuberculosis in the tuberculosis ward of the Laennec Hospital.

At a meeting of the Academy of Surgery, M. Sorrel reported on the use of streptomycin for the treatment of abscesses and fistulas. Others who have been studying the effects of streptomycin on tuberculosis and who have reported their results include Galland and Froyez (Berck) and M. P. Ingelrans.

Method of Desensitization to Streptomycin

To permit the continuation of streptomycin treatment in the presence of sensitization, C. Mattei and P. Balozet have developed a process of desensitization. Their technic consists of the use of three solutions in an isotonic solution of sodium chloride of increasing concentration, administered in increasing doses.

Autopotentialization of Sodium Paraaminosalicylate

J. Solomides and E. Bourland also studied the bactericidal effect of sodium paraaminosalicylate in a concentrated solution and found that such a solution is three hundred times more active than dilutions of aqueous solutions against the growth of the tubercle bacillus in Sauton's medium. The authors believe that

this phenomenon may be due to the polymerization of hydroxylated molecules of sodium paraaminosalicylate in a concentrated solution and that it would disappear in the presence of an excess of water.

Congresses

The Sixty-Eighth Congress for the Advancement of Sciences will take place in Clermont-Ferrand July 18-23. The general secretary is Professor Verne, 28 Rue Serpente, Paris (6).

The twenty-fourth annual meeting of the French Society of Orthopedy will take place in Paris in September. On the agenda are "Nontuberculous Sacroiliac Arthritis" (M. Ingelrans, Lille and Oberthur, Paris), and "Cervicobrachial Neuralgia, Especially That of Disk Origin" (M. Ricard and P. Girard, Lyon). The general secretary is Dr. Padovani, 1, Rue Octave-Feuillet, Paris (16).

The Forty-Seventh Congress of Psychiatrists and Neurologists of France and of French-Speaking Countries will take place in Clermont-Ferrand September 12-17. On the agenda are Psychiatry: "Legitimacy and Limitations of Reaction Psychosis" (P. Chatagnon, Maison Blanche at Neuilly-sur-Marne); Neurology: "Physiopathologic Consequences of Surgical Interventions on the Occipital Lobe" (M. David, Paris); Forensic Psychiatric Medicine: "The Swindler, Medicolegal and Psychiatric Study" (P. Gouriou, Villejuif). Permanent general secretary is Dr. Paul Cossa, 29 Boulevard Victor Hugo, Nice (Alpes Maritimes).

TURKEY

(From Our Regular Correspondent)

ANKARA, May 20, 1949.

Control of Tuberculosis

Professor Ordinarius Tevfik Saglam Pasha, former president of Istanbul University, an authority on tuberculosis in Turkey who for more than fifteen years has directed the tuberculosis prevention work in Istanbul, opened the tuberculosis week with a conference at Ankara University. At present the number two public health problem in Turkey is tuberculosis, which has increased among the poor of urban communities during the last nine years. World War conditions raised food prices four to ten fold and retarded many a building project, creating a housing shortage, which, together with high prices for rent and food, was detrimental to the health of families in the lower income groups. Professor Saglam stressed the necessity of public cooperation with governmental agencies and gave the following account:

While in 1931 the tuberculosis death rate in Istanbul was 203, it had decreased by 1939 to 187, but had risen to 267 per hundred thousand in 1947. In Ankara the tuberculosis death rate in 1931 was 179; in 1939 it had decreased to 110, but rose to 142 per hundred thousand in 1947. From 1931 to 1939 there were 22,563 deaths, or an average of 2,500 a year or 166 per hundred thousand, from pulmonary tuberculosis in twenty-one provincial towns, among a population of 1,500,000; accordingly, about 31,000 persons die every year of tuberculosis in the provinces.

Recent regulations at Istanbul University call for a radiographic examination of all applicants. In 1948, of 3,025 applicants, in 25, or 0.82 per cent, radiographic examination revealed pulmonary tuberculosis, of 15,410 primary school children examined at the tuberculosis prevention dispensaries 24, or 0.15 per cent, had pulmonary tuberculosis; 1.22 per cent of the 15,410 children, though not in the infectious state, were in need of medical supervision. The Istanbul Society for the Prevention of Tuberculosis procured a Westinghouse mobile unit, and a mass examination in seventeen primary schools revealed that 0.55 per cent had infectious pulmonary tuberculosis and 2.01 per cent were in need of medical supervision. The first society for tuberculosis control work was established in Istanbul in 1916,

but because of the prolongation of the first world war, and the many untoward conditions after it, the society was short lived. Actual tuberculosis control work started in 1923 with the founding of the Izmir Society for the Prevention of Tuberculosis and the reestablishment of the Istanbul Society in 1926. The first Istanbul tuberculosis dispensary was opened in 1929 in Eyup, an overcrowded district on the Golden Horn. By 1948 eleven other poor districts had tuberculosis dispensaries; nine more are to be opened in the near future. The dispensaries have modern x-ray apparatus, laboratories and pneumothorax instruments (collapse therapy), a small infirmary, specialist physicians, visiting nurses and technicians. All examinations and treatments are free; very poor patients receive free medications and victuals. The dispensaries are open from 9 a. m. to 5 p. m. Expenses are met by public contributions and monthly subscriptions from members of the society. The largest contribution comes from the 10 per cent tax on cinema tickets exacted by the municipalities in accordance with a law promulgated in 1948. In Istanbul city this tax brings in almost 1,000,000 pounds a year. The Istanbul society purchased a Westinghouse mobile unit for 83,000 pounds. This is the only apparatus of this kind in the country.

At present there are fifty-two societies for the prevention of tuberculosis, but, as there are sixty-three provinces, eleven more are needed. The governors head the societies; health officers and municipality physicians as members, with the cooperation of public-spirited citizens, manage the societies. At present tuberculosis control work is confined to the establishment of dispensaries, locating open cases, providing treatment and finding places in sanatoriums or hospitals, arranging for conferences, distributing pamphlets, imparting knowledge concerning preventive measures and soliciting of funds. Town and district dispensaries in provinces with insufficient incomes are aided by the Turkish Red Crescent Society, which procured x-ray apparatus and other equipment. The Junior Turkish Red Crescent, which has 450,000 members, collects funds to send primary and high school pupils to preventoriums and sanatoriums. The Turkish Red Crescent has also established soup kitchens in the large towns; in 1948, 5,000,000 portions were served.

Health and sickness insurance not yet having been established, and the urgent needs of tuberculous persons constantly being brought to the attention of health and other departments, the government has taken emergency measures and resorted to legislation. Governmental sanatoriums and hospitals where care is free have at present a waiting list of almost 3,000 open cases, and persons sometimes die before their turn comes. In comparison with other groups, civil servants, teachers, students, widows and orphans are most often afflicted with tuberculosis.

The bill introduced by the Ministry of Health and Social Assistance became law last April, and accordingly 3,000,000 pounds are to be allocated yearly for ten years. Two thirds of the yearly allocation is to be spent on the construction of pavilions and one third on equipment. If found advantageous, prefabricated pavilions are to be imported from the United States or Sweden. The pavilions are to serve as annexes to general hospitals where specialists, x-ray equipment and laboratories are already available, thus lessening expenses. The Ministry of Health and Social Assistance will be authorized to use part of the allocation for coming to the assistance of needy municipal and rural hospitals by providing x-ray equipment and funds for additional nourishment for tuberculous patients.

Though the passing of the antituberculosis law has the approbation of all classes, it is generally believed that unless there is a considerable decrease in the national defense budget, which for the last ten years has taken 35 to 48 per cent of the government budget, to remedy the situation effectively, it will leave much to be desired.

POSTGRADUATE CONTINUATION COURSES FOR PHYSICIANS

Compiled by the Council on Medical Education and Hospitals for the Period July 1, 1949 to January 15, 1950

Table of Contents

Subject	Page	Subject	Page	Subject	Page
Allergy	732	Histology	737	Parasitology	744
Anatomy	732	Immunology	737	Pathology	744
Anesthesiology	733	Internal Medicine	737	Pediatrics	745
Arthritis	733	Malignant Diseases	738	Pharmacology	745
Bacteriology	733	Medicine General	738	Physical Medicine	745
Basic Sciences	734	Neurology and Psychiatry	739	Physiology	746
Cardiovascular Disease	734	Nuclear Science	741	Physiological Chemistry	746
Dermatology and Syphilology	734	Nutrition	741	Plastic Surgery	746
Diabetes	735	Obstetrics and Gynecology	741	Poliomyelitis	746
Electrocardiography	735	Occupational Medicine	742	Proctology	746
Electroencephalography	735	Oncology	742	Public Health	746
Endocrinology	736	Ophthalmology	742	Pulmonary Diseases	747
Endoscopy	736	Oral Surgery	743	Radiology	747
Fractures	736	Orthopedic Surgery	743	Surgery	748
Gastroenterology	736	Otolaryngology	743	Therapy	749
Geriatrics	737	Otology	744	Tropical Medicine	749
Hematology	737	Otorhinolaryngology	744	Urology	749
				Veneral Disease	749

Courses are not cross indexed. In some instances a course may be included under more than one specialty

Postgraduate Continuation Courses for Physicians—July 1, 1949 to Jan. 15, 1950

Institution	Title of Course	Schedule of Course	Registration Fee and/or Tuition
ALLERGY			
Cook County Graduate School of Medicine, 427 South Honore St., Chicago 12	Personal Course in Allergy	One month, full time, every month	\$300.00
	Allergy	Part time, one day a week for ten weeks, beginning Sept. 23	125.00
University of Illinois Colleges of Medicine and Pharmacy, 1853 West Polk St., Chicago 12	Six Month Personal Course in Allergy	Six months, arranged, full time	500.00
	Allergy Course for Clinicians	Twelve months, full time, begins Oct. 1	300.00 ¹
Wayne University College of Medicine, 1512 St. Antoine St., Detroit 26	Allergy Clinic ² and Conference	Twelve weeks, part time, Sept.-Dec., Dec.-March (tentative)	25.00
American College of Allergists, 423 LaSalle Medical Bldg., Minneapolis, and Baylor University School of Medicine	Graduate Instructional Course in Allergy	Six days, Oct. 31-Nov. 5	100.00
At: Baylor University School of Medicine, Houston, Texas			
Washington University School of Medicine, Euclid Avenue and Kingshighway, St. Louis	Postgraduate Course in Allergy	One week, full time, November	40.00
Joint Committee on Post-Graduate Education, 1813 Bedford Ave., Brooklyn 16, Medical Society of the County of Kings, Long Island College of Medicine	Allergy (II)	Part time, 1 hour per week, 8 weeks, October	20.00
At: Kings County Hospital			
At: Beth El Hospital	Allergy (I)	Part time, 2 hours per week, 8 weeks, October	30.00
Columbia University College of Physicians and Surgeons, 630 West 168th St., New York 32	Medicine PM 81, Clinical Allergy	Two weeks, full time, Oct. 17-23	120.00
At: Roosevelt Hospital			
At: Mt. Sinai Hospital	Medicine PM 36, Allergy	Five days, full time, Oct. 19-24	40.00
New York Medical College, Flower and Fifth Avenue Hospitals, 20 East 106th St., New York 29	Allergy	Two months, part time, arranged	50.00
New York University-Bellevue Medical Center, 356 Second Ave., New York 10, and Post-Graduate Medical School of the New York University	543-A Allergy	Part time, eight sessions, Jan. 6-Feb. 24	Not given
	5415-A Allergy	Full time, three weeks, Oct. 17-Nov. 4	Not given
	Allergy Technology	Twenty-four months, full time, arranged	50.00 ³
	Course of Training in Clinical Allergy	Twelve months, full time, Jan. 1	None
The Thomas Clinic, Richmond, Va.			
ANATOMY			
College of Medical Evangelists Graduate School of Medicine, Boyle and Michigan Aves., Los Angeles	Surgical Anatomy	Thirty-three weeks, part time, Oct. 3-June 10	100.00
University of California, 465 Hilgard Ave., Los Angeles 24	Surgical Anatomy	Part time, 1 evening every 2 weeks, Sept.-Feb.	100.00
Yale University School of Medicine, 333 Cedar St., New Haven, and Connecticut State Medical Society	Anatomy 201, Special Dissections in Anatomy	Arranged	Not given
	Anatomy 104, Demonstrations in Anatomy	Part time, 1 period each week, Sept. 26-June 2	150.00
At: Yale University School of Medicine	Anatomy of the Extremities on the Cadaver	Ten weeks, part time, Oct. 5	125.00
Cook County Graduate School of Medicine, 427 South Honore St., Chicago 12	Surgical Anatomy on the Cadaver	Ten weeks, part time, Oct. 6	125.00
University of Illinois College of Medicine, 1853 West Polk St., Chicago 12	Dissection No. 305, without formal instruction	One quarter (12 weeks), part time, arranged	75.00 ⁴
	General Anatomy "A"	Six months, part time, arranged	Not given
University of Maryland School of Medicine, Lombard and Greene Sts., Baltimore	Surgical Anatomy "B"	Fifteen weeks, part time, arranged	150.00
Harvard Medical School, 25 Shattuck St., Boston 15, Mass.	Surgical Anatomy	Eight weeks, part time, Sept. 6-Oct. 25	205.00
Tufts College Medical School, 30 Bennett St., Boston	Surgical Anatomy	Eight weeks, part time, Oct. 31-Dec. 24	255.00
At: New England Medical Center	Surgical Anatomy "B"	Part time, 3 hours daily, 2 days a week, 15 weeks	150.00
University of Michigan School of Medicine, 1313 East Ann St., Ann Arbor	General Anatomy "A"	Arranged	Not given
Wayne University College of Medicine, 1512 St. Antoine St., Detroit 26	Surgical Anatomy	Twenty-four weeks, part time, Dec.-June (tentative)	70.00

Postgraduate Continuation Courses for Physicians—July 1, 1949 to Jan. 15, 1950—Continued

Institution	Title of Course	Schedule of Course	Registration Fee and/or Tuition
	ANATOMY—Continued		
New York Medical College, Flower and Fifth Avenue Hospitals, 20 East 106th St., New York 29	Applied Anatomy for the General Surgeon	Approximately 250 hours, arranged	\$375.00
	Anatomy of the Thorax	Approximately 100 hours, arranged	150.00
	Anatomy of the Abdomen	Approximately 100 hours, arranged	150.00
	Applied Anatomy for the Otolaryngologist	150 hours, arranged	275.00
	Applied Anatomy of the Urogenital System	130 hours, arranged	300.00
	Applied Anatomy for the Anesthetist	125 hours, arranged	275.00
New York Polyclinic Medical School and Hospital, 341-353 West 50th St., New York 19	Anatomy for the Orthopedic Surgeon	100 hours, arranged	150.00
	Head and Neck Dissection	Six weeks, part time, arranged	150.00
New York University-Bellevue Medical Center, 356 Second Ave., New York 10 and Post-Graduate Medical School of the New York University	411-A Anatomy of the Head and Neck	Part time, 12 weeks, between Sept. 26 and June 17	150.00
	412-A Anatomy of the Thorax and Its Viscera	Part time, 12 weeks, between Sept. 26 and June 17	150.00
	413-A Anatomy of the Abdomen	Part time, 12 weeks, between Sept. 26 and June 17	150.00
	414-A Anatomy of the Female Pelvis (A)	Part time, 12 weeks, between Sept. 26 and June 17	150.00
	415-A Anatomy of the Male Pelvis (B)	Part time, 12 weeks, between Sept. 26 and June 17	150.00
	416-A Anatomy of the Musculoskeletal System	Part time, 12 weeks, between Sept. 26 and June 17	150.00
	417-A General Anatomy	Part time, eight weeks, between Sept. 26 and June 17	150.00
	418-A Surgical Anatomy of the Hand	Part time, six weeks, arranged	Not given
	411-A Anatomy of the Head and Neck	Part time, 16 weeks, between Sept. 26 and June 17	200.00
	411-A Anatomy of the Head and Neck	Part time, eight weeks, between Sept. 26 and June 17	225.00
	413-A Anatomy of the Abdomen	Part time, 12 weeks, between Sept. 26 and June 17	200.00
	413-A Anatomy of the Abdomen	Part time, eight weeks, between Sept. 26 and June 17	225.00
College of Medical Evangelists, Graduate School of Medicine, Boyle and Michigan Aves., Los Angeles	416-A Anatomy of the Musculoskeletal System	Part time, 16 weeks, between Sept. 26 and June 17	200.00
	ANESTHESIOLOGY		
Cook County Graduate School of Medicine, 427 South Honore St., Chicago 12	Anesthesiology	Four months, full time, every two months	300.00
	Endotracheal Anesthesia	Two weeks, full time, every two weeks	150.00
	Inhalation Anesthesia (Ether & Nitrous Oxide)	One month, full time, first of each month	125.00
	Intravenous Anesthesia and Spinal Anesthesia	Two weeks, full time, every two weeks	150.00
University of Minnesota, Minneapolis 14	Inhalation Anesthesia (Ether, Nitrous Oxide, Ethylene & Cyclopropane)	One month, full time, first of each month	200.00
	Anesthesiology	Sept. 12-14	20.00
At: Center for Continuation Study			
Joint Committee on Post-Graduate Education, 1313 Bedford Ave., Brooklyn 16, Medical Society of the County of Kings, Long Island College of Medicine	Anesthesiology	Part time, 2½ hours a week, 6 weeks, October	30.00
At: Jewish Hospital			
Columbia University College of Physicians and Surgeons, 630 West 168th St., New York 32	Anesthesia PM 30, Diagnostic and Therapeutic Nerve Blocking ¹²	One month, Oct. 21-Nov. 22	50.00
At: Mt. Sinai Hospital			
New York Medical College, Flower and Fifth Avenue Hospitals, 20 East 106th St., New York 29	Clinical Anesthesiology	Three months, full time, arranged	200.00
	Basic Science Course leading to the Degree of Master of Medical Science	Nine months, full time, Oct. 4 ⁵	710.00
New York Polyclinic Medical School and Hospital, 341-353 West 50th St., New York 19	Applied Anesthesia	Three months, full time, October and January	300.00
	511-A Anesthesiology ¹²	Two weeks, full time, between Sept.-June	150.00
New York University-Bellevue Medical Center, 356 Second Ave., New York 10, and Post-Graduate Medical School of the New York University	512-A Regional Anesthesia	Two weeks, full time, Sept. 6-16, Jan. 3-13	200.00
	513-A Anesthesiology	One year, full time, Sept. 6 ⁴³	600.00
University of Pennsylvania Development Fund, Room 209, Broad Street Station, Philadelphia	514-A Anesthesiology	Three months, full time, Sept. 26-Dec. 16	300.00
	Anesthesiology	Eight months, beginning October	Not given
At: University of Pennsylvania School of Medicine			
	University of Pennsylvania Graduate School of Medicine, 36th and Pine Sts., Philadelphia	Segmental Neuralgias ⁶ ; Regional Anesthesia	Three weeks, Oct.-May	200.00
	Anesthesiology	Thirty-two weeks, Oct. 3-May 27	\$90.00
ARTHRITIS			
Joint Committee on Post-Graduate Education, 1313 Bedford Ave., Brooklyn 16, Medical Society of the County of Kings, Long Island College of Medicine	Arthritis	Eight weeks, part time, October	30.00
At: Jewish Hospital			
New York University-Bellevue Medical Center, 356 Second Ave., New York 10, and Post-Graduate Medical School of the New York University	5414-A Arthritis and Allied Rheumatic Disorders	Ten days, full time, Oct. 10-21	Not given
	542-A Arthritis and Allied Rheumatic Disorders	Part time, eight sessions, Jan. 3-Feb. 21	Not given
BACTERIOLOGY			
Cook County Graduate School of Medicine, 427 South Honore St., Chicago 12	Medical Bacteriology and Immunology	Five weeks, part time, Oct. 6	75.00
	Bacteriology	Thirty-six hours, lecture, October-March	50.00 ⁵⁰
University of Illinois College of Medicine, 1853 West Polk St., Chicago 12	Refresher Course in Bacteriology, Immunology and Preventive Medicine	Twenty-four weeks, part time, Sept. 26	100.00
	Bacteriology	Three weeks, Dec. 5-16 and Jan. 3-7	Not given
University of Michigan Medical School, 1313 East Ann St., Ann Arbor, Wayne University College of Medicine, Michigan State Medical Society and Michigan Department of Health			
At: University of Michigan Medical School			
New York Medical College, Flower and Fifth Avenue Hospitals, 20 East 106th St., New York 29	Bacteriology	Three months, half time, arranged	100.00

Postgraduate Continuation Courses for Physicians—July 1, 1949 to Jan. 15, 1950—Continued

Institution	Title of Course	Schedule of Course	Registration Fee and/or Tuition
BASIC SCIENCES			
College of Medical Evangelists, Boyle and Michigan Aves., Los Angeles 33	Internal Medicine	Eight months, full time, Oct. 3-June 9	\$762.00
	General Surgery	Eight months, full time, Oct. 3-June 9	760.00
	Urology	Eight months, full time, Oct. 3-June 9	760.00
	Gynecology and Obstetrics	Eight months, full time, Oct. 3-June 9	760.00
	Otolaryngology	Eight months, full time, Oct. 3-June 9	760.00
University of Illinois College of Medicine, 1833 West Polk St., Chicago 12	Basic Science Course	Nine months, Oct. 1-June 17	260.00 ⁵⁰
University of Kansas Medical Center, Kansas City 3	The Physiological Approach to the Practice of Medicine (Basic Medical Sciences)	Sept. (tentative)	Not given
University of Maryland School of Medicine, Lombard and Greene Sts., Baltimore	Basic Sciences as they Apply to Gynecology and Obstetrics	Four months, full time, Oct.-Feb.	375.00
University of Michigan School of Medicine, 1313 East Ann St., Ann Arbor	Basic Sciences as applied to Obstetrics and Gynecology	Twenty weeks, full time, Oct.-Feb.	375.00
Washington University School of Medicine, Euclid Ave. and Kingshighway, St. Louis 10	Basic Science	Eight months, Oct.-June	600.00
New York University-Bellevue Medical Center, 356 Second Ave., New York 10, and Post-Graduate Medical School of the New York University	Basic Sciences, Bacteriology, Physiology and Biochemistry	Twenty-four sessions, part time, arranged	Not given
Jefferson Medical College, 1025 Walnut St., Philadelphia	Basic Sciences, Anatomy, Physiology, Biochemistry, Bacteriology and Immunology, Pharmacology and Toxicology and Pathology	September	Not given
University of South Dakota School of Medicine, Vermillion	Basic Sciences ⁷	Three-six months, arranged	None
	Individual Review in Basic Sciences	Part time, daily or weekly, Sept.-June	25.00 ¹⁰
CARDIOVASCULAR DISEASE			
California Heart Association, 45 Second St., San Francisco	19th Annual Postgraduate Symposium on Heart Disease	Four days, Oct. 27-30	15.00 ⁸
At: St. Francis Hotel, San Francisco	Cardiovascular Disease	Oct. 12-15	Not given
At: San Francisco	Cardiovascular Disease	Oct. 18-19	Not given
University of Southern California School of Medicine—Medical Extension, 3551 University Ave., Los Angeles	Cardiology and Vascular Disease, Course No. 732	Twelve months, full time, Sept. 12	1,000.00
At: Los Angeles County General Hospital			
Chicago Medical Society, 30 North Michigan Blvd., Chicago	Cardio-Renal and Peripheral Vascular Diseases	One week, Oct. 17-22	50.00
At: Northwestern University Medical School	Cardiovascular Diseases	Ten weeks, part time, begins Sept. 21	80.00
Cook County Graduate School of Medicine, 427 South Honore St., Chicago 12	Cardiology	Three and one-half months, full time, Jan. 28-May 10	505.00
Harvard Medical School, 25 Shattuck St., Boston 15	Cardiology ⁹	Twelve exercises of 3 hours each, Nov. 2-Jan. 18	75.00
At: Beth Israel Hospital	Clinical Heart Disease	One month, full time, July 1-30	265.00
At: Boston City Hospital	Cardiovascular Disease	Twelve months, full time, Oct. 1-Sept. 20	805.00
At: Peter Bent Brigham Hospital	Phonocardiography	Five days, part time, Sept. 12-16	35.00
At: Massachusetts General Hospital	Hypertension and Nephritis	Eight weeks, part time, October	20.00
Tufts College Medical School, 30 Bennet St., Boston	Diseases of the Cardiovascular System for General Practitioners	One day to one week, to be announced	3.00 ⁵¹
At: New England Medical Center			
Joint Committee on Post-Graduate Education, 1313 Bedford Ave., Brooklyn 16, Medical Society of the County of Kings, Long Island College of Medicine	Medicine PM 48—Bedside Diagnosis and Treatment of Heart Disease with Special Emphasis on Measurements of the Circulatory Dynamics	Two months, part time, Oct. 11-Dec. 13	45.00
At: Jewish Hospital	Medicine PM 46—Bedside Clinics in Heart Disease	Seven weeks, part time, Oct. 17-Dec. 6	50.00
State of New York Department of Health, Albany 1 and Medical Society of the State of New York	Medicine PM 31—Cardiovascular Diseases	Two weeks, full time, Oct. 4-19	125.00
At: Medical schools or Hospital Centers throughout the State	Medicine PM 60—Cardiology	Eight months, part time, Sept. 29-June 8	250.00
	Medicine PM 61—Intermediate Cardiology	Four months, part time, Sept. 27-Jan. 24	150.00
Columbia University College of Physicians and Surgeons, 630 West 168th St., New York 32	Cardiology	Part time, 20 successive Wednesday mornings, beginning October	150.00
At: Mt. Sinai Hospital	Diagnosis and Treatment of Diseases of the Heart	Three weeks, part time, arranged	75.00
At: Montefiore Hospital	5417-A Cardiology	Five days, full time, Oct. 3-7	Not given
New York Medical College, Flower and Fifth Avenue Hospitals, 20 East 106th St., New York 29	5418-A Peripheral Vascular Diseases	Five days, full time, Nov. 28-Dec. 2	Not given
New York Polyclinic Medical School and Hospital, 341-353 West 50th St., New York 19	544-A Cardiology	Seven sessions, part time, Jan. 9-Feb. 20	Not given
New York University-Bellevue Medical Center, 356 Second Ave., New York 10, and Post-Graduate Medical School of the New York University	5413-A Peripheral Vascular Diseases	Eight sessions, part time, Jan. 3-Feb. 21	Not given
American College of Physicians, 4200 Pine St., Philadelphia 4, University of Southern California, Massachusetts General Hospital and National Institute of Cardiology of Mexico	Cardiovascular Disease	One week, full time, Dec. 26-31	30.00 ⁵²
At: Los Angeles	Recent Advances in the Diagnosis and Treatment of Cardiovascular Disease	One week, full time, Nov. 14-19	30.00 ⁵³
At: Massachusetts General Hospital	Cardiology	Two weeks, part time, Aug. 15-27	60.00 ⁵⁰
At: Mexico City	Cardiology	Forty-eight hours, part time, beginning in October and January	80.00
University of Pennsylvania Graduate School of Medicine, 36th and Pine Sts., Philadelphia	Cardiovascular Diseases	Five days, Nov. 7-11	25.00
McCurry Medical College, 1005 18th Ave., Nashville 8, Tenn.			
DERMATOLOGY AND SYPHILOLOGY			
College of Medical Evangelists Graduate School of Medicine, Boyle and Michigan Aves., Los Angeles	Dermatology	Eighteen hours, part time, begins Jan. 3	40.00
	Clinical Course in Dermatology ¹²	Twelve months, full time, arranged	1,000.00
Cook County Graduate School of Medicine, 427 South Honore St., Chicago 12	Intensive Two-Week Course in Dermatology	Two weeks, full time, Oct. 24	100.00
	Clinical Dermatology	Two weeks, full time, or four weeks, begins every Monday	75.00 ¹⁰ 125.00 ¹¹

Postgraduate Continuation Courses for Physicians—July 1, 1949 to Jan. 15, 1950—Continued

Institution	Title of Course	Schedule of Course	Registration Fee and/or Tuition
DERMATOLOGY AND SYPHILOLOGY—Continued			
Harvard Medical School, 25 Shattuck St., Boston 15 At: Massachusetts General Hospital	Dermatology and Syphilology	Twelve months, full time, Oct. 1-Sept. 30	\$805.00
Tufts College Medical School, 30 Bennet St., Boston At: New England Medical Center	Dermatology I	Full time, five days, Oct. 31-Nov. 4	45.00
Wayne University College of Medicine, 1512 St. Antoine St., Detroit 6 At: Receiving Hospital At: Social Hygiene Clinic	Dermatology Seminar	Twelve weeks, part time, Sept.-Dec., Dec.-March	15.00
Columbia University College of Physicians and Surgeons, 630 West 168th St., New York 32 At: Montefiore Hospital At: Mt. Sinai Hospital	Conference on Venereal Diseases	Twelve weeks, part time, Sept.-Dec., Dec.-March	15.00
	Dermatology PM 63—Common Skin Diseases and Treatment	Eleven weeks, part time, Oct. 3-Dec. 5	40.00
	Dermatology PM 61—Relation of Skin to Internal Medicine	Three and one-half months, part time, Sept. 12-Dec. 26	55.00
	Dermatology PM 30—Venereal and Skin Diseases	Three days, full time, Dec. 5-7	30.00
Cornell University Medical College, 1300 York Ave., New York	Exfoliative Cytology	Fall 1949 (tentative)	Not given
	Training for Specialization in Dermatology and Syphilology	Three years, full time	520.00 ¹³
	Dermatology and Syphilology for the General Practitioner, Seminar A	Five days, full time, arranged	75.00
New York Polyclinic Medical School and Hospital, 341-453 West 50th St., New York 19	Dermatology and Syphilology for Specialists, Seminar B	Five days, full time, arranged	75.00
	Seminar in Dermatologic Histopathology	Five days, full time, Sept. 12-16	55.00
New York University—Bellevue Medical Center, 356 Second Ave., New York 10, and Post-Graduate Medical School of the New York University	522-A Seminar in Dermatology and Syphilology	Five days, full time, Sept. 26-30	75.00
	524-A Dermatology and Syphilology	Three days, full time, Oct. 3	Not given
	525-A Dermatology and Syphilology	Thirty-two weeks, Oct. 3-May 27 ¹⁴	800.00
University of Pennsylvania Graduate School of Medicine, 36th and Pine Sts., Philadelphia	Dermatology and Syphilology		
DIABETES			
Cook County Graduate School of Medicine, 427 South Honore St., Chicago 12	Medical and Surgical Diabetes	Ten weeks, part time, Sept. 14	80.00
Harvard Medical School, 25 Shattuck St., Boston 15 At: New England Deaconess Hospital	Diabetes Mellitus in Relation to General Medicine	Five days, full time, July 11-15	55.00
Joint Committee on Postgraduate Education, 1313 Bedford Ave., Brooklyn, Medical Society of the County of Kings, Long Island College of Medicine At: Jewish Sanatorium and Hospital for Chronic Diseases	Diabetes Mellitus	Ten weeks, part time, October	20.00
ELECTROCARDIOGRAPHY			
Yale University School of Medicine, 333 Cedar St., New Haven, and Connecticut State Medical Society At: Yale University School of Medicine	Medicine 203, Introductory Electrocardiography	Twelve sessions, part time, Sept. 22-Dec. 15	45.00
Cook County Graduate School of Medicine, 427 South Honore St., Chicago 12	Electrocardiography and Heart Disease	Four weeks, full time, Sept. 7	250.00
	Electrocardiography and Heart Disease	Two weeks, full time, July 18	150.00
	Electrocardiography and Heart Disease	Ten weeks, part time, Sept. 7	125.00
Michael Reese Hospital Postgraduate School, 29th and Ellis Ave., Chicago 16	Electrocardiography	Two weeks, full time, Aug. 15-27	150.00
University of Louisville, 101 W. Chestnut St., Louisville	Electrocardiography	Part time, ten weeks, Sept.	Not given
Tufts College Medical School, 30 Bennet St., Boston At: New England Medical Center	Electrocardiography I	Full time, five days, Oct. 17-21	45.00
	Electrocardiography II	Full time, three days, Dec. 12-14	30.00
	Electrocardiographic Diagnosis	One week, full time, Aug. 23-Sept. 3	50.00
University of Michigan Medical School, 1313 East Ann St., Ann Arbor, Michigan State Medical Society, Wayne University College of Medicine and Michigan Department of Health At: Ann Arbor	Electrocardiography and Clinical Cardiology	Five weeks, part time, October	20.00
Joint Committee on Postgraduate Education, 1313 Bedford Ave., Brooklyn, Medical Society of the County of Kings, Long Island College of Medicine At: Jewish Hospital At: Beth El Hospital At: Maimonides Hospital	Clinical Electrocardiography	Five weeks, part time, October	30.00
	Basic Electrocardiography	Five weeks, part time, October	20.00
	Clinical Cardiology and Advanced Electrocardiography	Five weeks, part time, October	20.00
Columbia University College of Physicians and Surgeons, 630 West 168th St., New York 32 At: Mt. Sinai Hospital	Medicine PM 41—Intensive Course in Elementary Electrocardiography	Six days, full time, Sept. 26-Oct. 1	60.00
	Medicine PM 42—Intensive Course in Advanced Electrocardiography	Five days, Dec. 19-23	40.00
New York Medical College, Flower and Fifth Avenue Hospitals, 20 East 106th St., New York 29	Electrocardiography	Two weeks, part time, October	100.00
New York Polyclinic Medical School and Hospital, 341-453 West 50th St., New York 19	Electrocardiographic Interpretation	Two weeks, part time, arranged	75.00
New York University—Bellevue Medical Center, 356 Second Ave., New York 10, and Post-Graduate Medical School of the New York University	5423-A Electrocardiography	Five days, full time, Nov. 14-18	Not given
ELECTROENCEPHALOGRAPHY			
University of Illinois College of Medicine, 1553 West Polk St., Chicago 12	Training Course in Electroencephalography	Three months, full time, arranged	200.00
Columbia University College of Physicians and Surgeons, 630 West 168th St., New York 32 At: Columbia Presbyterian Medical Center At: Mt. Sinai Hospital	Neurology PM 212—Clinical Electroencephalography and Interpretation	Three months, full time, Oct. 1-March 31	150.00
	Neurology PM 212—Clinical Electroencephalography	Three months, part time, Oct. 6-Jan. 19	60.00
New York University—Bellevue Medical Center, 356 Second Ave., New York 10, and Post-Graduate Medical School of the New York University	642-A Electroencephalography	Eight weeks, part time, Jan. 9-Feb. 4	300.00
University of Pennsylvania Graduate School of Medicine, 36th and Pine Sts., Philadelphia	Electroencephalography	Two weeks, full time, arranged	200.00
Baylor University College of Medicine, 509 Lincoln Ave., Houston, Texas	Introduction to Clinical Electroencephalography	Twenty hours, Jan. 1-30	25.00

Postgraduate Continuation Courses for Physicians—July 1, 1949 to Jan. 15, 1950—Continued

Institution	Title of Course	Schedule of Course	Registration Fee and/or Tuition
ENDOCRINOLOGY			
University Extension, University of California, 405 Hilgard Ave., Los Angeles 24, and the University Medical Schools at Los Angeles and San Francisco At: University of California, Los Angeles	Therapy of Metabolic and Endocrine Disorders	Three months, evenings, Sept. 28-Dec. 7	\$35.00
Michael Reese Hospital Postgraduate School, 29th and Ellis Ave., Chicago 16	Diseases of the Endocrines—Physiology and Diagnostic Methods	Ten days, full time, Oct. 17-28	100.00
Harvard Medical School, 25 Shattuck St., Boston 15 At: Massachusetts General Hospital	Pediatric Endocrinology	Five and one-half days, full time, Oct. 3-8	80.00
Wayne University College of Medicine, 1512 St. Antoine St., Detroit 26	Endocrinology	Twelve weeks, part time, Dec.-March	25.00
Joint Committee on Postgraduate Education, 1313 Bedford Ave., Brooklyn, Medical Society of the County of Kings and Long Island College of Medicine At: Jewish Hospital	Disorders of the Endocrine System	Six weeks, part time, October	40.00
At: Jewish Sanatorium and Hospital for Chronic Diseases	Female Sex Endocrinology	Ten weeks, part time, October	20.00
At: Beth El Hospital	Applied Endocrinology	Six weeks, part time, October	30.00
	Endocrine Disorders in Children and Adolescents	Eight weeks, part time, October	20.00
Columbia University College of Physicians and Surgeons, 630 West 168th St., New York 32 At: Mount Sinai Hospital	Medicine PM 38, Diseases of Metabolism	Five days, full time, Nov. 9-14	40.00
	Medicine PM 39, Endocrinological Diseases	Five days, full time, Nov. 30-Dec. 5	30.00
New York Medical College, Flower and Fifth Ave. Hospitals, 20 East 106th St., New York 29	Endocrinology	Three weeks, full time, Fall, arranged	150.00
New York University-Bellevue Medical Center, 356 Second Ave., New York 10, and Post-Graduate Medical School of the New York University	5422-A Endocrinology 549-A Endocrinology	Five days, full time, Oct. 24-28 Eight sessions, part time, Jan. 6-Feb. 24	Not given Not given
The Association for the Study of Internal Secretions, 1200 North Walker St., Oklahoma City At: Miami, Florida	Postgraduate Assembly	Dec. 12 (tentative)	Not given
ENDOSCOPY			
University of Illinois College of Medicine, 1853 West Polk St., Chicago 12	Postgraduate Course in Bronchoscopy 1,2	Two weeks, full time, Sept. 19-Oct. 1	150.00
Harvard Medical School, 25 Shattuck St., Boston 15 At: Massachusetts General Hospital	Endoscopy	Three months, full time, arranged	380.00
Columbia University College of Physicians and Surgeons, 630 West 168th St., New York 32 At: Columbia-Presbyterian Medical Center	Medicine PM2 1,2 Gastroscopy	Two months, part time, arranged	250.00
New York Medical College, Flower and Fifth Avenue Hospitals, 20 East 106th St., New York 29	Gastroscopy	Two weeks, part time, arranged	200.00
New York University-Bellevue Medical Center, 356 Second Ave., New York 10, and Post-Graduate Medical School of the New York University	Advanced Gastroscopy	Five weeks, part time, arranged	200.00
	566-A Cystoscopy and Endoscopy	Fifteen sessions, part time, Sept. 26-Oct. 28	100.00
Temple University School of Medicine, 3400 North Broad St., Philadelphia 40	Bronchology and Esophagology	Two weeks, Sept. 12-23	250.00
FRACTURES			
Cook County Graduate School of Medicine, 427 South Honore St., Chicago 12	Fractures	Ten weeks, part time, Oct. 12	125.00
Harvard Medical School, 25 Shattuck St., Boston 15 At: Massachusetts General Hospital	Treatment of Fractures and Other Traumatic Conditions	Nine days, full time, Oct. 24-Nov. 2	155.00
New York Medical College, Flower and Fifth Avenue Hospitals, 20 East 106th St., New York 29	Fractures and Allied Trauma	Three weeks, full time, arranged, Fall	150.00
GASTROENTEROLOGY			
Yale University School of Medicine, 333 Cedar St., New Haven and Connecticut State Medical Society At: Yale University School of Medicine	Medicine 201, Gastroenterology	Fourteen sessions, part time, beginning Sept. 21	60.00
Cook County Graduate School of Medicine, 427 South Honore St., Chicago 12	Forty Hour Personal Course in Gastroscopy and Gastroenterology	Two weeks, full time, July 18, Sept. 26 and Oct. 24	200.00
	Two Week Course in Gastroenterology	Two weeks, full time, Oct. 24	100.00
Wayne University College of Medicine, 1512 St. Antoine St., Detroit 26 At: Receiving Hospital	Gastroenterology	Ten weeks, part time, Sept. 14	100.00
Joint Committee on Post-Graduate Education, 1313 Bedford Ave., Brooklyn, Medical Society of the County of Kings and Long Island College of Medicine At: Beth El Hospital	Gastroenterology	Twelve weeks, part time, Sept.-Dec., Dec.-March	15.00
At: Jewish Hospital	Roentgen Diagnosis in Gastroenterology	Eight weeks, part time, October	20.00
At: Greenpoint Hospital	Gastroenterology (I)	Six weeks, part time, October	20.00
At: Beth El Hospital	Gastroenterology (III)	Six weeks, part time, October	20.00
At: Jewish Sanitarium and Hospital for Chronic Diseases	Gastroenterology (IV)	Five weeks, part time, October	20.00
	Gastroenterology (II)	Six weeks, part time, October	20.00
Columbia University College of Physicians and Surgeons, 630 West 168th St., New York 32 At: Montefiore Hospital	Medicine PM 70, Gastroenterology	Three and one-half months, once a week, 3½ hours, Oct. 4-Jan. 17	75.00
At: Mount Sinai Hospital	Medicine PM 92, Gastroenterology	One and one-half weeks, full time, Oct. 31-Nov. 9	80.00
New York Medical College, Flower and Fifth Avenue Hospitals, 20 East 106th St., New York 29	Gastroenterology	One month, part time, arranged	100.00
New York Polyclinic Medical School and Hospitals, 341-353 West 50th St., New York 19	Gastroenterology	Six weeks, or three months, part time, October and January	50.00 ¹⁵ 75.00 ¹⁶
New York University-Bellevue Medical Center, 356 Second Ave., New York 10, and Post-Graduate Medical School of the New York University	5421-A Gastroenterology 5411-A Gastroenterology	Ten days, full time, Dec. 5-16 Seven sessions, part time, Jan. 4-Feb. 15	Not given Not given
University of Oregon Medical School, 3181 South West Marquam Hill Rd., Portland 1	Gastroenterology	Five days, full time, Nov. 7-11	50.00
University of Pennsylvania Graduate School of Medicine, 36th and Pine Sts., Philadelphia	Clinical Gastroenterology 1,2	Sixteen weeks, October	400.00

Postgraduate Continuation Courses for Physicians—July 1, 1949 to Jan. 15, 1950—Continued

Institution	Title of Course	Schedule of Course	Registration Fee and/or Tuition
GERIATRICS			
Columbia University College of Physicians and Surgeons 630 West 168th St., New York 32 At: Mount Sinai Hospital	Medicine PM 47, Geriatrics	Four months, part time, Oct. 6-Jan. 26	\$65.00
HEMATOLOGY			
Cook County Graduate School of Medicine, 427 Honore St., Chicago 12	{ One Week Personal Course in Hematology	One week, full time, Sept. 26	100.00
Michael Reese Hospital Postgraduate School, 29th and Ellis Ave., Chicago 16	{ Hematology	Ten weeks, part time, Sept. 21	100.00
Tufts College Medical School, 30 Bennet St., Boston At: New England Medical Center	{ Hematologic Diagnosis	Two weeks, full time, Aug. 1-13	100.00
Wayne University College of Medicine, 1516 St. Antoine St., Detroit 26	Hematology I	Full time, five days, Dec. 5-9	45.00
Joint Committee on Post-Graduate Education, 1313 Bedford Ave., Brooklyn, Medical Society of the County of Kings and Long Island College of Medicine At: Jewish Hospital	{ Beginning Hematology	Twelve weeks, part time, Sept.-Dec.	50.00
	{ Advanced Hematology	Twelve weeks, part time, Dec.-March	50.00
	Clinical Hematology	Eight weeks, part time, October	20.00
Columbia University College of Physicians and Surgeons 630 West 168th Street, New York 32 At: Montefiore Hospital	{ Medicine PM 67, Advanced Hematology	Three months, part time, Sept. 27-Jan. 3	75.00
At: Mount Sinai Hospital	{ Medicine PM 66, Clinical Hematology	Four months, part time, Sept. 20-Jan. 24	75.00
New York Medical College, Flower and Fifth Avenue Hospitals, 20 East 106th St., New York 29	{ Medicine PM 35, Hematology	Five days, full time, Oct. 24-29	60.00
	Hematology	Two months, part time, arranged	50.00
New York University Bellevue Medical Center, 356 Second Ave., New York 10, and Post-Graduate Medical School of the New York University	{ 516-A Clinical Hematology	Eight sessions, part time, Oct. 4-Nov. 29	Not given
University of Oregon Medical School, 3181 South West Marquam Hill Rd., Portland	{ 516-B Clinical Hematology	Seven sessions, part time, Jan. 4-Feb. 15	Not given
University of Pennsylvania Graduate School of Medicine, 36th and Pine Sts., Philadelphia	Diagnosis and Treatment of Diseases of the Blood and of the Blood Forming Organs	Three days, full time, Nov. 14-16	30.00
	Clinical and Laboratory Hematology	Six weeks, October and December	200.00
HISTOLOGY			
Wayne University College of Medicine, 1512 St. Antoine St., Detroit 26	Advanced Histology	Twelve weeks, part time, Dec.-March	35.00
New York Medical College, Flower and Fifth Avenue Hospitals, 20 East 106th St., New York 29	Histology	Five weeks, full time, arranged	300.00
IMMUNOLOGY			
New York Medical College, Flower and Fifth Avenue Hospitals, 20 East 106th St., New York 29	Immunology	Six weeks, half time, arranged	50.00
INTERNAL MEDICINE			
University of Southern California School of Medicine, 3351 University Ave., Los Angeles 7 At: Los Angeles County General Hospital	{ Clinical Review of Internal Medicine 730	Twelve weeks, full time, Sept. 12	250.00
Emory University School of Medicine, 104 Physiology Bldg., Emory University, Georgia At: Grady Memorial Hospital and Emory University Hospital	{ Internal Medicine 731 ¹⁷	Nine months, full time, Dec. 5	750.00
	General Internal Medicine	Two weeks, to one year, arranged	12.00 ¹⁸
Cook County Graduate School of Medicine, 427 South Honore St., Chicago 12	{ Personal Course in Asthma, Hay Fever and Allied Diseases	One month, full time, every month	200.00
Harvard Medical School, 25 Shattuck St., Boston 15 At: Boston City Hospital	{ Personal Course in Asthma, Hay Fever and Allied Diseases	Six months, full time, arranged	500.00
University of Minnesota, Minneapolis 14 At: Center for Continuation Study	{ Internal Medicine	Three months, full time, Sept. 1-Nov. 30	380.00
Mississippi State Sanatorium, Sanatorium, Mississippi	{ Internal Medicine	Twelve months, full time, Sept. 1-Aug. 31	605.00
	Internal Medicine	Three days, Oct. 3-5	20.00
Columbia University College of Physicians and Surgeons, 630 West 168th St., New York 32 At: Mount Sinai Hospital	Internal Medicine and Chest Diseases	Two weeks to six months, throughout the year	None
	{ Medicine PM 34, Diseases of the Kidneys	Four days, full time, Nov. 18-22	15.00
	{ Medicine PM 33, Diseases of the Liver	Three days, full time, Nov. 15-17	35.00
Cornell University Medical College, 1300 York Ave., New York 21 At: Bellevue Hospital	{ Medicine PM 30, Symposium on Internal Medicine	Two months, full time, Oct. 4-Dec. 7	350.00
	Graduate Instruction in Internal Medicine	Three months, or six months, full time ¹⁹	150.00 ¹⁹
New York Medical College, Flower and Fifth Avenue Hospitals, 20 East 106th St., New York 29	{ Internal Medicine	One month, full time ²⁰	150.00
	{ Internal Medicine	Two months, full time ²⁰	300.00
	{ Basic Science Course Leading to the Degree of Master of Medical Science (Internal Medicine)	Nine months, full time, Oct. 4 ⁵	710.00
New York University Bellevue Medical Center, 356 Second Ave., New York 10, and Post-Graduate Medical School of the New York University	{ 5429-A Internal Medicine	Nine months, full time, Sept. 26-June 17	600.00
	{ 5425-A Internal Medicine	Four, eight or twelve weeks, part time, Sept. 26-Dec. 16	Not given
At: Beth Israel Hospital	{ 541-A Seminar in Internal Medicine	Eight weeks, full time, Jan. 3-Feb. 24	Not given
	{ 683-A Internal Medicine	Eight weeks, part time, Wed. and Fri., Oct. 26-Dec. 16	Not given
Oklahoma State Medical Association and Oklahoma State Health Department, 210 Plaza Court Bldg., Oklahoma City 3 At: Various towns in Oklahoma	Internal Medicine	Ten weeks, ten sessions, July 1949 to June 1951 ²¹	20.00
American College of Physicians, 4200 Pine St., Philadelphia At: Washington University School of Medicine, St. Louis At: St. Louis University School of Medicine	Preclinical Science in Internal Medicine	Three days, Oct. 24-26	35.00
	Preclinical Science in Internal Medicine	Three days, Oct. 27-29	35.00
University of Pennsylvania Graduate School of Medicine, 36th and Pine Sts., Philadelphia	Internal Medicine	Thirty-two weeks, full time, Oct. 3-May 27	800.00

Postgraduate Continuation Courses for Physicians—July 1, 1949 to Jan. 15, 1950—Continued

Institution	Title of Course	Schedule of Course	Registration Fee and/or Tuition
MALIGNANT DISEASES			
Colorado State Medical Society, 835 Republic Bldg., Denver and Rocky Mountain Cancer Foundation and Colorado Division of American Cancer Society At: Denver	Third Annual Rocky Mountain Cancer Conference	July 14-15	None
Minnesota Department of Health, Minnesota State Medical Association, Minnesota Division of American Cancer Society At: University of Minnesota, Center for Continuation Study, Minneapolis 14	Cancer Control Cancer	Three days, Sept. 15-17 Three days, Jan. 5-7	Not given \$20.00
Washington University School of Medicine, Euclid Ave. and Kingshighway, St. Louis, Mo.	Diagnosis and Treatment of Cancer	One week, full time, October	40.00
New York State Department of Health, Albany 1 and U. S. Public Health Service Cancer Control Funds At: Approved hospitals throughout the country	Training in Cancer Diagnosis and Treatment	One week to one year, arranged	None ²³
Columbia University, College of Physicians and Surgeons, 630 West 168th St., New York 32 At: Montefiore Hospital	Medicine PM 72, Neoplastic Diseases	Four months, part time, Sept. 27-Jan. 21	150.00
New York Medical College, Flower and Fifth Avenue Hospitals, 20 East 16th St., New York 29.	New Concepts in the Physiology and Biochemistry of Cancer	Six weeks, part time, October	150.00
University of Oregon Medical School, 3181 South West Marquam Hill Rd., Portland 1, and American Cancer Society At: University of Oregon Medical School	Diagnosis and Treatment of Malignant Growths	Five days, full time, Sept. 12-16	25.00
Cancer Division, Pennsylvania Department of Health, Harrisburg At: University of Pennsylvania School of Medicine, Philadelphia	Theory, Diagnosis and Treatment of Cancer	Two weeks, full time ²²	150.00 ²³
Tennessee State Medical Association, 4 South Dunlap St., University Center, Memphis 3 At: Teaching Centers and County Seats	Cancer	Ten weeks, July-Sept. ²⁴	10.00 ²⁵
University of Texas Medical Branch, Postgraduate Division, Galveston	Tumor Conference	Three days, Nov. 2-5	20.00
State Medical Society of Wisconsin, 701 E. Gorham St., Madison At: Superior-Duluth Area At: Wausau At: Green Bay At: Baraboo At: Wisconsin General Hospital, Madison	Cancer Clinics Cancer Clinics Cancer Clinics Cancer Clinics Cancer Clinics	One day, Sept. 21 One day, Nov. 9 One day, Nov. 10 One day, Nov. 11 One day, Nov. 12	Not given Not given Not given Not given Not given
MEDICINE, GENERAL			
College of Medical Evangelists Graduate School of Medicine, Boyle and Michigan Aves., Los Angeles	General Medicine Diseases of the Kidneys Differential Diagnosis and Treatment of Internal Diseases Practical Medicine Lecture Series	Twelve periods, part time, begins Oct. 4 Nine hours, part time, begins Nov. 15 Eighteen hours, part time, begins Jan. 2	50.00 25.00 50.00
Los Angeles County Medical Association, 1925 Wilshire Blvd., Los Angeles 5 At: St. Joseph's Hospital, Burbank	Extra-Mural Postgraduate Seminar Program	One and one-half hours, every week	None
California Medical Association, Postgraduate Activities Committee, 340 Sutter St., San Francisco 8 At: 15 Regional Centers	Extra-Mural Postgraduate Seminar Program	One day, arranged	None
Research Study Club, 727 West 7th St., Los Angeles At: Elk's Club, Los Angeles	Clinical Course ²⁶ Cadaver Course ²⁹	Two weeks, Jan. 16-27 Five days, Jan. 27-31	75.00 75.00
San Joaquin County Medical Society, Committee on Postgraduate Activities, Stockton, California	Postgraduate Study Club Fall Lecture Series	Eight two hour lectures, Sept. 15, 22, 29, Oct. 20, 27, Nov. 17, Dec. 8 and 15	10.00
University of California Medical School, Medical Center, San Francisco	Continuation Course in General Medicine	Twelve weeks, part time, evenings, Sept. 19-Dec. 5	50.00
Colorado State Medical Society, 835 Republic Bldg., Denver At: Butte, Montana	Rocky Mountain Medical Conference	Aug. 2-4	Not given
Connecticut State Medical Society, 258 Church St., Box 1438, New Haven	Clinical Congress	Three days, full time, September	3.00
Medical Society of the District of Columbia, 1718 M St. N.W., Washington 6	20th Annual Scientific Assembly	Three days, Oct. 17-19	Not given
Emory University School of Medicine, 104 Physiology Bldg., Emory University, Georgia, and the Medical Association of Georgia At: Grady Memorial Hospital and Emory University Hospital	Postgraduate Course for General Practitioners	One week, Fall	10.00
Cook County Graduate School of Medicine, 427 South Honore St., Chicago 12	Intensive Course in General Medicine	Two weeks, full time, Oct. 3	75.00
Michael Reese Hospital Postgraduate School, 29th and Ellis Ave., Chicago 16	Application of Physiology and Biochemistry to Medicine	Twenty-five weeks, part time, Oct. 5-March 29	150.00
University of Louisville, 101 W. Chestnut St., Louisville	Three Day Intensive Refresher Course	Full time, three days, October	Not given
Tufts College Medical School, 30 Bennet St., Boston At: New England Medical Center	Graduate Course in Medicine Review of Recent Advances in Medicine Postgraduate Conference	Nine months, full time, Oct. 3-June 30 Five and a half days, full time, Oct. 24-29 One day, arranged	755.00 55.00 None
Postgraduate Education Committee of the Illinois State Medical Society, 30 North Michigan Ave., Chicago 2 At: Throughout the State	Postgraduate Medical Education	One day a month, part time, first Tuesday of every month	None
St. Elizabeth Hospital, Lafayette, Ind. and Indiana University School of Medicine At: St. Elizabeth Hospital	Medical Diagnosis and Treatment ²⁷	Thirty-two exercises, 2 hours each, Oct. 5-May 24	105.00
Harvard Medical School, 25 Shattuck St., Boston 15 At: Boston City Hospital	Readings in Physical Anthropology Diagnostic Conference	Twelve weeks, Sept.-Dec. Twelve weeks, part time, one day a week, Sept.-Dec., Dec.-March	25.00 15.00
Wayne University College of Medicine, 1512 St. Antoine St., Detroit 26, Michigan	Annual Fall Clinical Conference	Four days, full time, Oct. 3-6	15.00
The Kansas City Southwest Clinical Society, 630 Shukert Bldg., Kansas City 6, Mo. Mississippi Valley Medical Society, 209-224 W.C.U. Bldg., Quincy, Illinois At: Hotel Jefferson, St. Louis, Mo.	Postgraduate Medical Assembly	Three days, Sept. 28-30	None

Postgraduate Continuation Courses for Physicians—July 1, 1949 to Jan. 15, 1950—Continued

Institution	Title of Course	Schedule of Course	Registration Fee and/or Tuition
MEDICINE, GENERAL—Continued			
Washington University School of Medicine, Euclid Ave. and Kingshighway, St. Louis 10	Applied Medical Science for Those Preparing for Clinical Specialties or Medicine and Surgery	Nine months, Oct. 3-June	\$75.00 ²⁸
University of Nebraska College of Medicine, 42nd St. and Dewey Ave., Omaha 5 At: University of Nebraska Hospital	General Refresher Course	Four and one-half days, September or October	25.00
Omaha Mid-West Clinical Society, 1031 Medical Arts Bldg., Omaha 2, Neb.	Seventieth Annual Assembly	Five days, Oct. 24-28	Registration Fee only
Rutgers University, New Brunswick, N. J. and Medical Society of New Jersey At: Cooper Hospital, Camden	Rutgers' Plan for Continuing Education of General Practitioners	Three years, 1 day per week ²⁹	30.00 ⁵⁰
New York State Department of Health, Albany 1 At: Cerebral Palsy Centers throughout the country	Cerebral Palsy	One—three months, arranged	None ⁵⁰
Joint Committee on Post-Graduate Education, 1313 Bedford Ave., Brooklyn, Medical Society of the County of Kings and Long Island College of Medicine At: Beth El Hospital At: Jewish Hospital At: Coney Island Hospital	Peripheral Vascular Diseases (I)	Ten weeks, part time, October	30.00
University of Buffalo School of Medicine, Postgraduate Department, 21 High St., Buffalo, N. Y.	Peripheral Vascular Diseases (II)	Five weeks, part time, October	20.00
Columbia University College of Physicians and Surgeons, 650 West 168th St., New York 32 At: Montefiore Hospital	Peripheral Vascular Diseases (III)	Eight weeks, part time, October	20.00
	Course for General Practitioners	Two weeks, end of September	60.00
	Medicine PM 65, Peripheral Vascular Diseases	Four months, part time, Sept. 22-Jan. 19	75.00
	Medicine PM 49, Diagnosis and Treatment of Ambulatory Patients	Two months, part time, Oct. 5-Dec. 9	20.00
	Medicine PM 43, Peripheral Vascular Disorders	Three months, part time, Oct. 13, Jan. 19	40.00
	Advances in Diagnostic Methods	Twelve days, full time, Oct. 10-21	10.00
At: Mount Sinai Hospital			
New York Academy of Medicine, 2 East 103 St., New York 29 At: New York Academy of Medicine and Local Hospitals	Course for General Practitioners	Six weeks, full time, October and January	100.00
New York Polyclinic Medical School and Hospital, 341-353 West 50th St., New York 19	5424-A Nephritis and Hypertension	Five days, full time, Oct. 31-Nov. 4	Not given
	547-A Problems in Diagnosis	Seven sessions, part time, Jan. 9-Feb. 20	Not given
	Forensic Medicine	To be arranged	Not given
	5410-A Diseases of the Liver and Biliary Tract	Seven sessions, part time, Jan. 4-Feb. 15	To be announced
	5412-A Nephritis and Hypertension	Eight sessions, part time, Jan. 5-Feb. 23	Not given
Council of Rochester Regional Hospitals, 800 Reynolds Arcade Bldg., Rochester 4, N. Y. At: Clifton Springs Sanatorium and Clinic, Clifton Springs, N. Y.	Medicine	One to four months, arranged	Not given
University of North Carolina School of Medicine and Extension Division, Chapel Hill At: Various Centers in State	Medical Postgraduate Extension Course	One day a week for 6 or 8 weeks, arranged	20.00-30.00
Duke University School of Medicine, Durham, N. C.	Symposium	Three days, full time, Oct. 20-22	25.00
Oklahoma City Clinical Society, 512 Medical Arts Bldg., Oklahoma City	Annual Clinical Society Conference	Four days, full time, Oct. 24-28	15.00
Medical Society of the State of Pennsylvania, 230 State St., Harrisburg, Pa. At: Allentown Clearfield: Erie: Harrisburg: Johnstown: Lancaster: Oil City: Reading: Scranton: Washington: Williamsport:	Graduate Education Institute	One day per week	25.00
Interstate Postgraduate Medical Association, 16 North Carroll St., Madison, Wis. and Philadelphia County Medical Society At: Public Auditorium, Philadelphia	34th International Medical Assembly	Four days, full time, Oct. 31-Nov. 3	5.00
Anderson County Medical Society, 1501 North Main St., Anderson, S. C.	Piedmont Postgraduate Clinical Assembly	One to three days, September	5.00
Medical College of the State of South Carolina Alumni Association, 16 Lucas St., Charleston	Alumni Postgraduate Seminar	One and one-half days, full time, Nov. 3-4	None
University of South Dakota School of Medical Sciences, Vermillion	Special Anatomy: Biochemistry, Clinical Applications; Microbiology, Clinical Applications; Pathology, Clinical Applications; Physiology, Clinical Applications	Four months, continuously	75.00
Nashville Academy of Medicine and Davidson County Medical Society, Nashville, Tenn. At: Maxwell House Hotel, Nashville	Postgraduate Medical Assembly	Twelve one hour lectures, Oct. 5-6	10.00
Postgraduate Medical Assembly of South Texas, 229 Medical Arts Bldg., Houston At: Shamrock Hotel, Houston	Postgraduate Medical Assembly of South Texas	Three days, Nov. 29-Dec. 1	20.00
Jackson Clinic and Methodist Hospital, 16 South Henry St., Madison 3, Wis.	Annual Postgraduate Program	One day, October	None
NEUROLOGY AND PSYCHIATRY			
College of Medical Evangelists Graduate School of Medicine, Boyle and Michigan Aves., Los Angeles	Neurology	Twelve hours, part time, begins Jan. 5	30.00
University of California (Medical Extension), Medical Center, San Francisco, the University of California at Los Angeles At: Los Angeles	Clinical Neurology in Medical Practice	One week, full time, July 25-30	35.00
University of California School of Medicine, Medical Center, San Francisco 22 At: Langley Porter Clinic, San Francisco	Psychiatry and Neurology	Twelve weeks, full time, Aug. 29-Nov. 18	200.00

Postgraduate Continuation Courses for Physicians—July 1, 1949 to Jan. 15, 1950—Continued

Institution	Title of Course	Schedule of Course	Registration Fee and/or Tuition
NEUROLOGY AND PSYCHIATRY—Continued			
University of Colorado School of Medicine, 4200 East Ninth Ave., Denver 7	Psychosomatic Medicine	Five days, full time, Sept. 12-16	\$25.00
Yale University School of Medicine, 333 Cedar St., New Haven, Joint Committee of State Mental Hospitals, and Connecticut State Department of Health At: Connecticut State Hospital, Middletown	Postgraduate Seminar in Neurology, Psychiatry and Related Fields of Medicine, Part I Basic Science Physiology 200, Brain Tumor	Ten weeks, part time, Oct. 3-Dec. 5 Full time, arranged	Not given 65.00 ³²
Catholic University of America, Department of Psychology and Psychiatry, Washington 17, D. C. At: St. Elizabeth's Hospital	Clinical Psychiatry	Fifteen weeks, part time, Oct.-Jan.	35.00
At: Child Center, Catholic University	Seminar in Psychotherapy I Dynamic Psychiatry and Psychoanalysis Psychopathology Child Psychiatry I	Fifteen weeks, part time, Oct.-Jan. Fifteen weeks, part time, Oct.-Jan. Fifteen weeks, part time, Oct.-Jan. Fifteen weeks, part time, Oct.-Jan.	35.00 35.00 20.00 35.00
Cook County Graduate School of Medicine, 427 South Honore St., Chicago 12	Personal Course in Neuropathology Neurology	Arranged Ten weeks, part time, Sept. 28	100.00 80.00
Institute for Psychoanalysis, 664 North Michigan Ave., Chicago, and Illinois Neuropsychiatric Institute	Psychosomatic Demonstrations	Part time, October to June	None
Michael Reese Hospital, Institute for Psychoanalysis, 29th and Ellis Ave., Chicago	Psychopathological Demonstrations	Part time, October to June	None
Massachusetts Department of Mental Health, Metropolitan State Hospital, Waltham, Massachusetts At: Walter E. Fernald State School	Seminar in Pediatric Neuropsychiatry	Two weeks, part time, Oct. 17-Nov. 28	None
At: Boston Psychopathic Hospital	Seminar in Social and Special Psychiatry Review Course in Basic Neurology and Psychiatry	Once a week, part time, Oct. 12-Dec. 17 Once a week, part time, Oct. 17-Dec.	None None
Wayne University College of Medicine, 1512 St. Antoine St., Detroit 26	Problems in Neurology Human Inheritance	Twelve weeks, part time, Sept.-Dec. Twelve weeks, Sept.-Dec.	35.00 25.00
University of Minnesota, Minneapolis 14 At: Center for Continuation Study	Psychosomatic Medicine Child Psychiatry for General Physicians	Two weeks, Sept. 12-24 One week, Nov. 28-Dec. 3	Not given 35.00
Columbia University College of Physicians and Surgeons, 630 West 168th St., New York 32 At: Columbia Presbyterian Medical Center	Psychiatry PM I, Symposium on Neurology and Psychiatry Neurology PM I, Advanced Neurology	Two months, full time, Oct. 3, Dec. 9 Three months, full time, July 5-Sept. 30, Oct. 3-Dec. 30	250.00 150.00
At: Mount Sinai Hospital	Psychiatry PM 30, Psychiatry in General Medicine Neurology PM 31, Practical Neuroanatomy and Neuropathology Neurology PM 32, Advanced Practical Neuroanatomy and Neuropathology	Four and one-half months, part time, Oct. 18-March 7 Six months, part time, Oct. 10-May 29 Six months, part time, Oct. 6-May 25	100.00 140.00 100.00
At: Montefiore Hospital	Neurology PM 60, Neuropsychiatry	One month, part time, Nov. 7-Dec. 3	75.00
Joint Committee on Post-Graduate Education, 1313 Bedford Ave., Brooklyn, Medical Society of the County of Kings and Long Island College of Medicine At: Jewish Sanatorium and Hospital for Chronic Diseases At: Jewish Hospital	Basis of Neural Function Clinical Neurology Child Psychiatry	Eight weeks, part time, October Eight weeks, part time, October Ten weeks, part time, October	20.00 20.00 20.00
American Institute for Psychoanalysis, 220 West 98th St., New York 25 At: New School for Social Research	Philosophy and Psychoanalysis The Human Factor in Working Relationships Pioneers in Psychoanalytic Thinking Readings in Psychoanalysis, Part I The Works of Freud The Analytic Process Theory of Neurosis Continuous Case Seminar Clinical Conferences	Ten weekly lectures, Nov. 21 Fifteen weekly seminars, Sept. 29 Fifteen weekly lectures, Oct. 3 Twenty weekly sessions, Sept. 16 Fifteen weekly sessions, Sept. 15 Fifteen weekly lectures, Sept. 13 Ten weekly sessions, Sept. 12 Ten weekly sessions, Sept. 13	20.00 Not given Not given 40.00 30.00 30.00 20.00 20.00
At: Institute for Psychoanalysis	647-A Psychiatry and Neurology 648-A Psychology and Psychodynamics 649-A Psychiatry 621-A Physical Medicine and Rehabilitation 622-A Physical Medicine and Rehabilitation 611-A Psychiatric Problems in General Practice 646-A Psychiatry in the Practice of Medicine and Pediatrics 551-A Neurologic Problems in General Practice 552-A Neuroanatomy and Neuropsychology 553-A Neurology	Ten weeks, full time, Sept. 26-Dec. 3 Three months, part time, Sept. 26-Dec. 17 Three years, full time, Sept. 26 Nine months, full time, Sept. 26-June 17 Twelve or twenty-four weeks, full time, Sept. 15 Three weeks, part time, Jan. 2-21 Three months, full time, arranged Three weeks, part time, Jan. 2-21 Ten weeks, part time, Sept. 26-Dec. 3 Three years, full time, Sept. 26 Two year course, October to June	300.00 250.00 600.00 600.00 200.00 ⁴⁴ 150.00 300.00 150.00 150.00 600.00 600.00
New York University Bellevue Medical Center, 356 Second Ave., New York 10, and Post-Graduate Medical School of the New York University	Course for Psychiatrists Leading to Certification in Psychotherapy Psychiatric Counseling and Interviewing for Physicians Clinical Neurology	Three years, full time, Sept. 26 Two year course, October to June Ten hours weekly, part time, Oct. 3-Jan. 30 One week, full time, Oct. 17-22	500.00 ⁴ Not given 300.00 Not given
Postgraduate Center for Psychotherapy, Inc., 218 East 70th St., New York 21	Growth and Development of the Child Clinical Problems with Children: Clinical Conference in Specific Case Material Introduction of Child Psychiatry	Thirty sessions, part time, Sept. 20-May 9 Five sessions, part time, Oct. 25-May 9 Twenty-eight sessions, part time, Sept. 27-April 11	30.00 7.50 30.00
American College of Physicians, 4200 Pine St., Philadelphia 4, and Jefferson Medical College At: Philadelphia			
Philadelphia Psychoanalytic Institute, 111 North 49th St., Philadelphia 39			

Postgraduate Continuation Courses for Physicians—July 1, 1949 to Jan. 15, 1950—Continued

Institution	Title of Course	Schedule of Course	Registration Fee and/or Tuition
NEUROLOGY AND PSYCHIATRY—Continued			
Philadelphia Psychoanalytic Institute, 111 North 40th St., Philadelphia 39	Professional School Courses (on theory, therapeutic applications and practice of psychoanalysis)	Arranged, September to June	\$426.00
	The Psychoanalysis of Children and Adolescents	Arranged, September to June	113.25
	Educative Analysis	Arranged, September to June	148.50
University of Pennsylvania Graduate School of Medicine, 36th and Pine Sts., Philadelphia	Neurology-Psychiatry	Thirty-two weeks, full time, Oct. 3-May 27	800.00
	Clinicobiologic Neurology and Psychiatry ³¹	Ten weeks, arranged	300.00
	Basic Psychiatry	Once weekly, part time, Sept. 27-Dec. 13	20.00
	Evolution of Psychoanalytic Concepts	Once weekly, part time, Oct. 3-Dec. 12	20.00
	Introduction of Cultural Anthropology	Every 2 weeks, part time, Jan. 16-May 22	20.00
	Literature of Psychoanalysis	Every 2 weeks, part time, Jan. 9-May 29, Jan. 4-May 31	30.00
	General Theory of Neuroses ³²	October-January	20.00
	Theory and Practice of Dream Interpretation ³³	Every 2 weeks, part time, Jan. 3-Feb. 28	25.00
	Relationship Between Physical Symptomatology and Disorders of Personality	Every 2 weeks, part time, Jan. 3-April 18	20.00
	Case Seminar in Psychoanalysis ³⁴	Every 2 weeks, part time, Jan. 11-May 24	30.00
William Alanson White Institute of Psychiatry, 221 West 57th St., New York	Seminar on the Application of Intensive Psychoanalytic Psychotherapy ³⁵	Once monthly, part time, Oct. 21-May 19	30.00
	Continuous Case Seminar in Psychoanalysis ³⁶	Every 2 weeks, part time, Sept. 30-March 24	30.00
	Practical Seminar for Physicians	Every 2 weeks, part time, Jan. 5-May 18	20.00
	Problems of Adolescent Guidance	Every 2 weeks, part time, Jan. 10-May 23	15.00
	Seminar on Child Psychiatry ³⁷	Once weekly, part time, Sept. 29-Nov. 17	Not given
	Seminar on Group Psychotherapy ³⁸	Once weekly, part time, Oct. 4-Nov. 29	20.00
	Introduction to Philosophy	Every 2 weeks, part time, Oct. 14-March 24	20.00
	Patterns of Function in the Central Nervous System	Once weekly, part time, Oct. 4-Nov. 29	20.00
NUCLEAR SCIENCE			
Atomic Energy Commission Training Program and Reed College, Portland 2, Ore.	Nuclear Science	Six months, full time	Not given
University of California Medical School, Extension Division, Medical Center, San Francisco	Medical Aspects of Nuclear Energy	Six days, Aug. 29-Sept. 3	60.00
Columbia University College of Physicians and Surgeons, 630 West 168th St., New York 32 At: Mount Sinai Hospital	Radiology PM 30, Introduction to Nuclear Physics for Physicians ¹²	Three and a half months, part time, Oct. 7-Jan. 20	60.00
NUTRITION			
New York Medical College, Flower and Fifth Avenue Hospitals, 20 East 106th St., New York 29	Nutrition	One month, arranged	150.00
OBSTETRICS AND GYNECOLOGY			
University Extension, University of California, 405 Hilgard Ave., Los Angeles 24 and the University Medical Schools at Los Angeles and San Francisco	Obstetrics and Gynecology	One week, full time, Oct. 3-7	50.00
University of California Medical School, Medical Center, San Francisco 22 At: University of California Hospital	Postgraduate Course in Obstetrics and Gynecology	Four days, July 5-8	45.00
Yale University School of Medicine, 333 Cedar St., New Haven, and Connecticut State Medical Society At: Yale University School of Medicine	Gynecology 200, Office Diagnosis and Treatment	Eight sessions, part time, Oct. 3-Nov. 21	25.00
Chicago Medical Society, 20 North Michigan Ave., Chicago 2 At: Northwestern University Medical School	Obstetrics, Endocrine-Gynecology and Sterility	One week, part time, Oct. 24-29	50.00
Cook County Graduate School of Medicine, 427 South Honore St., Chicago 12	Personal Course in Vaginal Approach to Pelvic Surgery	Two weeks, full time, Sept. 19 and Nov. 7	100.00
	Intensive Course in Gynecology	Two weeks, full time, Sept. 26 and Oct. 24	150.00
	Intensive Course in Obstetrics	Two weeks, full time, Sept. 12 and Nov. 7	150.00
	Gynecologic Surgery	Four weeks, part time, July 7, Sept. 8 and Nov. 10	80.00
Michael Reese Hospital Postgraduate School, 29th and Ellis Ave., Chicago 16	Office Gynecology	Four weeks, part time, July 6, Sept. 7 and Nov. 9	80.00
	Surgical Obstetrics	Four weeks, part time, Oct. 5	100.00
	Office and General Obstetrics	Four weeks, part time, Sept. 7 and Nov. 2	80.00
	Gynecology and Surgery for the General Practitioner	Twenty-five weeks, part time, Oct. 5-March 29	150.00
University of Illinois College of Medicine, 1833 West Polk St., Chicago 12 and State Department of Public Health	Refresher Course in Obstetrics and Gynecology	One week, July 11-16 ³⁹	10.00
Indiana University School of Medicine, 1040 West Michigan St., Indianapolis 7	Postgraduate Course in Obstetrics	Full time, five days, Nov. 14-18	50.00
State University of Iowa College of Medicine, University Campus, Iowa City, Iowa	Obstetrics and Gynecology	Five days, late October or early November	50.00
University of Kansas Medical Center, Kansas City 3	Obstetrics and Gynecology	November (tentative)	Not given
University of Maryland School of Medicine, Lombard and Greene Sts., Baltimore	Gynecology and Obstetrics "A"	Twelve weeks, full time, arranged	150.00
Harvard Medical School, 25 Shattuck St., Boston 15 At: Free Hospital for Women At: Massachusetts General Hospital At: Boston Lying-In Hospital	Gynecology and Obstetrics "A" Female Urology	Ten weeks, full time, arranged	125.00
	Gynecology	One month or longer, full time, July, August and September	155.00
	Gynecology	Two weeks, full time, Oct. 10-22	120.00
	Gynecology	Three to twelve months, full time, throughout the year	805.00 ³⁷
University of Michigan Medical School, Department of Postgraduate Medicine, 1313 East Ann St., Ann Arbor At: University Hospital	Clinical Obstetrics	One month or longer, full time, September and October	155.00
	Gynecology, Oncology and Female Urology "B"	Ten weeks, full time, arranged	125.00
	Basic Science as Applied to Obstetrics and Gynecology ³⁸	Twenty weeks, full time, Oct. 1-Feb. 28	375.00
	Gynecology and Obstetrics "A"	Twelve weeks, full time, arranged	150.00

Postgraduate Continuation Courses for Physicians—July 1, 1949 to Jan. 15, 1950—Continued

Institution	Title of Course	Schedule of Course	Registration Fee and/or Tuition
OBSTETRICS AND GYNECOLOGY—Continued			
University of Minnesota, Minneapolis 14 At: Center for Continuation Study	Obstetrics for Specialists	Three days, Nov. 17-19	\$20.00
Joint Committee on Post-Graduate Education, 1313 Bedford Ave., Brooklyn, Medical Society of the County of Kings and Long Island College of Medicine At: Long Island College of Medicine At: Cumberland Hospital At: Greenpoint Hospital	Manikin	Eight weeks, part time, October	30.00
Columbia University College of Physicians and Surgeons, 630 West 168th St., New York At: Margaret Hague Maternity Hospital, Jersey City, N. J. At: Mount Sinai Hospital	Complications of Pregnancy Sterility ¹² Obstetrics PM 80, Internship Training Obstetrics PM 81, Observation Course Gynecology PM 30, Recent Advances in Gynecology	Four weeks, part time, October Twelve weeks, part time, October Three months, full time, July 1 and Oct. 1 One month, full time, first of every month Six days, full time, Dec. 12-17	20.00 40.00 350.00 100.00 65.00
New York Medical College, Flower and Fifth Avenue Hospitals, 20 East 166th St., New York 29	Basic Science Course Leading to the Degree of Master of Medical Science	Nine months, full time ⁵	710.00
New York Polyclinic Medical School and Hospital, 341-353 West 50th St., New York 19	Obstetrics and Gynecology Including Manikin Obstetrics and Cadaver Gynecology	Two months, full time, October	250.00
New York University Bellevue Medical Center, 356 Second Ave., New York 10, and Post-Graduate Medical School of the New York University At: Beth Israel Hospital	561-A Seminar in Gynecology	Two months, full time, Oct. 3-Nov. 26	300.00
	562-A Gynecology, Diagnosis and Office Treatment	Part time, Mon., Wed., Fri., Oct. 3-24	50.00
	563-A Gynecology, Diagnosis and Office Treatment	Part time, Mon., Wed., Fri., Sept. 26-Oct. 23, Nov. 14-Dec. 16 and Jan. 4-Feb. 26	75.00
	564-A Obstetrics and Gynecology	Full time, from three to nine months, Oct. 3	Not given
	565-A Gynecologic Pathology	Nine months, part time, Oct. 3-4 ³	350.00
	567-A Gynecological Endocrinology	Part time, Tues., Thurs., Sat., Sept. 27-Nov. 22 and Jan. 3-Feb. 23	150.00
	568-A Vaginal Cytology	Part time, Tues. and Thurs., Sept. 27-Nov. 22 and Jan. 3-Feb. 23	100.00
	569-A Surgical Anatomy as Applied to Gynecology	Part time, Tues., Thurs., Sat., Oct. 17-Nov. 15 and Nov. 22-Dec. 20	200.00
	5610-A Culdoscopy	Six sessions, part time, arranged	100.00
	684-A Gynecology	Part time, Mon.-Fri., Sept. 7-Dec. 23 and Jan. 9-April 28	250.00
Council of Rochester Regional Hospitals, 133 East Ave., Rochester 4, N. Y. At: Strong Memorial Hospital	Obstetrics	One to two months, arranged	Not given
University of Pennsylvania Graduate School of Medicine, 36th and Pine Sts., Philadelphia	Gynecology and Obstetrics	Thirty-two weeks, Oct. 3-May 27	\$80.00
OCCUPATIONAL MEDICINE			
Purdue University, Lafayette, Indiana	Medical Mycology, Industrial Mycology	Two weeks, July 11-23	100.00
New York University-Bellevue Medical Center, 356 Second Ave., New York 10 and Post-Graduate Medical School of New York University	Industrial Medicine, D-395	One year, full time, Sept. 26	600.00
University of Pittsburgh School of Medicine, 3941 O'Hara St., Pittsburgh	Fellowship in Industrial Medicine	Three years, full time, arranged	Not given
ONCOLOGY			
University of California Medical School, Extension Division, Medical Center, San Francisco 22	Oncology: Newer Aspects	Three days, full time, Sept. 12-14	40.00
Joint Committee on Post-Graduate Education, 1313 Bedford Ave., Brooklyn, Medical Society of the County of Kings and Long Island College of Medicine At: Kings County Hospital and Brooklyn Cancer Institute	Diagnosis and Treatment of Neoplastic Disease	Eight weeks, part time, October	20.00
OPHTHALMOLOGY			
University of California Medical School, Extension Division, Medical Center, San Francisco 22	Ophthalmology	Six days, full time, Sept. 12-17	50.00
Cook County Graduate School of Medicine, 427 South Honore St., Chicago 16	Ophthalmoscopy	Three weeks, part time, Nov. 8	45.00
	Ophthalmic Surgical Technique	Five weeks, part time, Sept. 20	100.00
Northwestern University Medical School, 303 E. Chicago Ave., Chicago 11	Informal Course in Clinical Ophthalmology ¹²	Two weeks or more, full time	50.00
	Basic Ophthalmology	Eight months, full time, Oct. 1	\$80.00
University of Illinois College of Medicine, 1833 West Polk St., Chicago 12	Postgraduate Course in Ophthalmology	Eight months, full time, October-May	\$80.00
Harvard Medical School, 25 Shattuck St., Boston 15 At: Harvard Medical School and Massachusetts Eye and Ear Infirmary	Ophthalmology ⁴¹	Five months, full time, Sept. 26-March 4	765.00
Tufts College Medical School, 80 Bennet St., Boston At: Boston City Hospital At: New England Medical Center	Ophthalmology	Part time, four weeks, Oct. 3-29	\$0.00
	Ophthalmology	Part time, four weeks, Jan. 9-Feb. 4	\$0.00
Wayne University College of Medicine, 1512 St. Antoine St., Detroit 26	Neuro-ophthalmoscopy	Full time, five days, Nov. 11-18	\$0.00
	Ophthalmoscopy	Part time, four weeks, Nov. 7-Dec. 2	55.00
American Academy of Ophthalmology and Otolaryngology, 100 First Ave. Bldg., Rochester, Minn.	Basic Ophthalmology	Nine months, full time, September-June	950.00
Washington University School of Medicine, Euclid Ave. and Kingshighway, St. Louis 10, Mo.	Home Study Course	Ten months, Sept. 1-July 1	10.00
Joint Committee on Post-Graduate Education, 1313 Bedford Ave., Brooklyn, Medical Society of the County of Kings and Long Island College of Medicine At: Jewish Sanitarium and Hospital for Chronic Diseases	Basic Course in Ophthalmology	Eight months, Oct. 1-May 30	600.00
Columbia University College of Physicians and Surgeons, 630 West 168th St., New York At: Mount Sinai Hospital	External Eye Diseases	Eight weeks, part time, October	20.00
	Ophthalmoscopy	Eight weeks, part time, October	20.00
	Ophthalmology PM 30 ¹²	Seven weeks, part time, Oct. 5-Nov. 23	30.00
	Ophthalmology PM 31 ¹²	Two months, part time, Oct. 5-Dec. 7	90.00
	Ophthalmic Surgery	Two and one-half months, part time, Oct. 7-Dec. 23	80.00
	Ophthalmology PM 32, Refraction and Extraocular Muscles ¹²	Eleven weeks, part time, Sept. 15-Nov. 3	20.00
	Ophthalmology PM 33, Glaucoma and the Pharmacology of the Autonomic Nervous System ¹²	Eleven weeks, part time, Oct. 10-Dec. 29	55.00
	Ophthalmology PM 34, Histopathology of the Eye ¹²		

Postgraduate Continuation Courses for Physicians—July 1, 1949 to Jan. 15, 1950—Continued

Institution	Title of Course	Schedule of Course	Registration Fee and/or Tuition
OPHTHALMOLOGY—Continued			
Columbia University College of Physicians and Surgeons, 630 West 168th St., New York At: Mount Sinai Hospital	Ophthalmology PM 35, Bacteriology of the Eye and External Diseases ¹²	Eleven weeks, part time, Oct. 10-Dec. 26	\$45.00
	Ophthalmology PM 36, Embryology of the Eye ¹²	Seven weeks, part time, Oct. 5-Nov. 23	40.00
	Ophthalmology PM 37, Physiological Optics ¹²	Two months, part time, Oct. 10-Dec. 12	45.00
	Ophthalmology PM 38, Ophthalmoscopy, Advanced Course ¹²	Eleven weeks, part time, Oct. 26-Dec. 29	40.00
	Ophthalmology PM 39-A, Ophthalmoscopy in General Practice	Three months, part time, Sept. 19-Dec. ¹²	25.00
	Ophthalmology PM 39-B Ophthalmoscopy in General Practice	Three months, part time, Sept. 22-Dec. 15	25.00
	Ophthalmology PM 40, Techniques of Systematic Examination of the Eye and Functional Testing ¹²	Eleven weeks, part time, Sept. 21-Dec. 7	25.00
	Ophthalmology PM 42, Medical Ophthalmology	Two and one-half months, part time, Sept. 27-Dec. 13	25.00
	(Cadaver) and Refraction	Six weeks, October and January	50.00
		Three months, October and January	75.00
New York Polyclinic Medical School and Hospital, 341-353 West 50th St., New York 10		Three months, part time, October and January	275.00
	Ophthalmology and Otolaryngology	Nine months, full time, October	1,000.00
	Ophthalmology and Otolaryngology including Cadaver Courses and Refraction	Three months, full time, October and January	600.00
	Clinical Otolaryngology and Ophthalmology	Six weeks, October and January	100.00
	Clinical Otolaryngology and Ophthalmology	Three months, October and January	150.00
	Motor Anomalies of the Eye ¹² (Part I) 571-A	Six days, full time, Oct. 17-22	100.00
	Motor Anomalies of the Eye ¹² (Part II) 572-A	Five days, full time, Oct. 24-28	75.00
	Ophthalmic Neurology, ¹² 573-A	Five days, part time, Nov. 7-11	50.00
	Surgery of the Eye, 574-A ¹²	Six days, full time, Oct. 31-Nov. 5	100.00
	Ophthalmology, 576-A	Nine months, full time, Sept. 26-June 17	600.00
New York University-Bellevue Medical Center, 356 Second Ave., New York 10, and Post-Graduate Medical School of New York University	External Diseases, ¹² 577-A	Five days, part time, Nov. 7-11	50.00
	Differential Diagnosis with the Slit Lamp, 575-A ¹²	Five days, part time, Nov. 7-11	75.00
	Ophthalmology	Five days, July 25-29	Not given
	Ophthalmology	Thirty-two weeks, Oct. 3-May 27	800.00
	Postgraduate Course	Four days, December	25.00
University of Rochester School of Medicine and Dentistry, 200 Crittenden Blvd., Rochester, N. Y.	ORAL SURGERY		
	Oral Surgery, Dental Anesthesia ¹²	Thirty-two weeks, Oct. 3-May 27	800.00
	Orthodontia ¹²	One year, Oct. 3-Oct. 2	1,000.00
	Oral Medicine, Periodontics ¹²	Thirty-two weeks, Oct. 3-May 27	800.00
	Oral Surgery and Anesthesia	Six days, Oct. 10-15 and Dec. 12-17	150.00
University of Pennsylvania Graduate School of Medicine, 36th and Pine Sts., Philadelphia 40	ORTHOPEDIC SURGERY		
	General Orthopedic Surgery	One month, full time, July 5-Aug. 2, 1950 (every month)	100.00
	Orthopedic Surgery, including Industrial Medicine and Fractures	December (tentative)	Not given
	Orthopedics	One day, October	Not given
	Basic Science in Orthopedics	Sept. 1-Jan. 31	Not given
	Orthopedic Surgery ¹²	One to twelve months, full time, throughout the year	805.00
	Orthopedic Surgery ¹²	Three to twelve months, full time, throughout the year	805.00
	Orthopedic Surgery PM 80, Survey of the Essentials of Orthopedics	Eleven weeks, part time, Oct. 6-Dec. 22	100.00
	Seminar in Orthopedic Surgery, ¹² 581-A	Ten days, full time, Jan. 9-20	125.00
	Orthopedics in General Practice, 582-A	Six days, full time, Nov. 28-Dec. 3	60.00
Thomas W. Evans Museum and Dental Institute, Philadelphia 4 At: University of Pennsylvania	Functional Anatomy in Relation to Orthopedics, 583-A	Two weeks, part time, Sept. 12-23	75.00
	Basic Sciences in Relation to Orthopedic Surgery, 584-A	Nine months, full time, Sept. 26-June 17	600.00
	Orthopedics	Thirty-two weeks, Oct. 3-May 27	800.00
College of Medical Evangelists, Graduate School of Medicine, Boyle and Michigan Aves., Los Angeles 33	OTOLARYNGOLOGY		
	Otolaryngology	Twelve hours, part time, begins Nov. 1	30.00
	Informal Course in Clinical ¹² Otolaryngology	Two weeks, full time, arranged	50.00
	Informal Course in Clinical ¹² Otolaryngology	One month, full time, arranged	100.00
	Basic Otolaryngology	Eight months, full time, Oct. 1	800.00
Cook County Graduate School of Medicine, 427 South Honora St., Chicago 12			
Northwestern University Medical School, 203 E. Chicago Ave., Chicago 11			

Postgraduate Continuation Courses for Physicians—July 1, 1949 to Jan. 15, 1950—Continued

Institution	Title of Course	Schedule of Course	Registration Fee and/or Tuition
OTOLARYNGOLOGY—Continued			
University of Illinois, College of Medicine, 1853 West Polk St., Chicago 12	Postgraduate Course in Basic Otolaryngology	Nine months, full time, Oct. 3-June 18	\$750.00
State University of Iowa College of Medicine, University Campus, Iowa City	Otolaryngology and Rhinology	Five days, Nov. 28-Dec. 2	75.00
Tulane University of Louisiana School of Medicine, 1430 Tulane Ave., New Orleans 12	Basic Otolaryngology	Ten months, July 1-April 30	Not given
Harvard Medical School, 25 Shattuck St., Boston 15	Basic Sciences— Otolaryngology ⁴¹	Eight months, full time, Sept. 15-May 13	905.00
American Academy of Ophthalmology and Otolaryngology, 100 First Ave. Bldg., Rochester, Minn.	Home Study Course	Ten months, Sept. 1-July 1	10.00
Washington University School of Medicine, Euclid Ave. and Kingshighway, St. Louis 10	Graduate Course in Otolaryngology	Eight months, September-May	650.00
Columbia University College of Physicians and Surgeons, 630 West 168th St., New York	Otolaryngology PM 1	Three weeks, part time, Oct. 10-28	250.00
At: Columbia-Presbyterian Medical Center	Bronchoscopy ⁴²		
At: Mount Sinai Hospital	Otolaryngology PM 30	Five weeks, part time, Oct. 18-Nov. 25	50.00
New York Medical College, Flower and Fifth Avenue Hospitals, 20 East 106th St., New York 29	Histopathology of the Ear ⁴² Basic Science Course leading to the degree of Master of Medical Science	Three years, full time ⁵	710.00
	Ophthalmology and Otolaryngology including Cadaver and Refraction	Three months, full time, October and January	600.00
	Ophthalmology and Otolaryngology	Nine months, full time, October	1,000.00
New York Polyclinic Medical School and Hospital, 341-353 West 50th St., New York 19	Clinical Otolaryngology and	Six weeks, full time, October and January	100.00
	and	Three months, full time, October and January	150.00
		Six weeks, part time, October and January	75.00
	Clinical Otolaryngology	Six weeks, part time, October and January	100.00
New York University-Bellevue Medical Center, 356 Second Ave., New York 10, and Post-Graduate Medical School of New York University	Seminar in Otolaryngology, ⁴² 591-A	Two weeks, full time, Nov. 28-Dec. 9	150.00
University of Pennsylvania Graduate School of Medicine, 38th and Pine Sts., Philadelphia	Basic Sciences of Otolaryngology, 593-A	Nine months, full time, Sept. 26-June 17	600.00
Virginia Society of Ophthalmology and Otolaryngology, Box 1685, University Station, Charlottesville, Va.	Otolaryngology	Thirty-two weeks, Oct. 3-May 27	800.00
At: Medical College of Virginia, Richmond	Postgraduate course	Four days, December	25.00
OTOLOGY			
Northwestern University Medical School, 303 East Chicago Ave., Chicago 11	Endaural Otologic Surgery and Audiology	Five weeks, full time, about Oct. 1	500.00
OTORHINOLARYNGOLOGY			
University of California Medical School, Medical Center, Extension Division, San Francisco 22	Otorhinolaryngology Clinical Sciences as Applied to Otorhinolaryngology, Part I Anatomy	Five days, full time, Sept. 5-9 Sixteen weeks, part time, to be announced	50.00 50.00
PARASITOLOGY			
New York Medical College, Flower and Fifth Avenue Hospitals, 20 East 106th St., New York 29	Parasitology	Six weeks, half time, arranged	75.00
PATHOLOGY			
	General Pathology	Ten weeks, part time, Oct. 7	100.00
	Surgical Pathology	Ten weeks, part time, Oct. 5	100.00
	Pathology and Laboratory Medicine	Ten weeks, part time, Sept. 14	100.00
	Personal Course in Surgical Pathology	Two weeks, full time, every two weeks	150.00
	Personal Course in Surgical Pathology	Four weeks, full time, every two weeks	250.00
	Personal Courses in Surgical Pathology on Selective Subjects	By the hour, by appointment	15.00 ⁴⁵
	Course in Gross and Microscopic Pathology	Twelve months, full time, by appointment	500.00
	Course in Gross and Surgical Pathology	Twelve months, full time, by appointment	900.00
	Biochemical Background of Clinical Medicine	Ten weeks, part time, Oct. 5	100.00
	Pathologic Diagnosis	Ten weeks, part time, Oct. 12-Dec. 14	50.00
Michael Reese Hospital Postgraduate School, 20th and Ellis Ave., Chicago 16	Pathology "C" (Neuropathology)	Six months, full time, arranged	210.00
University of Maryland School of Medicine, Lombard and Greene Sts., Baltimore	Pathology of Obstetrics and Gynecology ⁴⁷	Twenty-one days, full time, Jan. 5-May 25	155.00
Harvard Medical School, 25 Shattuck St., Boston 15	Pathology "C" (Neuropathology)	Six months, full time	210.00
At: Free Hospital for Women	Pathology	Ten weeks, Sept. 26-Dec. 3	Not given
University of Michigan Medical School, Department of Postgraduate Medicine, 1313 East Ann St., Ann Arbor			
University of Michigan Medical School, 1313 East Ann St., Ann Arbor, Michigan State Medical Society and Wayne University College of Medicine			
At: Ann Arbor			
Wayne University College of Medicine, 1512 St. Antoine St., Detroit 26	General Pathology Surgical Pathology Pathology of Neoplasms Dermatopathology Neuropathology Pathology of Parasitic Diseases Physician-In Training (Pathology, Bacteriology, Biochemistry)	Nine months, full time, Sept.-June Twelve weeks, part time, Sept.-Dec. Twelve weeks, part time, Dec.-March Twelve weeks, part time, Dec.-March Twelve weeks, part time, Dec.-March Twelve weeks, part time, Sept.-Dec. One year, arranged	500.00 50.00 50.00 50.00 50.00 50.00 None ⁴⁴
New York State Department of Health, Albany 1	Pathology PM 30, General and Special Pathology	Three and a half months, part time, Oct. 1-Jan. 21	69.00
At: Division of Laboratories and Research	Clinical Pathology	Approximately 26 hours, part time, arranged	100.00
Columbia University College of Physicians and Surgeons, 630 West 168th St., New York	Practical Laboratory Instruction in Pathology and Bacteriology	Arranged	Arranged
At: Mount Sinai Hospital			
New York Medical College, Flower and Fifth Avenue Hospitals, 20 East 106th St., New York 29			
New York Polyclinic Medical School and Hospital, 341-353 West 50th St., New York 19			

Postgraduate Continuation Courses for Physicians—July 1, 1949 to Jan. 15, 1950—Continued

Institution	Title of Course	Schedule of Course	Registration Fee and/or Tuition
PATHOLOGY—Continued			
New York University-Bellevue Medical Center, 356 Second Ave., New York 10, and Post-Graduate Medical School of New York University At: Lenox Hill Hospital	Gynecological Pathology, 12 441-A	Sixteen sessions, part time, Sept. 23-Jan. 18	\$100.00
	Surgical Pathology, 442-A 12	Thirty sessions, part time, Sept. 20-Dec. 29	200.00
	General Pathology, 443-A	Twelve weeks, part time, Sept. 26-Dec. 17	175.00
	Radiation Pathology, 445-A	Twenty-four sessions, part time, Oct. 31-Dec. 21	100.00
	Pathology for Surgeons, 686-A	Twelve sessions, part time, Oct. 10-Nov. 17	50.00
Baylor University College of Medicine, 509 Lincoln Ave., Houston 1, Texas	Histopathology for Gynecologists, 687-A	Twelve sessions, part time, Oct. 11-Nov. 18	50.00
	Review Course in Pathology	Fifteen weeks, part time, Sept. 1-Dec. 16	120.00
PEDIATRICS			
Yale University School of Medicine, 333 Cedar St., New Haven, and Connecticut State Medical Society At: Yale University School of Medicine Children's Memorial Hospital, 707 Fullerton Ave., Chicago 14	Child Study 220, Developmental Diagnosis	One or two years, full time, by arrangement	750.00 46
	Postgraduate Course in Pediatrics	Four weeks, October	100.00
Cook County Graduate School of Medicine, 427 South Honore St., Chicago 12	Personal Course in Cerebral Palsy	Two weeks, full time, Aug. 1	150.00
	Course in Pediatrics	Twelve months, full time, Sept. 1	750.00
Indiana University School of Medicine, 1040 West Michigan St., Indianapolis 7	Clinical Pediatrics	Two weeks, full time, every week	60.00
	Clinical Pediatrics	One month, full time	100.00
State University of Iowa College of Medicine, University Campus, Iowa City	Refresher Course in Pediatrics	Part time, Nov. 2, 9, 30, Dec. 7	20.00
Harvard Medical School, 25 Shattuck St., Boston 15 At: Children's Hospital	Pediatrics	Two days, October	10.00 47
	Pediatric Radiology 41	One month, full time, every month	155.00
At: Massachusetts General Hospital	Pediatrics	Four months, full time, Sept. 6-Dec. 21	505.00
	Pediatrics	Four months, full time, Jan. 3-April 23	505.00
Tufts College Medical School, 30 Bennet St., Boston	Pediatrics	Eight months, full time, Oct. 3-May 31 48	805.00
At: New England Medical Center	Pediatrics	Full time, two weeks, Nov. 28-Dec. 10	80.00
University of Minnesota, Minneapolis 14 At: Center for Continuation Study	Pediatrics Roentgenology	One week, Oct. 31-Nov. 5	35.00
Washington University School of Medicine, Euclid Ave. and Kingshighway, St. Louis 10	Graduate Course in Pediatrics	Nine months, full time, Sept.-June	500.00
	Refresher Course in Pediatrics	One month, full time, Sept.-Oct.	100.00
Joint Committee on Post-Graduate Education, 1313 Bedford Ave., Brooklyn 16, Medical Society of the County of Kings, Long Island College of Medicine At: Beth-El Hospital	Refresher Course in Pediatrics	Two months, full time, Sept.-Nov.	200.00
	Clinical Pediatrics	Five weeks, part time, October	30.00
Columbia University College of Physicians and Surgeons, 630 West 168th St., New York 32 At: Mount Sinai Hospital	Applied Immunologic Procedures in Children	Eight weeks, part time, October	20.00
	Pediatrics PM 31, Allergy in Children	Six weeks, part time, Oct. 14-Dec. 2	30.00
New York Medical College, Flower and Fifth Avenue Hospitals, 20 East 100th St., New York 29	Pediatrics PM 30, Clinical Pediatrics	Two months, part time, Oct. 4-Dec. 13	80.00
	Clinical Pediatrics	One month, full time, throughout the year	150.00
New York Medical College, Flower and Fifth Avenue Hospitals, 20 East 100th St., New York 29	Basic Science Course leading to the degree of Master of Medical Science	Three years, full time 5	710.00
	Clinical Pediatrics	Three months, full time, throughout the year	250.00
New York Medical College, Flower and Fifth Avenue Hospitals, 20 East 100th St., New York 29	Clinical Pediatrics	Six months, full time, throughout the year	450.00
	Clinical Pediatrics	Nine months, full time, throughout the year	650.00
New York University-Bellevue Medical Center, 356 Second Ave., New York 10, and Post-Graduate Medical School of New York University At: Beth Israel Hospital	Clinical Pediatrics 611-A	Ten weeks, part time, Oct. 17-Dec. 23	125.00
	Clinical Pediatrics 612-A	Four weeks, full time, Sept. 19-Oct. 15 and Jan. 9-Feb. 4	150.00
New York University-Bellevue Medical Center, 356 Second Ave., New York 10, and Post-Graduate Medical School of New York University At: Beth Israel Hospital	Practical Clinical Pediatrics 613-A	Four weeks, full time, Oct. 17-Nov. 12	125.00
	Review of Clinical Pediatrics 614-A	Six days, full time, Nov. 28-Dec. 3	60.00
New York University-Bellevue Medical Center, 356 Second Ave., New York 10, and Post-Graduate Medical School of New York University At: Beth Israel Hospital	Pediatric Endocrinology 615-A 12	Three days, full time, Nov. 2-4	75.00
	Pediatrics 618-A	Sixteen sessions, part time, Sept. 27-Nov. 18	50.00
New York University-Bellevue Medical Center, 356 Second Ave., New York 10, and Post-Graduate Medical School of New York University At: Beth Israel Hospital	Allergy for Pediatricians 617-A	Five days, full time, Oct. 10-14	75.00
	Cardiology for Pediatricians 618-A	Five days, full time, Nov. 14-18	75.00
New York University-Bellevue Medical Center, 356 Second Ave., New York 10, and Post-Graduate Medical School of New York University At: Beth Israel Hospital	Pediatrics 6110-A	One year, full time, Sept. 26-June 17	600.00
	Pediatrics 689-A	Twenty-four sessions, part time, Sept. 26-Dec. 20	75.00
Council of Rochester Regional Hospitals, 133 East Ave., Rochester 4, N. Y.	Pediatrics	One to two months, arranged	Not given
Southern Pediatric Seminar, Inc., Saluda, N. C.	Southern Pediatric Seminar	Two weeks, full time, July 18-30	25.00
University of Pennsylvania Graduate School of Medicine, 36th and Pine Sts., Philadelphia	Pediatrics	Thirty-two weeks, full time, Oct. 3-May 27	800.00
PHARMACOLOGY			
Wayne University College of Medicine, 1512 St. Antoine St., Detroit 26	Survey of Pharmacology	Twelve weeks, December-March	15.00
PHYSICAL MEDICINE			
College of Medical Evangelists, Graduate School of Medicine, Boyle and Michigan Ave., Los Angeles 33	Physical Therapy	Eight hours, part time, beginning Oct. 5	30.00
Yale University School of Medicine, 333 Cedar St., New Haven and the Connecticut State Medical Society	Medicine 206, Physical Medicine and Rehabilitation	Twelve sessions, part time, Oct. 6-Dec. 15	Not given
	27th Annual Session	Five days, part time, Sept. 6-10	2.00 49
American Congress of Physical Medicine, 30 North Michigan Ave., Chicago At: Cincinnati, Ohio	Physical Medicine	Five weeks, part time, October	20.00
Joint Committee on Post-Graduate Education, 1313 Bedford Ave., Brooklyn 16, Medical Society of the County of Kings, Long Island College of Medicine At: Kings County Hospital			

Postgraduate Continuation Courses for Physicians—July 1, 1949 to Jan. 15, 1950—Continued

Institution	Title of Course	Schedule of Course	Registration Fee and/or Tuition
PHYSICAL MEDICINE—Continued			
Columbia University College of Physicians and Surgeons, 630 West 168th St., New York 32 At: Mount Sinai Hospital	Physical Medicine PM 30, Physical Therapy in General Practice	Four months, part time, Oct. 4-Jan. 31	\$ 85.00
New York Polyclinic Medical School and Hospital, 341-353 West 50th St., New York 19	Physical Medicine	Four weeks, arranged	100.00
University of Pennsylvania Graduate School of Medicine, 36th and Pine Sts., Philadelphia	Physical Medicine	Thirty-two weeks, Oct. 3-May 21	800.00
PHYSIOLOGY			
Cook County Graduate School of Medicine, 427 South Honore St., Chicago 12	Clinical Physiology	Ten weeks, part time, Oct. 4	100.00
Wayne University College of Medicine, 1512 St. Antoine St., Detroit 26	Survey of Physiology	Twelve weeks, part time, Sept.-Dec.	15.00
Columbia University, College of Physicians and Surgeons, 630 West 168th St., New York At: Mount Sinai Hospital	Physiology PM 30, Physiology of the Digestive Tract	Two months, Oct. 5-Dec. 9	40.00
New York Medical College, Flower and Fifth Avenue Hospitals, 20 East 106th St., New York 29	Physiology of the Cardiovascular System and Blood	One month, part time, arranged	75.00
	Physiology of Respiration	One month, part time, arranged	75.00
	Physiology of the Nervous System	Two weeks, part time, arranged	50.00
	Physiology of the Special Senses	One month, part time, arranged	75.00
	Physiology and Chemistry of the Gastrointestinal Tract, Digestion	One month, part time, arranged	150.00
New York University-Bellevue Medical Center, 356 Second Ave., New York 10, and Post-Graduate Medical School of New York University	Normal and Pathological Physiology: Functional and Chemical Aspects 5420-A	Ten days, full time, Sept. 19-30	Not given
	Normal and Pathological Physiology: Functional and Chemical Aspects 545-A	Seven sessions, part time, Jan. 4-Feb. 15	Not given
PHYSIOLOGICAL CHEMISTRY			
Wayne University College of Medicine, 1512 St. Antoine St., Detroit 26	Physiological Chemistry Seminar	Twelve weeks, September-December	15.00
	Physiological Chemistry Seminar	Twelve weeks, December-March	15.00
	Special Topics	Twelve weeks, December-March	15.00
PLASTIC SURGERY			
Chicago School of Plastic Surgical Prosthetics, 1260 Lake Shore Drive, Chicago 10	Certain Phases of Plastic Surgery and Prosthetics	Six weeks, full time, first Monday of every month	500.00
	Plastic Surgical Prosthetics	Sixty weeks, full time, first Monday of every month	821.10
Illinois Masonic Hospital, 836 Wellington Ave., Chicago 14	Fundamentals of Reconstructive Surgery of the Nasal Septum and External Nasal Pyramids	Seventy-five hours, Oct. 1-8	150.00
Manhattan General Hospital, 307 Second Ave., New York 3	Rhinoplasty and Otoplasty ¹²	Three months, part time, evening courses, beginning Aug. runs every other month	500.00
University of Pennsylvania Graduate School of Medicine, 36th and Pine Sts., Philadelphia	Prosthetics	Thirty-two weeks, Oct. 3-May 27	800.00
POLIOMYELITIS			
Georgia Warm Springs Foundation, Warm Springs	Care of Acute and Convalescent Poliomyelitis	One week, full time, July, October, January	None
National Foundation for Infantile Paralysis, Inc., 120 Broadway, New York 5 At: Stanford University School of Medicine, San Francisco At: University of Colorado Medical Center, Denver At: The Childrens Medical Center, Boston	Poliomyelitis	Three days, July 11	Not given
At: City Hospital, Cleveland At: D. T. Watson School of Physical Therapy, Leetsdale, Pa.	Poliomyelitis	Five days, Nov. 14-19	Not given
	Infantile Paralysis—Acute and Early Convalescent Stages	Five days, Aug. 15-19	50.00
	Poliomyelitis	Five days, July 18-23	Not given
	Poliomyelitis	Five days, Aug. 8-13	Not given
	Poliomyelitis	Five days, Aug. 29-Sept. 3	Not given
PROCTOLOGY			
College of Medical Evangelists, Graduate School of Medicine, Boyle and Michigan Aves., Los Angeles	Proctology	Twenty hours, part time, beginning Jan. 5	50.00
Cook County Graduate School of Medicine, 427 South Honore St., Chicago 12	Proctoscopy and Sigmoidoscopy	Three weeks, part time, one day a week, July 12, Aug. 2, Aug. 23, Sept. 20, Oct. 18 and Nov. 8	50.00
Tufts College Medical School, 30 Bennet St., Boston At: New England Medical Center	Proctology I	Full time, five days, Oct. 17-21	45.00
Joint Committee on Postgraduate Education, 1313 Bedford Ave., Brooklyn 16, Medical Society of the County of Kings and Long Island College of Medicine At: Jewish Hospital	Proctology	Six weeks, part time, October	40.00
New York Polyclinic Medical School and Hospital, 341-353 West 50th St., New York 19	Proctology	Six weeks, part time, October and January	75.00
	Proctology, Gastroenterology, Operative Proctology (Cadaver)	Six weeks, part time, October and January	200.00
	Proctology 664-A	Eight weeks, part time, Sept. 26-Nov. 18, Jan. 9-March 4	125.00
PUBLIC HEALTH			
Tulane University of Louisiana School of Medicine, 1430 Tulane Ave., New Orleans 13	Tropical Medicine and Public Health Leading to the Degree of Master of Public Health	September 1	Not given
Johns Hopkins University School of Hygiene and Public Health, 710 North Washington St., Baltimore University of Michigan School of Public Health, Ann Arbor New York State Department of Health, Albany 1 At: Any approved School of Public Health	Public Health	Eight months, full time, Sept. 29-May 27	600.00
	Public Health	Sixteen weeks, Sept. 26-Jan. 21	Not given
	Field Training in Public Health	Six-fifteen months, full time, any time	None ⁵⁵
	Course in Public Health Leading to Master in Public Health (or equivalent)	One academic year, full time, Sept.-June	600.00 ^{56, 58}
	Public Health (Specialized Training Courses in Industrial Hygiene, Tropical Medicine, Hospital Administration, Venereal Diseases and Tuberculosis)	Eight months, full time, Sept. 29-May 27	600.00

Postgraduate Continuation Courses for Physicians—July 1, 1949 to Jan. 15, 1950—Continued

Institution	Title of Course	Schedule of Course	Registration Fee and/or Tuition
PUBLIC HEALTH—Continued			
New York State Department of Health, 76 State St., Albany 1, and Albany Medical College	Extension Course for Health Officers, Grade II	One year	\$ 40.00
University of North Carolina School of Public Health, Chapel Hill	Public Health	Nine months, September-June	100.00 ⁵⁰
Ohio Department of Health and Lorain County Department of Health, Oberlin, Ohio At: Oberlin, Ohio	Orientation in Public Health Administration	One to three weeks, full time, arranged	None
PULMONARY DISEASES			
American College of Chest Physicians, 569 North Dearborn St., Chicago At: Chicago At: New York At: San Francisco	Diseases of the Chest	Five days, Sept. 19-23	50.00
Cook County Graduate School of Medicine, 427 South Honore St., Chicago 12	Diseases of the Chest	Six days, Nov. 14-19	50.00
Minnesota Chapter of the American College of Chest Surgeons	Diseases of the Chest	Five days, Dec. 5-9	50.00
At: University of Minnesota, Center for Continuation Study, Minneapolis 14	Physical Examination and Diagnosis of the Chest	Part time, 2 hours a day, one day a week for 8 weeks, Sept. 21	60.00
*State Sanatorium, Sanatorium, Mississippi	Diseases of the Chest	Three days, Oct. 20-22	20.00
American Trudeau Society, 1790 Broadway, New York 19 At: University of Colorado Medical Center At: Saranac Lake, N. Y.	Graduate Course in Internal Medicine and Chest Diseases Thoracic Diseases	Six weeks to 6 months, arranged Two weeks, full time, July 18-30	None 100.00
Columbia University College of Physicians and Surgeons, 630 West 168th Street, New York 32 At: Mount Sinai Hospital At: Bellevue Hospital	The Trudeau School of Tuberculosis Medicine PM 37, Diseases of the Chest	Four weeks, full time, beginning Sept. 12 One week, full time, Nov. 22-29	100.00 60.00
New York University-Bellevue Medical Center, 356 Second Ave., New York 10, and Post-Graduate Medical School of New York University	Medicine PM 50, Diseases of the Chest	Two months, full time, Oct. 1-Nov. 30	150.00
Temple University School of Medicine, 3400 North Broad St., Philadelphia 40	Acute and Chronic Diseases of the Chest 548-A	Eight sessions, part time, Jan. 5-Feb. 22	Not given
Wisconsin Anti-Tuberculosis Association, 1018 North Jefferson St., Milwaukee 2 At: Walworth County Hospital	Broncho-Esophagology	Two weeks, Sept. 12-23	250.00
	Essentials of X-Ray Films and Their Interpretation	Part time, 2 hour sessions, once a week for 6 weeks, Autumn	None
RADIOLOGY			
University of California, Medical Extension, Medical Center, San Francisco 22	Postgraduate Course on Physics in Radiation Therapy	Four days, Sept. 6-9	Not given
	Clinical and Lecture Course in Diagnostic Roentgenology and Fluoroscopy	Two weeks, full time, first Monday of every month	125.00
	Routine Clinical Course in Diagnostic Roentgenology	Two weeks, full time, third Monday of every month	70.00
	X-Ray Therapy	One week, full time, every Monday	60.00
	Diagnostic Roentgenology	Eight months, full time, by appointment	500.00
	Diagnostic Roentgenology	Twelve months, full time, by appointment	750.00
	Routine Clinical Course in Diagnostic Roentgenology	One month, full time, third Monday of every month	125.00
	X-Ray Therapy	Two weeks, full time, every Monday	110.00
	X-Ray Therapy	One month, full time, every Monday	200.00
	X-Ray Therapy	Two months, full time, every Monday	300.00
	Clinical Interpretation of X-Ray Findings	Ten weeks, part time, begins Sept. 22	80.00
	Instructional Courses	Three days, part time, Oct. 5-7	7.50
American Roentgen Ray Society, University Hospital, Iowa City At: Netherland Plaza Hotel, Cincinnati, Ohio University of Louisville, 101 W. Chestnut St., Louisville	X-Ray Interpretation	One day, October	Not given
Harvard Medical School, 25 Shattuck St., Boston 15 At: Peter Benet Brigham Hospital At: Massachusetts General Hospital	General Radiology ⁴¹	One month or longer, full time, monthly except August	155.00
At: Boston City Hospital	General Radiology ⁴¹	One month or longer, full time, monthly throughout the year	155.00
Wayne University College of Medicine, 1512 St. Antoine St., Detroit 26 At: St. Mary's Hospital At: Receiving Hospital	General Radiology ⁴¹ Beginning Physics in Radiology	One month or longer, full time, monthly Twelve weeks, part time, Sept.-Dec.	155.00 15.00
Joint Committee on Post-Graduate Education, 1313 Bedford Ave., Brooklyn 16, Medical Society of the County of Kings and Long Island College of Medicine At: Jewish Sanitarium and Hospital for Chronic Diseases At: Jewish Hospital	Medical X-Ray Conference Clinical Radiology	Twelve weeks, part time, Sept.-Dec., Dec.-March Ten weeks, part time, October	15.00 20.00
Columbia University College of Physicians and Surgeons, 630 West 168th St., New York 32 At: Presbyterian Medical Center	X-Ray Diagnosis Radiology PM 1, Radiological Physics ⁴²	Ten weeks, part time, October Two months, part time, Sept. 18-Nov. 17	20.00 25.00
New York Medical College, Flower and Fifth Avenue Hospitals, 20 East 100th St., New York 29	Diagnostic Roentgenology	Six weeks, part time, every six weeks except during July and August	150.00
	Radium and Roentgen Therapy	Six weeks, part time, arranged	150.00
	Basic Science Course leading to the degree of Master of Medical Science	Three years, full time ⁵	710.00
New York Polyclinic Medical School and Hospital, 341-353 West 50th St., New York 19	Radiology	Three months, full time, October and January	300.00
	Radiology	Twelve months, full time, October and January	1,000.00
	Diagnostic Radiology for General Practitioners 631-A Roentgenology 6810-A	Thirty-two sessions, part time, Oct. 7-May 26 Sixteen sessions, part time, Sept. 27-Nov. 17	100.00 50.00
New York University-Bellevue Medical Center, 356 Second Ave., New York 10, and Post-Graduate Medical School of New York University	Diagnostic Radiology 652-A Radiology 6811-A	Twelve weeks, part time, Sept. 26-Dec. 16 Twelve months, full time, beginning Sept. 6	100.00 600.00
	Radiology Basic Science 653-A Radiophysics 655-A	Nine months, full time, Sept. 26-June 17 Fifteen sessions, part time, Oct. 25-Jan. 31	600.00 75.00
	Diagnostic Radiology 652-A	Twelve weeks, part time, Jan. 9-March 31	100.00

Postgraduate Continuation Courses for Physicians—July 1, 1949 to Jan. 15, 1950—Continued

Institution	Title of Course	Schedule of Course	Registration Fee and/or Tuition
RADIOLOGY—Continued			
The Radiological Society of North America, Inc., Medical Arts Bldg., Syracuse, N. Y. At: Cleveland Auditorium, Cleveland, Ohio	Refresher Courses	Six days, part time, Dec. 4-9	\$3.00 ⁵¹
University of Oregon Medical School, 3181 Southwest Marquam Hill Rd., Portland 1	Radiology	Five days, full time, Oct. 24-28	50.00
University of Pennsylvania Graduate School of Medicine, 36th and Pine Sts., Philadelphia	Radiology	Thirty-two weeks, Oct. 3-May 27	800.00
SURGERY			
College of Medical Evangelists, Graduate School of Medicine, Boyle and Michigan Aves., Los Angeles 33	Traumatic Surgery	Thirty-three hours, part time, Oct. 4	50.00
Yale University School of Medicine, 333 Cedar St., New Haven, and Connecticut State Medical Society	General Surgery	Eight months, full time, Oct. 3-June 9	700.00
	Surgery 200, Surgical Diagnosis	Twelve sessions, part time, Sept. 22-Dec. 15	45.00
	Personal Lecture Course in General Surgery	Ten weeks, part time, Sept. 15	100.00
	Treatment of Varicose Veins	Ten hours, available every Monday	40.00
	Surgical Technique, Surgical Anatomy and Clinical Surgery	Four weeks, full time, July 11, Aug. 8, Sept. 12, Oct. 10, and Nov. 7	300.00
	Surgical Technique	Two weeks, full time, July 25, Aug. 22, Sept. 26, Oct. 24, and Nov. 28	200.00
	Surgical Anatomy and Clinical Surgery	Two weeks, full time, July 25, Aug. 22, Sept. 26, Oct. 24, and Nov. 21	150.00
	Personal Course in Thoracic Surgery	One week, full time, Oct. 3	100.00
	Personal Course in Surgery of the Colon and Rectum	One week, full time, Sept. 12, Oct. 10, and Nov. 28	100.00
	Personal Course in Breast and Thyroid Surgery	One week, full time, Oct. 10	150.00
Cook County Graduate School of Medicine, 427 South Honore St., Chicago	Personal Course in Gallbladder Surgery	One week, full time, Oct. 24	100.00
	Intensive Review Course Considering Basic Principles in General Surgery	Two weeks, full time, Sept. 12	200.00
	Personal Course in Esophageal Surgery	One week, full time, Oct. 10	150.00
	Thoracic Surgery	Ten weeks, part time, Sept. 14	100.00
	Fractures and Traumatic Surgery	Two weeks, full time, Oct. 3	125.00
	Treatment of Varicose Veins	Two weeks, part time, every month except July and August	40.00
	Surgical Diagnosis, Preoperative and Postoperative Management	Ten weeks, part time, Sept. 21	100.00
	Clinical Surgery	Ten weeks, part time, Sept. 8	150.00
	Esophageal Surgery	Ten weeks, part time, Oct. 4	150.00
	Surgical Technique	Ten weeks, part time, Sept. 7	200.00
Illinois Masonic Hospital, 836 Wellington Ave., Chicago	Introduction to Fundamentals (Reconstructive Surgery of Nasal Septum and External Nasal Pyramid)	Eight days, Oct. 1-8	150.00
Michael Reese Hospital Postgraduate School, 29th and Ellis Ave., Chicago 16	Gynecology and Surgery for the General Practitioner	Twenty-five weeks, part time, Oct. 5-March 29	150.00
Harvard Medical School, 25 Shattuck St., Boston 15 At: Massachusetts General Hospital	Experimental and Clinical Surgery ⁴¹	Six-twelve months, full time, Sept. 15 and throughout the year, by arrangement	805.00 ⁴⁸
Tufts College Medical School, 30 Bennet St., Boston, and National Gastroenterological Association At: Boston City Hospital	Gastrointestinal Surgery	Full time, three days, Oct. 27-29	35.00
Wayne University College of Medicine, 1512 St. Antoine St., Detroit 26	Surgery Seminar	Twelve weeks, part time, Sept.-Dec., Dec.-March	15.00
University of Minnesota, Minneapolis 14 At: Center for Continuation Study	Surgery for General Physicians	Three days, Nov. 10-12	20.00
Columbia University College of Physicians and Surgeons, 630 West 168th St., New York 32 At: Mount Sinai Hospital	Surgery PM 30, Surgery of the Gastrointestinal Tract ⁴²	Four weeks, full time, Oct. 10-Nov. 4	150.00
New York Medical College, Flower and Fifth Avenue Hospitals, 20 East 106th St., New York 29	Surgical Technique Thoracic Surgery Basic Science Course leading to the Degree of Master of Medical Science	Approximately 50 hours, part time Three weeks, full time, November Three years, full time, Oct. 4	375.00 325.00 910.00
	Clinical and Operative (Cadaver) Surgery	Six weeks, full time, arranged	200.00
	Clinical Surgery	Six weeks, full time, October and January	100.00
New York Polyclinic Medical School and Hospital, 341-353 West 50th St., New York 19	Combined Surgical Course Including Cadaver Surgery and Gynecology	Three months, full time, October and January	350.00
	Review of General Surgery ⁴³ for Surgeons 661-A	Four weeks, full time, Oct. 24-Nov. 19	300.00
	Recent Advances in Surgery 663-A	Ten days, full time, Sept. 19-29	175.00
New York University-Bellevue Medical Center, 356 Second Ave., New York 10, and Post-Graduate Medical School of New York University	Diagnosis and Treatment of Trauma 6812-A Surgery of the Hand 6813-A Seminar in Traumatic ⁴⁴ Surgery 6814-A Surgery 665-A	Six days, full time, Dec. 5-10 Five days, full time, Sept. 26-30 Two weeks, full time, Nov. 14-26 Nine months, full time, Sept. 26-June 17	60.00 75.00 125.00 600.00
	Surgery	One to four months, arranged	Not given
Council of Rochester Regional Hospitals, 133 East Ave., Rochester 4, New York At: Clifton Springs Sanitarium, Clifton Springs, N. Y.	General Surgery	Five days, full time, Sept. 26-30	50.00
University of Oregon Medical School, 3181 Southwest Marquam Hill Rd., Portland 1	Surgery	Thirty-two weeks, Oct. 3-May 27	800.00
University of Pennsylvania Graduate School of Medicine, 36th and Pine Sts., Philadelphia	Bronchoesophagology, Gastroscopy and Laryngeal Surgery	Two weeks, September and January	250.00
Dallas Southern Clinical Society, 433 Medical Arts Bldg., Dallas 1, Texas At: Melrose Hotel, Dallas	Surgery	Three days, Sept. 19-21	25.00

Postgraduate Continuation Courses for Physicians—July 1, 1949 to Jan. 15, 1950—Continued

Institution	Title of Course	Schedule of Course	Registration Fee and/or Tuition
THERAPY			
Yale University School of Medicine, 333 Cedar St., New Haven, and Connecticut State Medical Society At: A community hospital	Therapeutics 200, Modern Drugs and Common Problems in Therapy	Eight sessions, part time, arranged	Not given
University of Kansas Medical Center, Kansas City 3	General Therapeutics	October (tentative)	Not given
Joint Committee on Post-Graduate Education, 1313 Bedford Ave., Brooklyn, Medical Society of the County of Kings and Long Island College of Medicine At: Jewish Sanitarium and Hospital for Chronic Diseases	Clinical Therapeutics	Seven weeks, part time, October	\$40.00
Columbia University College of Physicians and Surgeons, 630 West 168th St., New York 32 At: Mount Sinai Hospital	Medicine PM 44, Recent Advances in Therapy	Seven weeks, part time, Oct. 19-Dec. 7	\$5.00
TROPICAL MEDICINE			
Tulane University of Louisiana School of Medicine, 1430 Tulane Ave., New Orleans 13	Tropical Medicine and Public Health leading to the degree of Master of Public Health	Sept. 1	Not given
New York University-Bellevue Medical Center, 356 Second Ave., New York 10, and Post-Graduate Medical School of New York University	Tropical Medicine, 631-A	Eight weeks, full time, Oct. 3-Dec. 3	\$250.00
UROLOGY			
College of Medical Evangelists, Graduate School of Medicine, Boyle and Michigan Aves., Los Angeles and Los Angeles Urological Society	Genito-Urinary Diseases	Five days, part time, Nov. 14-18	\$50.00
College of Medical Evangelists, Graduate School of Medicine, Boyle and Michigan Aves., Los Angeles 33	General Urology	Thirteen and one-half hours, part time, beginning Jan. 4	\$5.00
Los Angeles County Urological Society, 6233 Hollywood Blvd., Los Angeles 28	Graduate Course in Urology	Six days, part time, third week in November	\$50.00
Cook County Graduate School of Medicine, 427 South Honore St., Chicago 12	Division of Urology Practical Course in Cystoscopy	Two weeks, full time, Sept. 26 Ten days, full time, July 11, July 25, Aug. 8, Aug. 22, Sept. 12, Oct. 10, Oct. 24, Nov. 7 and Nov. 28	\$225.00 \$150.00
James Buchanan Brady Foundation, New York Hospital, 525 East 68th St., New York New York Medical College, Flower and Fifth Avenue Hospitals, 20 East 106th St., New York 29	Postgraduate Course in Urology	Thirty-one weeks, July 1	\$500.00
The Frank E. Bunts Educational Institute, 2020 East 93rd St., Cleveland, Ohio At: The Cleveland Clinic Foundation	Basic Science Course Leading to Degree of Master of Medical Science	Three years, full time, Oct. 4 ⁵	\$710.00
University of Pennsylvania Graduate School of Medicine, 36th and Pine Sts., Philadelphia American Urological Association, 899 Madison Ave., Memphis 3, Tenn. At: Sherman Hotel, Chicago At: St. Louis, Mo.	Diseases of the Kidney and Genitourinary Tract	Two and a half days, part time, Nov. 17-19	\$15.00
Joint Committee on Post-Graduate Education, 1313 Bedford Ave., Brooklyn 10, Medical Society of the County of Kings and Long Island College of Medicine At: Long Island College Hospital	Urology	Thirty-two weeks, full time, Oct. 3-May 27	\$800.00
New York Polytechnic Medical School and Hospital, 341-353 West 50th St., New York 19	Graduate Course in Urology	Six days, full time, Dec. 5-9	\$50.00
	Graduate Course in Urology	Six days, full time, first week in Nov. One month or more, October	\$50.00 \$50.00
	Urology	Full time, 8 months, October	\$800.00
	Advanced Course in Urology, ¹² 671-A	Two months, full time, Oct. 3-Nov. 26	\$300.00
	Advanced Course in Urology, ¹² 671-A	Two months, full time, Jan. 3-Feb. 25	\$300.00
	Urology, 672-A	Nine months, full time, Sept. 26-June 17	\$600.00
VENEREAL DISEASE			
Bureau of Social Hygiene, Department of Health, New York City At: Central Clinic	Practical Seminar in Diagnosis, Treatment and Control of Venereal Disease	Two mornings a week throughout the year	None
U. S. Public Health Service, Hot Springs National Park, Ark.	Postgraduate Venereal Disease Training Course	One week, October	None
United States Public Health Service Institute for the Study of Venereal Disease, 237 Medical Laboratories, Philadelphia At: University of Pennsylvania School of Medicine	Essential Basic Training Course	Six months, arranged	\$800.00

- \$800 for out of state residents.
- Limited to 8 students.
- Breakage fee annually.
- Plus laboratory fees.
- Basic science training followed by two year residency in approved hospital as partial fulfillment of requirements.
- Available only to physicians certified by American Board.
- Course designed specifically to meet qualifications of specialty boards.
- Residents, interns, students and physicians in service no charge.
- For local physicians.
- For two weeks.
- For four weeks.
- For specialists.
- First year \$500.00, second year \$300.00, third year \$200.00.
- Additional three months until Sept. 2 available optionally with no added fee.
- For six weeks.
- For three months.
- Prerequisite course, \$730.00.
- Twelve dollars per week, \$125.00 per quarter.
- Admitted first of each month; \$150.00 for three months, \$300.00 for six months.
- Beginning first Monday in any month except July and August.
- One lecture per week in each town for ten weeks.

- Date not set.
- Sponsoring agency will pay the tuition of \$200.00 compensation for residents of Pennsylvania.
- Two hours per week for ten weeks in each center.
- \$2.50 for interns.
- Specialists in ophthalmology or otolaryngology.
- For local practitioners only.
- \$75.00 per month plus \$50.00 cadaver fee.
- New students admitted quarterly.
- Course for physicians other than psychiatrists.
- For staff members of mental institutions.
- Limited to candidates in psychoanalysis.
- Limited to psychiatrists and candidates in training.
- Limited to psychiatrists engaged in psychotherapeutic work with children.
- Limited to psychiatrists engaged in psychotherapeutic work with groups.
- Repeated if sufficient demand.
- For twelve months.
- Open to physicians who have an appointment or have served in an assistant residency or preceptorship approved by the American Board of Obstetrics and Gynecology.
- Nine months formal teaching, three months in-plant work.

- Eighteen months full time residency and University of Pittsburgh, eighteen months full time in-plant service.
- For M.D.'s with special qualifications.
- For D.D.'s only.
- Enrollment after date given by arrangement.
- Twenty-four weeks, \$400.00.
- Per hour.
- Per year.
- \$5.00 for Pediatric Society members.
- May be taken for shorter period if there is opening in the course.
- \$2.00 for one period of two hours; \$15.00 for ten periods.
- Per quarter.
- For single course; \$10.00 for all courses.
- Per month.
- Tuition, monthly stipend and travel expenses to and from place of training paid by New York State Department of Health.
- Stipend \$3,015.
- Fellowships available for physicians interested in entering full time public health work.
- Paid by Department for accepted candidates.
- \$10.00 to \$10.00 payable by Department of Health.
- \$90.00 non-members.
- \$120.00 non-members.

Medical Examinations and Licensure

COMING EXAMINATIONS AND MEETINGS

NATIONAL BOARD OF MEDICAL EXAMINERS

NATIONAL BOARD OF MEDICAL EXAMINERS: *Parts I and II*. Various Centers. June 20-22, Sept. 12-14. *Part III*. June, various centers. Exec. Sec., Mr. E. S. Elwood, 225 S. 15th St., Philadelphia 2.

EXAMINING BOARDS IN SPECIALTIES

AMERICAN BOARD OF ANESTHESIOLOGY, INC. *Written*. Various Centers. July 15. *Oral*. Oct. 16-20. Sec., Dr. Curtiss B. Hickcox, 745 Fifth Ave., New York 27.

AMERICAN BOARD OF INTERNAL MEDICINE: *Written*. Oct. 17. Asst. Sec.-Treas. Dr. W. A. Werrell, 1 Main St., Madison 3, Wis.

AMERICAN BOARD OF NEUROLOGICAL SURGERY: *Oral*. Chicago, June 1949. Sec., Dr. W. J. German, 310 Cedar Street, New Haven, Conn.

AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY, INC. *Part I*. Various Centers. Feb. 3. Final date for filing application is Nov. 5. Sec., Dr. Paul Titus, 1015 Highland Bldg., Pittsburgh.

AMERICAN BOARD OF OPHTHALMOLOGY: St. Louis, Oct. 15-19; Boston, December. Sec., Dr. S. J. Beach, 56 Ivie Rd., Cape Cottage, Maine.

AMERICAN BOARD OF ORTHOPAEDIC SURGERY. *Part II*. New York City, Feb. 9-10. Final date for filing application for Part II is Aug. 15. Address: Sec.-Treas., Dr. Harold A. Sofield, Room 1856, 122 S. Michigan Ave., Chicago.

AMERICAN BOARD OF OTOLARYNGOLOGY: Chicago, Oct. 4-7. Sec., Dr. D. M. Lierle, University Hospital, Iowa City.

AMERICAN BOARD OF PATHOLOGY: Chicago, Oct. 7-8. Final date for filing application is Sept. 1. Sec., Dr. Robert A. Moore, 507 Euclid Ave., St. Louis.

AMERICAN BOARD OF PEDIATRICS: *Written*. Under local monitors. June 24. *Oral*. Cleveland, Sept. 16-18; New York City, Oct. 21-23; Chicago, Dec. 9-11. Sec., Dr. John McK. Mitchell, 6 Cushman Road, Rosemont, Pa.

AMERICAN BOARD OF PLASTIC SURGERY: Examinations are given in June and November of each year in the home town of applicants. Sec.-Treas., Dr. Louis T. Byars, 400 Metropolitan Bldg., St. Louis, Mo.

AMERICAN BOARD OF PREVENTIVE MEDICINE AND PUBLIC HEALTH: *Parts I and II*. New York, Oct. 22-24. Final date for filing application is July 22. Sec., Dr. Ernest L. Stebbins, 615 N. Wolfe St., Baltimore.

AMERICAN BOARD OF PSYCHIATRY AND NEUROLOGY, INC. *Special Examination*. Chicago, Oct. 24-25. Final date for filing application is July 15. December, New York City. Sec. Dr. F. J. Braceland, 102-110 Second Ave., S.W., Rochester, Minn.

AMERICAN BOARD OF SURGERY: *Written*. Various Centers, October 26. Final date for filing application is July 1. Sec., Dr. J. Stewart Rodman, 225 S. 15th St., Philadelphia.

AMERICAN BOARD OF UROLOGY: *Written*, December. *Oral and Clinical*. Chicago, Feb. 11-15. Final date for receipt of case histories is Sept. 1, 1949. Sec., Dr. Harry Culver, 7935 Sunnyside Road, Minneapolis 18, Minn.

BOARDS OF MEDICAL EXAMINERS

ALABAMA: *Examination*. Montgomery, June 28-30. Sec., Dr. D. G. Gill, 519 Dexter Ave., Montgomery.

ALASKA: * *Juneau*, Sept. 6. Sec., Dr. W. M. Whitehead, Box 140, Juneau.

COLORADO: * *Endorsement*. Denver, July 5. Sec., Dr. W. W. King, 831 Republic Bldg., Denver.

CONNECTICUT: * *Examination*. Hartford, July 12-13. Secretary to the Board, Dr. Creighton Barker, 258 Church Street, New Haven.

DELAWARE: Dover, July 12-14. Sec., Dr. J. S. McDaniel, 229 South State St., Dover.

DISTRICT OF COLUMBIA: * *Examination*. Washington, Nov. 14-15. Sec., Dr. G. C. Ruhland, 4130 E. Municipal Bldg., Washington.

FLORIDA: * *Examination*. Jacksonville, June 26-28. Sec., Dr. Frank D. Gray, 12 N. Rosalind Ave., Orlando.

GUAM: *Endorsement*. Agaña, Last Friday of each month. Sec., Capt. C. K. Youngkin, Dept. of Public Health, Guam. % F.P.O., San Francisco, Calif.

HAWAII: * *Examination*. Honolulu, July 11-14. Sec., Dr. S. E. Doolittle, 881 S. Hotel St., Honolulu.

IDAHO: Boise, July 11-13. Sec., Miss Estella S. Mulliner, Bureau of Occupational Licenses, 355 State House, Boise.

ILLINOIS: Chicago, June 28-30. Superintendent of Registration, Mr. Fred W. Ruegg, Capitol Building, Springfield.

MAINE: Augusta, July 5-6. Sec., Dr. Adam P. Leighton, 192 State St., Portland.

MASSACHUSETTS: *Written*. Boston, July 12-15. Sec., Dr. George L. Schadt, 413 E. State House, Boston.

MONTANA: Helena, Oct. 3-5. Sec., Dr. Otto G. Klein, First National Bank Bldg., Helena.

NEVADA: Carson City, Nov. 7. Sec., Dr. George H. Ross, 112 N. Curry St., Carson City.

NEW HAMPSHIRE: Concord, Sept. 8-9. Sec., Dr. J. S. Wheeler, 107 State House, Concord.

NEW MEXICO: * Santa Fe, Oct. 10-11. Sec., Dr. Charles J. McGoe, Coronado Bldg., Santa Fe.

NEW YORK: Albany, Buffalo, New York and Syracuse, June 28-July 1. Sec., Dr. Jacob L. Lochner, 23 South Pearl St., Albany.

NORTH DAKOTA: * *Written*, Grand Forks, July 5-7. *Reciprocity*, Grand Forks, July 8. Sec., Dr. C. J. Glaspel, Grafton.

OREGON: * *Examination*. Portland, July 7-9. *Reciprocity*. Portland, July 22. Exec. Sec., Mr. Howard I. Bobbitt, 609 Failing Building, Portland.

PENNSYLVANIA: *Examination*. Philadelphia and Pittsburgh, July. Acting Sec., Mrs. B. G. Steiner, 351 Education Bldg., Harrisburg.

PURTO RICO: San Juan, Sept. 6-10. Sec., Dr. Luis Cueto Coll, Box 3717, Santurce.

RHODE ISLAND: * *Examination*. Providence, July 7-8. Chief, Mr. Thomas B. Casey, 366 State Office Bldg., Providence.

SOUTH CAROLINA: *Examination*. Columbia, June 27-29. *Endorsement*. Columbia, June 27-28, Aug. 1, Sept. 5 and Oct. 3. Sec., Dr. N. B. Heyward, 1329 Blanding St., Columbia.

SOUTH DAKOTA: * *Examination*. Pierre, July 19. Sec., Dr. G. J. Van Heuvelen, Capitol Bldg., Pierre.

UTAH: *Examination*. Salt Lake City, July 13-15. Sec., Dept. of Registration, Miss Rena B. Loomis, 324 State Capitol Bldg., Salt Lake City.

VERMONT: Burlington, June 21-23. Sec., Dr. F. J. Lawliss, Richford.

WASHINGTON: * Seattle, July 18-20. Sec., Mr. Edward C. Dohm, Department of Licenses, Olympia.

WEST VIRGINIA: Charleston, July 7-9. Commissioner, Public Health Council, Dr. N. H. Dyer, State Capitol, Charleston 5.

WISCONSIN: * *Examination*. Milwaukee, June 28-30. Sec., Dr. C. A. Dawson, Tremont Bldg., River Falls.

* Basic Science Certificate required.

BOARDS OF EXAMINERS IN THE BASIC SCIENCES

ALASKA: Juneau, Aug. 28. Sec., Dr. C. Earl Albrecht, Box 1931, Juneau.

DISTRICT OF COLUMBIA: Washington, Oct. 24-25. Sec., Dr. G. C. Ruhland, 4130 E. Municipal Bldg., Washington.

IOWA: Des Moines, July 12. Sec., Dr. Ben H. Peterson, Coe College, Cedar Rapids.

MICHIGAN: *Examination*. Detroit and Ann Arbor, Oct. 14-15. Sec., Miss Eloise LeBeau, 101 N. Walnut St., Lansing 15.

NEBRASKA: Omaha, Oct. 4-5. Director, Bureau of Examining Boards, Mr. Oscar F. Humble, Room 1009, State Capitol Bldg., Lincoln 9.

OREGON: Portland, Sept. 3 and Dec. 3. Sec., Mr. Charles D. Byrne, State Board of Higher Education, Eugene.

RHODE ISLAND: *Examination*. Providence, Aug. 10. Administrator of Professional Regulation, Mr. Thomas B. Casey, 366 State Office Bldg., Providence.

TENNESSEE: Memphis, July 8-9. Sec., Dr. O. W. Hyman, 874 Union Ave., Memphis 3.

WASHINGTON: Seattle, July 13-14. Sec., Department of Licenses, Mr. Edward C. Dohm, Olympia.

WISCONSIN: Milwaukee, Sept. 24 and Dec 3. Sec., Prof. W. H. Barber, Ripon College, Ripon.

Medical Motion Pictures

FILM REVIEWS

The Story of Wendy Hill. 16 mm., color, sound, 725 feet (1 reel), showing time eighteen minutes. Prepared in 1949 by the Federal Security Agency, Public Health Service and American Diabetes Association. Produced by Warner News, Inc. Procurable on loan from your State Health Department.

The story is portrayed by Dr. Wood, a general practitioner, about Wendy Hill, a young married woman, who is injured in traffic and found to have glycosuria when hospitalized. Dr. Wood, Wendy and her husband enact part of her emotional adjustment to the diagnosis of diabetes mellitus. Suspense is built up to the birth of her first baby.

Dr. Wood tells about some other diabetic persons in his community and emphasizes the occurrence of the disease in 2 children. There is emphasis on the way people worry and confuse the patient with misinformation about diabetes mellitus.

This production is intended to acquaint the lay audience with the fact that an asymptomatic diabetic faces hazards and that an early diagnosis is a basis for satisfactory treatment aimed at avoiding complications.

The motion picture is recommended for wide showing to lay audiences since it removes undue apprehension and misinformation about diabetes mellitus. The color photography and narration are excellent.

Communicable Diseases. 16 mm., color, sound, 1,250 feet (1 reel). Showing time thirty-five minutes. Prepared in 1949 in the Isolation Hospitals, Los Angeles, San Francisco and Oakland, Calif., through the cooperation of the local public health departments. Procurable on loan from Cutter Laboratories, Berkeley, Calif.

This motion picture illustrates the various aspects of common virus and bacterial diseases among children, although some adult cases are shown. It presents the clinical manifestations of various diseases such as measles, rubella (German measles), chickenpox, smallpox, typhus, tetanus, meningitis, poliomyelitis, diphtheria, scarlet fever and pertussis. In general, it covers the mode of transmission, incubation period, prodrome, syndrome, differential and direct diagnosis and the course of each disease. In some cases complications are stressed. Immunization at the appropriate time is the only reference to prevention. Both active

and passive immunization are mentioned for some of the diseases. Only slight reference is made to treatment.

One feature of this film which is not common to many films and may warrant some explanation is the fact that the physical structure is such that complete excerpts of both picture and narration could be made for each disease without alteration. It would be a simple matter of reproducing and cutting to produce a short on each disease which would permit the showing of any disease under discussion in four or five minutes without having to show the entire film at one time. The sequence for each disease is entirely independent of the others.

The film in its present state is probably much too long and covers too much information for normal class use, except when shown for overview, summary or review. It is designed primarily for use with all types of medical personnel who are working in positions or receiving training where recognition of common virus and bacterial diseases is essential. It should have special value for beginning practitioners who may never have come in contact with a number of these diseases during their training or internship, interns, medical students, public health workers and hospital staffs.

The narration is a little too rapid, especially at the beginning of the film, and a somewhat slower pace would have improved the teaching qualities of the film. The photography is very good, with the exception of the one scene illustrating rubella which is overexposed.

Bureau of Legal Medicine and Legislation

MEDICOLEGAL ABSTRACTS

Malpractice: Joint Liability of Physicians.—The plaintiff and his wife filed separate suits for damages against Dr. Davis and Dr. Woodard for injuries alleged to have resulted from their treatment of the wife's fractured leg. The two suits were consolidated for trial. The trial court entered judgments on directed verdicts in favor of Dr. Davis against both plaintiffs. The cases against Dr. Woodard were submitted to the jury, which found him guilty but fixed damages in favor of the wife only. The wife did not appeal from either judgment. The plaintiff-husband appealed both adverse judgments to the Court of Appeals in Kentucky.

The plaintiff's wife suffered a fractured femur in her right leg and Dr. Davis, who had treated the wife for other ailments, was consulted by telephone. On his instructions she was taken to the Norton Infirmary. It was recommended by Dr. Davis, and agreed to by the plaintiff, that since the fracture was of the oblique type, it should be treated by open reduction and the use of screws, pins or plates. This method involves surgery, which consists of making an incision through the flesh, exposing the bone and pinning the ends of the bone together, so Dr. Davis engaged Dr. Woodard, an orthopedic surgeon, to perform the necessary operation. This was done, according to the plaintiff without gaining the consent of either the plaintiff or his wife. Dr. Woodard attempted to reduce the fracture by applying external fixation, also contrary to their wishes. This method consists of placing pins above and below the break and connecting the pins with an external plate. By "screwing up on the plate" the bones are supposed to slip back into position, there to be held until healed. When external fixation can be used successfully, the average fracture will mend in eight weeks, so, approximately eight weeks after the accident, but without taking roentgenograms to make sure that the segments had properly united, both defendant physicians ordered the patient discharged from the hospital. The plaintiff objected to the discharge, however, and refused to remove his wife until roentgenograms had been made to determine whether or not union had been accomplished. Accordingly, a picture was made which disclosed that the segments were not united and that they were held in a position rendering it impossible for the bone to mend under the treatment applied. The pins and plates were therefore removed and traction was applied. This method was also abandoned when it was discovered that the segments were

still out of alignment. The leg then was placed in a plaster cast. This method also failed; and about five months later, to avoid further extension of the injury, the leg was amputated by a third physician not a party to this suit.

The plaintiff contended that the evidence introduced, together with that offered but rejected by the trial court, was sufficient to entitle him to have the case submitted to the jury on the theory that Dr. Davis did not relinquish control of the case on his wife's admission to the hospital, but rather that he continued in charge thereof and supervised the care of the patient, thus rendering him responsible for any negligence which occurred, either his own or that of Dr. Woodard.

The evidence offered and rejected was the print of a roentgenogram, the negative of which disappeared during the trial of the case. The trial court erred in rejecting this evidence, said the Court of Appeals. The print made from the negative of the roentgenogram is no less authentic than a print made from the negative of any other film. It is an exact reproduction of the picture on paper, or some other material, and often, if not always, is clearer than the negative to the eye of a layman. Continuing, the Court of Appeals said that the positive evidence of the plaintiff that Dr. Davis did continue in charge of the case and was in almost constant attendance on the patient while she was in the hospital was sufficient to warrant submission of the issues to the jury. The defendant physicians both testified that Dr. Davis retired from the case and completely turned it over to Dr. Woodard when the plaintiff's wife was admitted to the hospital. Dr. Davis further testified that he did not consult with the plaintiff or his wife in respect to the orthopedic work. However, the plaintiff testified that he constantly consulted Dr. Davis about the case, that he complained of the treatment and that he finally demanded that Dr. Davis discharge Dr. Woodard and engage another orthopedic surgeon. He also testified that Dr. Davis declined to dismiss Dr. Woodard and informed him that he could not call in another surgeon as long as Dr. Woodard was on the case. The plaintiff asked Dr. Davis on several occasions to show him roentgenograms, but the doctor, with one excuse or another, failed to comply with the request. Dr. Davis admitted that he called on the patient while she was in the hospital but claimed that he was treating her for other ailments; however, his testimony in respect to his visitations, before and after she suffered the broken leg, refuted this contention. He stated that before the leg was broken he was called on to treat her on an average of approximately once every two and half months, whereas, in the seven month period that she was confined in the hospital, he visited her eighty-eight times, an average of approximately three visits per week. He did not deny that he directed the patient to be removed from the hospital without having caused roentgenograms to be taken of the condition at that time.

As to whether or not Dr. Davis was liable for Dr. Woodard's negligence, the court said that where two physicians are engaged to treat the same patient concurrently, they may make such division of service as the circumstances may require, and each in serving with the other is rightly held answerable not only for his own negligence but also for any wrongful act or omission of the other which he observed and permitted to continue without objection, or which in the exercise of reasonable diligence in the circumstance he should have observed. From the evidence in this case, continued the Court of Appeals, the jury could have found either that Dr. Davis, in serving with Dr. Woodard, observed wrongful action or omissions on the part of the latter and permitted them to continue without objection, or that he failed in the exercise of reasonable diligence in the circumstances to observe such wrongful acts or omissions, if any occurred. We therefore hold that the evidence for the plaintiff was sufficient to require the submission of the case to the jury on this issue and that the trial court erred in directing a verdict for Dr. Davis.

The Court of Appeals also held that the jury should have awarded damages to the plaintiff against Dr. Woodard for expenses incurred because of the doctor's negligence. Accordingly the judgment in favor of Dr. Davis was reversed and a new trial granted and the judgment in favor of Dr. Woodward was reversed and the case remanded for the purpose of fixing proper damages.—*Beauchamp v. Davis et al.*, 217 S.E. (2d) 822 (Ky., 1948).

Current Medical Literature

AMERICAN

The Association library lends periodicals to members of the Association and to individual subscribers in continental United States and Canada for a period of three days. Three journals may be borrowed at a time. Periodicals are available from 1938 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 18 cents if three periodicals are requested). Periodicals published by the American Medical Association are not available for lending but can be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

American Journal of Clinical Pathology, Baltimore

19:1-98 (Jan.) 1949

- Widening Horizons in Pathology. T. J. Curphey.—p. 1.
Production of Therapeutic Fractions of Human Blood Serum: Removal of Salts with Ion-Exchange Resins. A. F. Reid and Frances Jones.—p. 10.
Interpretation of Findings in Cerebrospinal Fluid: III. Syndrome of Multiple Sclerosis. C. Lange and A. H. Harris.—p. 16.
Cardiolipin Antigen in Kolmer Complement-Fixation Test: Comparison with Kolmer Antigen. A. S. Giordano, R. J. Frost and Margaret W. Higginbotham.—p. 25.
Foam Cell Plaques in Intima of Myometrial Arteries: Presumptive Sign of Previous Irradiation. J. F. Sheehan.—p. 30.
Survey of Direction and Operation of Blood Banks of Ten Large Hospitals. R. F. Norris.—p. 35.
Recent Advances in Our Knowledge of Prothrombin: Brief Review. W. H. Seegers and A. G. Ware.—p. 41.

Am. J. Roentgenol. & Rad. Therapy, Springfield, Ill.

61:1-146 (Jan.) 1949. Partial Index

- Anatomy and Physiology of Lesser Circulation as Indicated by Its Behavior in Health and Disease. L. R. Sante.—p. 1.
Peripheral Vascular Disease in Lungs. R. P. Barden and D. A. Cooper.—p. 17.
Lung Function. R. D. Dripps.—p. 23.
Conditions Which Result in Increased Pressure Within Lesser Circulation. C. A. Good and T. J. Dry.—p. 26.
Evaluation of Lesser Circulation as Portrayed by Roentgenogram. W. W. Wasson.—p. 30.
Value of Angiocardiography in Establishing Diagnosis of Pericarditis with Effusion. R. G. Williams and I. Steinberg.—p. 41.
*Rapid Method of Roentgenologic Examination of Small Intestine: Preliminary Report. S. Weintraub and R. G. Williams.—p. 45.
Procurement and Critical Appraisal of Width Diameter of Midline Retrogastric Soft Tissues. M. H. Poppel, A. Sheinmel and E. Mednick.—p. 56.
Bone Sclerosis in Leukemia and in Non-Leukemic Myelosis. F. Windholz and S. E. Foster.—p. 61.
*Lumbar Intervertebral Disk Protrusion Contralateral to Side of Symptoms and Signs: Myelographic Verification in 2 Cases. J. P. Murphy.—p. 77.
Bilateral Post-Traumatic Ulnocuneiform Articulation. H. Milch.—p. 80.
Mixed Tumors of Palate: Late Results in 5 Cases Treated by Telecurietherapy. M. Cutler.—p. 82.
Effect of Hyaluronidase on Absorption of a Subcutaneously Deposited Radiopaque Substance. N. Simon and L. Narins.—p. 91.

Roentgenologic Examination of Small Intestine.—Weintraub and Williams found that by using a barium sulfate-isotonic sodium chloride mixture as the contrast medium followed by ice cold isotonic sodium chloride solution they were able to obtain a considerable decrease in the transit time of the meal through the small intestine without distorting the mucosal pattern. In many cases the mucosal pattern was more clearly delineated, and there was more complete filling of the entire small intestine than that obtained by the hourly film technic. In 90 per cent of the normal cases studied, the examination was completed in one hour. In pathologic cases the rate of transit was also accelerated without sacrificing the appearance of the lesions. It is known that in "deficiency states" or "disordered motor function patterns" and in sprue there is a delay in the passage of the barium sulfate through the small intestine. The authors found this to be true with their method, but the delay is only relative. Tumors of the small intestine and lesions of enteritis are clearly demonstrated with the rapid method.

Intervertebral Disk Protrusion Contralateral to Side of Symptoms.—Murphy emphasizes the value of myelographic investigation of patients with protrusions of the lumbar intervertebral disks in revealing the unsuspected or obscure. The

clinical impression in both of the 2 cases described in this report was that of herniated nucleus pulposus on the left, and myelograms disclosed the protrusion to lie on the right. Had operation been undertaken without myelography, the site of major pathologic condition might not have been investigated in either of these cases. Bilateral exploration of the lumbar interspaces was performed in each, because of discrepancy between clinical and roentgenographic findings, but the disk protrusions were found only where the myelograms had indicated that they were present. Without contrast medium examination the usual unilateral exposure might well have resulted in persistence of symptoms and signs, inasmuch as the wrong side would have been explored.

Archives of Otolaryngology, Chicago

47:705-856 (June) 1948

- Position of Bronchoesophagology in Great Britain. G. E. Martin.—p. 705.
Evaluation of Fungous Disease of External Auditory Canal. J. J. Conley.—p. 721.
Vestibular Findings Before, During and After Vestibular Damage Resulting from Streptomycin Therapy. J. Winston.—p. 746.
Dizziness as Problem in Diagnosis in Army Hospital. A. J. Cracovaner.—p. 752.
Hydrogen Ion Concentration of Nasal Secretion in Situ in Infants and in Children, with Comment on pH Values in Pediatric Nasal Medication. N. D. Fabricant and M. A. Perlstein.—p. 765.
*Loose Dentures as Esophageal Problems. J. R. Richardson.—p. 772.
Psychosomatic Components of Disease in Otolaryngology. R. Henner.—p. 789.
Reconstruction of Helix. M. L. Lewin.—p. 802.
Protruding Ears: Plastic Correction; Planning Technic; Operation. A. M. Brown.—p. 809.
New Diagnostic Procedure for Boeck's Sarcoid: Preliminary Report. D. L. Poe.—p. 818.
New Drug for Control of Cough. L. E. Silcox.—p. 822.

Loose Dentures as Esophageal Problems.—Richardson states that many dentists and some physicians do not appreciate the danger to the patient when a denture fails to pass through and instead lodges in the esophagus. The growing use of radiolucent acrylic compounds for the construction of dentures makes the roentgenologist's job of diagnosis increasingly more difficult. When no radiopaque pins are used to hold the tooth to the denture, roentgen diagnosis will be missed sometimes. The endoscopist must be consulted. For the removal of large dentures, ether is the anesthetic of choice. It provides maximum relaxation, permitting maximum working space. Extraction should not be attempted without adequate armamentarium. More harm than good may result from only slight manipulation of the foreign body. Chemotherapy with sulfonamide compounds and penicillin has done away with the necessity for immediate external incision and drainage for esophageal perforations. Often surgical treatment is not necessary. The author cites cases which demonstrate that the popular temporary denture made to supply upper central teeth should be abandoned by the dental profession. The loose removable bridge should not be employed, as it jeopardizes its wearer. The risk of wearing a broken denture needs greater publicity. The complete upper denture should be redesigned.

Archives of Pathology, Chicago

46:1-86 (July) 1948

- Genesis of Gangrenous and Reparative Processes in Trench Foot. M. Block.—p. 1.
Development of State Refractory to Growth of Mouse Tumor Implanted in Anterior Chamber of Guinea Pig Eye. J. A. Schilling and A. C. Snell Jr.—p. 35.
Paradoxical Embolism: Review of Literature, with Report of Case in Which This Condition Followed Administration of "Dicumarol." R. L. Young, R. C. Derbyshire and O. S. Cramer.—p. 43.
Hereditary Renal Disease and Amyloidosis in Mice. W. E. Heston and Margaret K. Deringer.—p. 49.
Visceral Lesions in Case of Rheumatoid Arthritis. P. Gruenwald.—p. 59.

Bulletin of the Los Angeles Neurological Society

13:181-244 (Dec.) 1948

- Cranial Injuries Among Indians of North America: Preliminary Report. C. B. Courville.—p. 181.
Massive Intraventricular Epidermoid: Review of Literature and Report of Case. H. W. Duiker and J. M. Sanchez-Perez.—p. 220.
Penicillin Therapy in Multiple Brain Abscesses: Report of Case with Autopsy Findings. H. M. Cuneo.—p. 228.
Fear Reaction Induced by Aphasia. G. N. Thompson.—p. 233.

Canadian Medical Association Journal, Montreal

60:1-112 (Jan.) 1949. Partial Index

- *Plaster of Paris as Source of Infection in Tetanus and Gas-Gangrene. E. G. D. Murray and G. D. Denton.—p. 1.
- Bacteriologic Analysis of Plaster of Paris Bandages. L. Greenberg.—p. 4.
- Migrainous Disorders of Smooth Muscle System. T. Owen.—p. 7.
- Diagnostic Bronchoscopy. C. B. Schoemperlen.—p. 11.
- Treatment of Chronic Sinusitis in Children. V. de Boissière.—p. 14.
- Myasthenia Gravis: Brief Notes Regarding Diagnosis and Treatment. F. B. Walsh.—p. 17.
- North American Blastomycosis. J. A. McLaren.—p. 26.
- Gunshot Wounds of Genitals. J. M. Campbell.—p. 32.
- Vesical Neck Syndrome in Women of Middle Age. M. Seng, W. J. Cochrane and F. G. Mack.—p. 39.
- Depressive Reactions: Their Importance in Clinical Medicine. R. O. Jones.—p. 44.
- Unusual Congenital Deformity of Kidney. R. E. Powell.—p. 48.
- Study of Congenital Heart Disease by Cardiac Catheterization. B. C. Brown, N. J. England, P. P. Hauch and J. A. Lewis.—p. 50.
- Pelvic Allergy. C. Macpherson.—p. 54.
- Stimulation and Inhibition of Gastric Secretion in Cats by Barbiturate and Thiourea Derivatives. R. L. Noble.—p. 55.
- Working of Ontario Cancer Foundation, Pilot Clinic at Kingston. R. C. Burr.—p. 58.
- Anesthesia for Bronchoscopy and Esophagoscopy. W. A. Butt and H. W. Boyes.—p. 62.
- Cancer of Vulva. W. G. Cosbie.—p. 64.

Plaster of Paris as Source of Tetanus and Gas Gangrene.—Murray and Denton report fatal tetanus in a patient following an elective operation on a tuberculous knee. *Clostridium tetani* was found in the wound exudate, together with *Pseudomonas aeruginosa*, *Aerobacter aerogenes* and an anaerobic streptococcus. The strain of *Cl. tetani* isolated from the wound before death produced fatal tetanus in an unprotected guinea pig. Material from the surgical wound post mortem gave profuse growth of *Cl. tetani*, *Clostridium perfringens* and *Pseudomonas aeruginosa*. Although the plaster and dressings on the wound when the tetanus first developed had been discarded, other plaster bandages from the store room were examined and were found to contain various pathologic micro-organisms, including *Cl. tetani* and gas gangrene clostridia. The authors feel that plaster of paris as a source of infection of wounds has been overlooked. It is probably more common than has been realized. Difficulties are involved in the satisfactory sterilization of plaster of paris for surgical use.

Indiana State Medical Assn. Journal, Indianapolis

42:1-96 (Jan.) 1949

- Disability Evaluation: Definition of Disability. E. D. McBride.—p. 19.
- *Cutaneous Toxicity of Dihydroxydichlorodiphenylmethane: New Fungicide for Athlete's Foot. L. E. Gaul and G. B. Underwood.—p. 22.
- Pregnancy and Rh Factor. Edith L. Potter.—p. 24.

42:97-184 (Feb.) 1949

- Gastric and Duodenal Ulcer. I. S. Ravdin.—p. 115.
- Present-Day Status of Tests of Hepatic Function. H. R. Butt.—p. 120.
- Primary Tularemia Pneumonia Treated with Streptomycin: Report of Case. S. L. Johnson.—p. 125.
- Cardiovascular Symptoms in Chronic Brucellosis: Resemblance to Neurocirculatory Asthenia. D. L. Urschel.—p. 128.

Cutaneous Toxicity of Fungicide.—Gaul and Underwood cite the case of a man, who had severe dermatitis of the feet after he had applied to what he considered athlete's foot "a new twenty-four hour treatment that gives 5-way protection." This fungicide contained dihydroxydichlorodiphenylmethane. Attempts to find fungi on the lesions of the feet failed in repeated tests. Patch tests were made with the fungicide used and from the results obtained it was deduced that the dihydroxydichlorodiphenylmethane was the offender. Tests were made also with materials from the shoes. Patch tests with a rubber adhesive surface of the cloth lining, a coated or impregnated fabric and the insole packing produced positive reactions. It was concluded that this patient had a contact dermatitis of the feet from materials in a pair of shoes. It was complicated by a fungicide. This diagnosis was proved correct because the institution of care and management brought about a prompt involution. Patients who complain of their feet itching on removing their shoes at night should have patch tests performed with the shoes. Footwear is a common cause of conditions given the lay diagnosis of athlete's foot.

Journal of Urology, Baltimore

60:797-1162 (Dec.) 1948. Partial Index

- Clinical Endocrinology and Cancer Problem. C. P. Rhoads.—p. 797.
- Investigative Approaches to Physiology of Reproduction. C. Huggins.—p. 812.
- Instrumental Visualization of Renal Pelvis and Its Communications: Proposal of New Method; Preliminary Report. H. R. Trattner.—p. 817.
- Lymphosarcoma of Kidney. T. E. Bibson.—p. 838.
- Transthoracic Nephrectomy. H. Mortensen.—p. 855.
- Transureteropyelostomy and Transuretero-Ureterostomy: Indications and Operative Technic. T. D. Moore.—p. 859.
- *Formation of Artificial Urinary Bladder with Perfect Continence: Experimental Study. S. W. Rubin.—p. 874.
- Transurethral Resection for Neurologic Bladder. J. E. Dees.—p. 907.
- Faulty Healing of Suprapubic Sinus, Resulting in Fatal Peritonitis: Report of 2 Cases in Paraplegics. V. A. Pate Jr. and R. C. Bunts.—p. 915.
- *Advantage of Suprapubic Drainage Over Catheter or Other Methods of Urinary Drainage in Acute Bladder Paralysis Which Result from Traumatic Injuries of Spinal Cord. M. L. Boyd.—p. 922.
- 1.8 Per Cent Urea Solution as Isosmotic Fluid for Transurethral Prostatic Resection. C. E. Ebert and L. Bavetta.—p. 933.
- New Diagnostic Methods in Prostatic Cancer: I. Investigation of Chromatographic Adsorption Technic for Qualitative Analysis of Urinary 17-Ketosteroids. H. Brendler and W. W. Scott.—p. 937.
- Urethrography in Infants and Children. L. E. Hackworth.—p. 947.
- Neurogenic Pain Simulating Urinary Tract Disease. L. Motley.—p. 952.
- *Treatment of Acute Uncomplicated Gonococcal Urethritis with Single Dose Water-Soluble Penicillin Preparation. L. Loewe, T. Rosenthal, W. Leifer and others.—p. 958.
- Caronamide and Its Effectiveness in Urogenital Infections. D. D. Merren, M. L. Rosenberg and S. A. Vest.—p. 964.
- Streptomycin Treatment of Genito-Urinary Tuberculosis: Preliminary Report. J. K. Lattimer, W. H. Stearns, J. B. Amberson and others.—p. 974.

Formation of Artificial Urinary Bladder.—Rubin describes formation of an artificial bladder from a portion of the sigmoid. He performed this operation successfully in 7 dogs; the animals were continent and voided with good control. There is no reason why the procedure should not be attempted in man, especially when trying to cure infiltrating neoplasia of the bladder. With this procedure one can obtain a bladder which exhibits perfect control of the passage of urine through the urethra. The operation may be performed in man as a one stage procedure. It would be advisable to start with the bilateral implantation of the ureters into the desired area of the sigmoid colon. Following this, the necessary colon resections and anastomoses can be performed. Should the patient take a turn for the worse so that the rest of the procedure could not be carried to a successful termination, a colostomy should be made for the deviation of the feces. The rest of the procedure could then be completed at a second stage when the patient's condition is satisfactory.

Suprapubic Drainage in Bladder Paralysis.—In Boyd's experience treatment of disturbances of micturition accompanying acute injuries to the spinal cord is best accomplished by cystostomy except in patients having lesser injuries with transient disturbances of micturition. Suprapubic drainage can be temporary or permanent depending on the extent and duration of the disturbance of bladder function and, also, on whether or not adequate bladder function can be restored by transurethral resection of the bladder neck. Automatic micturition and most of the other types of abnormal micturition which occur in these patients are not satisfactory and rarely should be permitted to continue. Cystostomy should be performed at once in nearly all of the cases of paralysis in which it is likely that disturbances of micturition will continue for more than six or eight weeks. The benefits of cystostomy are: 1. There is adequate urinary drainage which avoids overdistention of the bladder and permits a bladder infection to be well controlled because of the adequate drainage by bladder irrigations and urinary antiseptics. 2. Traumatism of the urethra by a catheter does not occur, and urethral and periurethral infections, prostatitis, seminal vesiculitis and epididymitis are avoided. In the author's experience the patients' families and unskilled attendants find it much easier to care for cystostomy patients than they do for those having unsatisfactory types of abnormal micturition or intermittent or continuous catheter treatments.

Single Dose of Penicillin for Gonococcal Urethritis.—This communication by Loewe and his associates deals with a new treatment of acute uncomplicated gonococcal urethritis. Treatment consists of a single dose of 300,000 units of penicillin

in gelatin-dextrose mixture. The penicillin gel was administered to the first 52 patients of the series as a shallow intramuscular deposit in the thigh. The remaining 90 patients, because of ease of administration and as a time-saving device in the ambulatory subject, received the injection in the deep subcutaneous tissues of the posterior aspect of the upper arm. Of 128 patients available for statistical study, 123 were satisfactorily "cured" and 2 had reinfections.

Kansas Medical Society Journal, Topeka

50:1-56 (Jan.) 1949

Migraine. B. L. Keyes.—p. 1.

Treatment of Genitourinary Tuberculosis with Streptomycin. A. D. Mitchell.—p. 7.

*Treatment of Acute Stage of Anterior Poliomyelitis (Study on Use of Curare). M. E. Pusitz.—p. 11.
Recurrent Ileus Due to Gallstones. L. E. Vin Zant and J. S. Hibbard.—p. 17.

Treatment of Acute Anterior Poliomyelitis.—Pusitz treated 104 consecutive cases of acute infantile paralysis in the epidemic of 1946. Twelve cases of mild disease were treated in the home. In this group neostigmine was used alone with fair effect in relieving pain and muscle spasm. Of the 92 hospitalized patients, 14 were treated with hot packs; 3 of these were effectively treated with hot packs alone; 2 had neostigmine added to obtain relief. In 3 cases of hot packs and neostigmine the relief was not adequate, but immediately became adequate when the patients were switched to curare therapy alone. In 6 cases hot packs were not effective enough and so the patients were immediately transferred to treatment with curare alone without neostigmine. All obtained immediate relief with curare. Curare was used in a total of 53 cases. The drug was administered intramuscularly three times daily, starting with a minimum dose of 0.9 unit of intocostin® per kilogram of body weight, and increasing gradually until an effective dose was reached, never more than 1.5 units. In no case did curare fail to relieve pain to the major extent, and the same was true for muscle spasm. There was absolutely no residual paralysis in 57 of the hospitalized and in 11 of the not hospitalized patients. There were 6 deaths. There were 6 cases of involvement of the upper extremities, and in only 1 of these was there residual paralysis of the deltoid. Of 17 patients with braces, 4 discarded the braces within four months. Thirteen were still using braces in November 1947. Two are seriously paralyzed with involvement of the upper and lower extremities. No true scoliosis has appeared and all contractures have so far been adequately taken care of.

Medicine, Baltimore

27:379-457 (Dec.) 1948

Clinical Features and Pathogenesis of Tropical Sprue: Observations on Series of Cases Among Italian Prisoners of War in India. M. Stefani.—p. 379.

*Diabetic Glomerulosclerosis: Clinical and Pathologic Observations with Special Reference to Doubly Refractile Fatty Cells and Casts in Urine. H. Rifkin, J. G. Parker, E. B. Polin and others.—p. 429.

Diabetic Glomerulosclerosis.—Rifkin and his associates point out that in 1936 Kimmelstiel and Wilson described a renal glomerular lesion, which they called intercapillary glomerulosclerosis. This was found in association with a previous history of diabetes, severe and widespread edema of the nephrotic type, gross albuminuria, frequently with hypertension and renal decompensation. In addition to the striking hyaline thickening of the intercapillary connective tissue of the glomerulus, they described a deposition of fat with focal areas of doubly refracting lipid in the tubules and in the interstitial tissues of the kidney. It was the contention of these authors that this lesion was essentially degenerative in nature. They suggested that arteriosclerosis and diabetes may play a part in its causation. Since this original description, a number of excellent reports have appeared in the literature expressing varied opinions concerning the relationship of the histologic lesion in the glomerulus to diabetes mellitus. The authors present observations on 45 patients in whom during life a diagnosis of diabetic glomerulosclerosis had been made. Twenty-two of these patients came to necropsy and 21 of

these revealed histologic evidence of the specific glomerular lesion. The authors conclude that a distinct clinical picture is associated with diabetic glomerulosclerosis. This picture includes diabetes, edema, hypertension, combined diabetic and hypertensive retinopathy, albuminuria and lipid cells in the urinary sediment. The development of the clinical syndrome is related to the combined effects of renal arteriolar and glomerular capillary lesions. The presence of doubly refractile fatty cells or casts in the urinary sediment establishes the diagnosis of diabetic glomerulosclerosis, provided it is properly related to other clinical data.

New England Journal of Medicine, Boston

240:81-118 (Jan. 20) 1949

*Gastrojejunocolic Fistula: Review of 9 Cases, with Use of Vagus Resection as Part of Operative Procedure on One. H. H. Faxon and W. G. Schoch Jr.—p. 81.

Hepatitis Without Jaundice and Without Hepatomegaly. T. J. Domenici.—p. 88.

Acute Focal Edema of Brain in Children with Head Injuries. W. Pickles.—p. 92.

Extrarenal Azotemia: Report of Severe Case with Recovery. C. F. Appel and J. H. Townsend.—p. 95.

Antibacterial Chemotherapy. A. Goldstein.—p. 98.

Peptic Ulcer of Esophagus with Stricture Formation.—p. 107.

Hematoma of Broad Ligament and Sigmoid Mesentery.—p. 111.

Gastrojejunocolic Fistula.—According to Faxon and Schoch gastrojejunocolic fistula following gastrojejunostomy is one of the most serious complications of gastric surgery. The authors report 9 patients with this complication and review the literature. The symptoms are usually attributable to the secondary effects of diarrhea induced by the reflux of irritating contents of the large bowel into the upper jejunum and stomach. The treatment of gastrojejunocolic fistulas is surgical and consists of removing the fistula, restoring bowel continuity and correcting the ulcer diathesis. Preparation of the patient for excision of the fistula should include the institution of an ascending colostomy as recommended by Pfeiffer as a preliminary procedure in all patients whose general condition is unsatisfactory. The tendency in these patients for an ulcer to become reactivated after an excision of the fistula and restoration of intestinal continuity is so strong that unless corrective surgical measures have been carried out at the earlier operation they should be adopted before the patient is finally discharged from the hospital. A case is cited for the first time in which, after excision of the fistula, transthoracic vagotomy was used as the definitive treatment of the ulcer diathesis. This patient was asymptomatic a year after the vagus resection.

Quart. Bull. of Sea View Hospital, Staten Island, N.Y.

10:47-92 (April) 1948, Partial Index

*Decortication and Lobectomy for Uncontrolled Pulmonary Tuberculosis with Tuberculosis Empyema or Unexpandable Lung. I. A. Sarot.—p. 47.

Cardiac Arrest for Thirty Minutes, Kidney Shutdown, Uremia and Recovery. C. P. Bailey and L. Rubenstein.—p. 60.

Decortication and Lobectomy for Tuberculosis.—Sarot reports 2 cases of uncontrolled lobar tuberculosis, one of which was complicated by a mild tuberculous empyema, the other by an unexpandable lung. Each was treated successfully by lobectomy (with extrapleural dissection) and decortication of the remaining lobe. It is suggested that when a pneumothorax has been unsuccessful in obtaining cavity closure despite a seemingly adequate anatomic collapse of the diseased lobe, one should proceed with lobectomy (and decortication, if necessary) if the lung is slow in reexpanding rather than expose the patient to the risk of spread of the disease during a prolonged period of reexpansion before thoracoplasty.

Rocky Mountain Medical Journal, Denver

46:1-88 (Jan.) 1949

Psychological Factors in Everyday Practice. O. S. English.—p. 21.
Current Therapeutic Procedures in Coronary Disease. W. S. Middleton.—p. 27.

Hemochromatosis with Aplastic or Refractory Anemia. E. Hildebrand and J. A. Layne.—p. 32.

Inversion of Uterus: Report of Case. R. Mundt.—p. 36.

Carcinoma of Skin. T. K. Mahan.—p. 38.

Malignancy Records. C. L. Shields.—p. 43.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted. Single case reports and trials of new drugs are usually omitted.

Australian and New Zealand J. Surgery, Sidney

18:75-167 (Oct.) 1948

- *Painful Sequelae of Injuries to Peripheral Nerves. S. Sunderland and M. Kelly.—p. 75.
End Results of Operations for Intrathecal Extramedullary Spinal Tumors, with Report of 9 Patients Whose Tumors Were Removed Between 14 and 22 years Ago. L. Rogers.—p. 119.
Trend in Urologic Practice Abroad. H. Mortensen.—p. 124.

Painful Sequelae of Injuries to Peripheral Nerves.—In the 278 cases analyzed by Sunderland and Kelly, severe pain in the hand or foot persisted for at least five weeks after the receipt of an injury to a nerve trunk and the pain was not related to damage or to involvement of non-neural tissues. The term *causalgia* has been applied to this pain, which is primarily a sequel of gunshot lesions in which stretch of the nerve appears to play an important part. In the great majority of cases it follows damage to the main sensory pathways from the palm or the sole. The higher in this pathway the level of the lesion, the more likely is *causalgia* to ensue. Its incidence bears no relation either to neuroma formation or to the degree of visible damage to nerves or other tissues. Though sympathectomy has proved valuable, there is no other evidence to suggest that the sympathetic system is especially involved. The clinical evidence suggests that the painful sequelae of nerve injuries are the effect of the spread of damage to the central nervous system by retrograde and transneuronal changes. A center of abnormal spontaneous activity is thereby set up in the cord, which acts as a focal point for the dissemination of spreading disturbances involving wider and wider areas of the cord. These produce effects on the peripheral tissues via adjacent posterior roots (hyperalgesia), while a succession of abnormal impulses reaches the cerebrum, producing effects on the sensorium (spontaneous pain). Anatomic and physiologic evidence is produced which lends support to this interpretation. In most cases of *causalgia* there is spontaneous cure, and surgery should therefore be reserved for the cases of severe and stubborn *causalgia*.

British Journal of Industrial Medicine, London

6:1-64 (Jan.) 1949

- Chemical Carcinogenesis: Review. I. Hieger.—p. 1.
*Fluctuating Atmospheric Pressures: Novel Environmental Variant Observed in Submarines. F. P. Ellis.—p. 24.
Health and Environmental Conditions in Brickworks. G. F. Keatinge and N. M. Potter.—p. 31.

Atmospheric Pressures in Submarines.—Ellis points out that in recent years the need has been stressed for relating the design of fighting equipment to the physiologic characteristics of the men who must operate such equipment. The changes in environment encountered in submarines, although of less violent degree than those experienced by airmen, nevertheless involve certain hardships. The importance of providing the submarine sailor with an optimal environment is still less generally appreciated than in the case of air crews. The introduction of the "snort" or "schnorkel" to British submarines led to a review of the human factors which are related to the design and operation of modern submarines. The German "schnorkel" or British "snort" consists of a hollow mast which can be raised or lowered and connects the interior of a submerged submarine with the ambient air above the surface of the sea. Flooding of the submarine is prevented by a float-operated valve at the upper end of the mast. The mast contains an induction pipe through which air is drawn into the submarine, and an exhaust pipe through which the exhaust gases pass to an outlet a few feet below the inlet to the schnorkel induction, where the gases bubble out below the surface of the sea. The "snort" permits the batteries to be charged in greater safety than previously. An opportunity for examining the nature of the pressure variations and certain related chemical changes in the atmosphere arose during an early "snorting" cruise in temperate waters in a British submarine, which proceeded on the main engines and the snort by day, and at greater depths on the motors with the snort lowered in the hours of darkness. The author describes

pressure measurements and chemical measurements that were made, and the effects of changes in these factors on the crew. There is no evidence to suggest that special conditions will occur in snort-fitted submarines to influence adversely the health or efficiency of the crews, provided that the provision of an optimal environment for the men is borne in mind at all times by those responsible for designing the submarines and for handling them after they are built.

British Journal of Ophthalmology, London

33:1-66 (Jan.) 1949

- Rupture of Zonule in Intracapsular Cataract Extraction—New Method. D. B. Kirby.—p. 3.
Studies on Intra-Ocular Fluids: I. Reducing Substances in Aqueous Humor and Vitreous Body. S. Duke-Elder and H. Davson.—p. 21.
Stabilization of Refraction and Its Role in Formation of Ametropia. A. Kettesy.—p. 39.
Pigment-Anomaloscopy: New Procedure for Testing Color-Sense. A. Kettesy.—p. 47.
New Method of Applying the Screen Test for Inter-Ocular Muscle Balance. V. T. Lees.—p. 54.

British Medical Journal, London

1:83-122 (Jan. 15) 1949

- Pulheems: New System of Medical Classification. R. T. Fletcher.—p. 83.
"Paludrine" (Proguanil) in Prophylaxis and Treatment of Malarial Infections Caused by West African Strain of *P. falciparum*. G. Covell, W. D. Nicol, P. G. Shute and M. Maryon.—p. 88.
Intravenous "Paludrine" (Proguanil). R. N. Chaudhuri and H. Chakravarti.—p. 91.
*Plasma-Cell Mastitis: Report of Case with Bilateral Involvement. M. Cutler.—p. 94.
Two Common Non-Malignant Conditions of Breast: Clinical Features of Cystic Disease and Pain Syndrome. D. H. Patey.—p. 96.
Amethocaine Hydrochloride: Severe Toxic Effects when Used for Bronchoscopy. C. A. Jackson.—p. 99.
"Gammexane" and Mosquito Control in Belgian Congo. G. Davidson.—p. 101.

Plasma Cell Mastitis.—According to Cutler, plasma cell mastitis is a clinical and pathologic entity of uncertain etiology. The onset is sudden, with pain, tenderness and redness of the skin. At first the whole breast is swollen and the axillary nodes are enlarged and tender. Usually there is some rise in temperature, and sometimes there are chills. A creamy discharge from the nipple is not uncommon. The acute symptoms soon subside, and the process enters the subacute stage. The pain and tenderness diminish and the swelling decreases, leaving a diffuse nodularity. After a relatively short period the subacute signs disappear and the disease enters a chronic stage. There remains a discrete, hard, solid residual mass with attachment to the overlying skin and often retraction of the nipple. The axillary nodes are usually enlarged and firm. The breast presents the picture of mammary cancer, rendering a diagnosis of cancer almost imperative, and it is only by eliciting from the patient the details of the initial inflammatory phases of the disease that an error in diagnosis is avoided and the patient saved from a radical mastectomy. After the diagnosis has been established by biopsy, treatment should consist of irradiation with bilateral involvement is reported in which irradiation during the acute or subacute stages followed by conservative surgical excision of the remnant. A case of plasma cell mastitis demonstrated the lesion to be highly radiosensitive.

Edinburgh Medical Journal

55:641-704 (Nov.) 1948

- Valedictory Address. W. F. T. Haultain.—p. 641.
Sclerosing Angioma—A Non-Melanotic Pigmented Tumor of Skin. E. K. Dawson.—p. 655.
Role of Surgery in Treatment of Carcinoma of Cervix. C. D. Read.—p. 675.
Quarantine for Plague in Scotland During Sixteenth and Seventeenth Centuries. J. Ritchie.—p. 691.

Journal of Tropical Medicine and Hygiene, London

52:1-22 (Jan.) 1949

- Incidence of Protozoal and Bacterial Intestinal Infections in Men of the Royal Air Force Returning from Service in Tropical and Subtropical Lands. A. G. Rickards.—p. 2.
Diagnosis of Schistosomiasis by Rectal and Vesical Snips Based on 150 Autopsies. M. Gelfand and W. F. Ross.—p. 12.

Acta Clinica Belgica, Brussels**3:305-394 (July-Aug.) 1948. Partial Index**

*Clinical Observations on Treatment of Bouillaud's Disease with Sodium Salicylate and Acetyl Salicylic Acid. J. Roskam.—p. 305.
Indications for Surgical Treatment of Essential Arterial Hypertension: Some Results. L. Dumont and A. Divey.—p. 312.

Salicylates in Rheumatic Fever.—Roskam says that among 53 patients with acute polyarticular rheumatism treated at his clinic at the university of Liège between 1938 and 1948 there were 7 who did not respond to sodium salicylate. All of these were treated later with acetylsalicylic acid and responded favorably to this treatment. The author presents the histories of 4 patients which show the superiority of acetylsalicylic acid over sodium salicylate in certain cases of polyarticular rheumatism. The author demonstrates on the basis of a case history the importance of the determination of the sedimentation rate of the erythrocytes during the treatment of rheumatic fever.

Acta Haematologica, Basel**1:153-216 (No. 3) 1948. Partial Index**

Arthralgic Leukemia in Children. J. Bichel.—p. 153.
Histogenesis and Diagnosis of Osseous Type of Gaucher's Disease. M. Block and L. O. Jacobson.—p. 165.
*Intravenous Iron Therapy. K. Agner, N. S. E. Andersson and N. G. Nordenson.—p. 193.

Intravenous Iron Therapy.—Agner and his associates say that although iron deficiency anemias are usually most effectively treated by the oral administration of iron, in certain dyspeptic disturbances intravenous therapy might be desirable. An iron preparation made from spleens of horses proved to have an antigenic effect and sometimes caused severe secondary reactions when injected intravenously. The preparation now used by the authors for intravenous administration is a colloid. They report 20 cases in which they used this colloidal ferri-iron. Seventeen of the patients responded with an increase in hemoglobin, erythrocytes, reticulocytes and iron content of the serum. Subjective improvement was observed in 19 of the patients. There were no undesirable secondary effects in connection with the injections, but the authors stress that paravenous injection of the iron solution must be avoided.

Archiv für Psychiatrie u. Nervenkrankheiten, Berlin**180:529-850 (Sept. 16) 1948. Partial Index**

*Neuritis and Polyneuritis After Typhoid-Paratyphoid Vaccination; Further Contribution to Problem: "Allergy and Nervous System." A. Bannwarth.—p. 531.
Peculiar Cerebral Lesions Produced in Dogs by Depot Insulin. F. Töbel.—p. 569.
Serofibrinous Meningopathy of Spinal Canal After Infected Brain Injury. G. Schaltenbrand and F. Töbel.—p. 592.
Psychologic Examinations of Patients with Brain Injuries. IV. Disturbance of Memory Due to Brain Trauma. A. Busemann.—p. 616.
Study of Cerebral Thrombo-angiitis Obliterans. J. E. Meyer.—p. 647.
Neurogenic Form of Sudeck's Syndrome. J. Hirschmann.—p. 681.

Neuritis After Typhoid-Paratyphoid Vaccination.—Bannwarth reports 8 soldiers with neuritis or polyneuritis after typhoid-paratyphoid vaccination. There was a definite causal relationship between the vaccination and the disease which occurred in 5 of the men after the second or third vaccination, and in 3 after the first vaccination. Three patients had acute neuritis of the brachial plexus, 1 had abortive polyneuritis and 1 bilateral neuritis of the lumbosacral plexus. The remaining 3 presented the classic picture of the Guillain-Barré syndrome. Great increase in the protein in the cerebrospinal fluid without corresponding increase in cells was particularly pronounced in these 3 patients. Milder changes in the cerebrospinal fluid were observed in the other patients. The polyneuritis or neuritis after typhoid-paratyphoid vaccination is a sequel of an allergic, or parallergic reaction to the parenteral introduction of antigens of dead bacilli, resulting in an allergic-hyperergic serous inflammation of the peripheral nervous system, particularly of its roots. Patients with this inflammation may present not only the syndrome of Erb's paralysis, but also the classic picture of Guillain-Barré syndrome. Inflammatory processes in the peripheral nervous system after typhoid-paratyphoid vaccination are rare.

Schweizerische medizinische Wochenschrift, Basel**78:1273-1296 (Dec. 31) 1948. Partial Index**

What Does Modern Bronchoscopy Provide for? H. Iselin.—p. 1273.
Value of Contact Glasses as Carriers of Drugs and as Formers of Organ in Injuries of Eyes from Caustics, and as Cosmetic Prostheses. J. Strebel.—p. 1275.
Synthetic Production, Properties and Effects of Histamine-Antigen (Histamine-Azobenzene-Azoprotein). St. Went and L. Kesztyűs.—p. 1276.
*Clinical Contribution to Methyl Bromide Poisoning. G. Nager.—p. 1280.
*Acute Aniline Poisoning, Its Clinical-Hematologic Course and Its Treatment. B. Jasiński.—p. 1282.

Methyl Bromide Poisoning.—Nager reports 1 case of chronic methyl bromide poisoning in a man aged 24 who was working in a chemical laboratory in which ethyl bromide was produced with the aid of methyl alcohol. About 150 Gm. of the substance escaped into the air in gaseous form in six hours. After one month of work in this laboratory hyperexcitability, mild acoustic disturbances, garrulity and disturbances of memory were evidenced. A few days later a manic state with delusions of persecution developed. The latency of symptoms in methyl bromide poisoning may be explained by the slow occurrence of cerebral hemorrhages which lead to foci of softening, while, as a rule, ganglion cells are not destroyed. Methyl bromide should not be used without protective measures, particularly as a fire extinguishing substance or an insecticide. Methyl bromide should be used only in closed systems.

Acute Aniline Poisoning.—Jasiński reports a case of acute aniline poisoning in a man aged 50 who had been working for twenty-one years as a dyer in a dye plant. During the drawing off of aniline from a barrel under pressure, the aniline splashed over the patient's clothes. On admission to the hospital the patient presented severe cyanosis of the ears, the hands and the legs. The patient's blood had a dark brown color, but methemoglobin could not be demonstrated in the serum. Spectroscopic examination of the hemolyzed blood revealed an absorption band highly characteristic of methemoglobin. The methemoglobin content of the blood was about 60 per cent. The blood count revealed the presence of 68 per thousand of inner bodies. The maximum ratio of inner bodies (288 per thousand) was observed on the fourth day, when methemoglobin could no longer be demonstrated in the blood on spectroscopic examination. The inner bodies were present in the blood for about four weeks. Irreversible damage to the erythrocytes was manifested by the presence of the inner bodies. The patient was given large doses of ascorbic acid and made a complete recovery.

Semaine des Hôpitaux de Paris**25:89-146 (Jan. 10) 1949. Partial Index**

Cerebral Scars in Children Affected by Infantile Hemiplegia. M. R. Klein.—p. 89.
Operative Technic For Communicating Hydrocephalus. M. R. Klein.—p. 95.
Subdural Hematoma in Suckling Babies. J. Lepintre and M. R. Klein.—p. 97.
Neurosurgical Treatment of Little's Disease; Late Results. M. R. Klein and J. Lepintre.—p. 110.
*Leukotomy Performed on Children and Its Indications. M. R. Klein and G. Tardieu.—p. 113.

Leukotomy in Children.—Klein and Tardieu performed leukotomy on 8 idiotic children between the ages of 2 and 15 years, 5 of them aged less than 7 years. Bilateral section of the white matter was carried out with the aid of Cushing's trocar, on a plane corresponding to the coronal suture. There were no untoward reactions. The children seemed to feel comfortable immediately after the intervention. They remained quietly in bed, agitation subsided and they took notice of objects. They also acquired some automatisms. Institutionalization was no longer necessary. The children could be left alone with their toys; they were able to go around safely in the apartment and they could eat at the table. These results warrant leukotomy in idiotic children with an intelligence quotient of 20 to 30 or less, with generalized cerebral lesions demonstrated by electroencephalography or with a normal encephalogram but with diffuse lesions such as microhydrocephalus demonstrated by ventriculography—i. e., in those cases in which any other method of treatment does not offer any hope.

Book Notices

The Business Side of Medical Practice. By Theodore Wiprud, Executive Director and Secretary of the Medical Society of the District of Columbia, Washington, D. C. Second edition. Cloth. Price, \$3.50. Pp. 232, with 23 illustrations. W. B. Saunders Company, 218 W. Washington Sq., Philadelphia 5; 7 Grape St., Shaftesbury Ave., London W.C. 2, 1949.

"The Business Side of Medical Practice" is far from being the stilted textbook which the title might indicate. On the contrary, it is a fascinating insight into a side of medicine that rarely receives attention or publicity. Mr. Wiprud points up the direction of his book when he states, "There is no substitute for personal efficiency, nor can it be acquired without effort. Whatever his feeling in the matter may be, the doctor must face the fact that the success of his practice lies in his being prepared to meet as nearly as possible all demands on him. Relying on the plea that only scientific knowledge is expected of him is merely evading the responsibility which present conditions have thrust upon the medical profession." To all doctors the author shows the ways to increase this personal efficiency. Sound methods are presented on matters of office management. Equally sound advice is offered in regard to the building of a private practice, the legal aspects of medical practice and the consideration of the doctor's own financial affairs, including investments, insurance and even wills and estates. Careful thought and consideration is given to the importance of self expression, both written and oral. "Satisfying progress in the practice of his profession," states the author, "is seldom made by the physician who can neither write for scientific publications nor speak acceptably before groups of his colleagues. There are occasions, too, when he is called upon to do one or the other or both for lay groups."

Even the more nebulous subjects of "Opportunities for Medical Leadership" and "Fair Competition Among Physicians" are deftly handled in two separate chapters. Finally, Mr. Wiprud draws from his sixteen years of experience as a medical society executive and helps the doctor look to the future. He concludes that only one thing is certain, "the physician in private practice has still to feel the impact of what has already taken place."

Clinical Aspects and Treatment of Surgical Infections. By Frank Lamont Meleney, M.D., F.A.C.S., Associate Professor of Clinical Surgery, College of Physicians and Surgeons, Columbia University, New York. With a foreword by Allen O. Whipple, M.D. Cloth. Price, \$12. Pp. 840, with 287 illustrations. W. B. Saunders Company, 218 W. Washington Sq., Philadelphia 5; 7 Grape St., Shaftesbury Ave., London W.C. 2, 1949.

This is a unique study from the surgeon's point of view of a field largely dominated by the bacteriologist. Those who read it will not be disappointed. The book is replete with illustrated case histories which are often classic descriptions. The method of approach to the treatment of surgical infections is always practical.

The advent of the antibiotics and chemotherapy has considerably lessened the incidence of serious infection in every general hospital. Interns, who in former days would have spent long hours with the dressing cart irrigating and dressing profusely discharging wounds, rarely encounter these problems in their brief experience. Yet the proper time for drainage, the recognition of a concealed abscess and the management of infections not responding to newer therapy will be recurring problems. Added to this is the ever present danger that the resistant bacterial strains may appear in large numbers. The chapters on peritonitis, mediastinitis, cholecystitis and appendicitis are especially good. The problem of the surgical management, the necessity of adequate drainage and other than routine use of one or another drug are emphasized. Cultures from wounds or body fluid are stressed. The role of the surgeon is still important and is not yet solved by injections, miraculous though they be. The author's long experience and his descriptions of the successful management of serious infections prior to the advent of chemotherapy are of educational importance. This book is especially recommended for the younger surgeon, for he is too apt to rely on the newer drugs instead of some thoroughly tested surgical principles.

Education for the Health Services. By George St. J. Perrott, Chief, Division of Public Health Methods, United States Public Health Service, and others. A Report to the Temporary Commission on the Need for a State University. New York State Legislative Document (1948) No. 32. Paper. Price, 40 cents. Pp. 170, with 17 illustrations. University of the State of New York, the State Education Department, Albany 1, N. Y., 1948.

This volume is one of a series of reports designed to explore the need for a state university including professional schools in New York State. A technical committee was appointed to survey the professional personnel and training situation in the state. Studies were undertaken in this connection of physicians and medical schools, dental personnel and schools, and nurses and schools of nursing, based largely on data for 1945-1946, but in appropriate instances including available 1946-1947 figures. Data compiled in earlier studies by various legislative commissions were also utilized in the report.

The committee has given consideration to the concept of medical centers in health service regions and has emphasized the important influence which the medical school may exert on the standards of medical practice throughout the section of the country in which it is located.

At the outset the committee points out that its data are insufficient to be considered more than suggestive, but that they are offered as a frame of reference within which further studies may be undertaken. In its conclusions, the committee asserts that present facilities in New York State are inadequate to provide professional education for qualified resident youth and that economic barriers further restrict opportunity. Student aid funds and graduate scholarships are suggested as a partial solution. In view of the favorable socioeconomic status of New York State, which is reflected in demand for health services, the committee maintains that present rate of personnel supply cannot effectively meet the demands of the people for professional health services. While the present rate of supply of physicians in New York State is adequate to meet current demands, the committee points out that much of the supply results from immigration of physicians trained in other states. The supply of dentists is labeled insufficient to meet the dental health needs of the people, and a serious deficiency in nursing personnel is remarked.

The Committee strongly advocates the development of the regional health service and medical center plan which was previously proposed by two state legislative commissions. The need for continuous and adequate financial support to activate such a plan is stressed and the broad precedent for New York in the assumption of state responsibility for education for the health professions is cited. While the document is applicable specifically to New York State, it will be of interest to all those broadly concerned with education for the health services and to those in situations where problems of education of such personnel may be somewhat similar.

The Filterable Viruses. By Francis O. Holmes. Supplement No. 2, Bergey's Manual of Determinative Bacteriology, Edition VI, 1948. Cloth. Price, \$2.50. Pp. 1127-1286. Williams & Wilkins Co., Mt. Royal & Guilford Aves., Baltimore 2, 1948.

In this book the viruses are treated as members of an order consisting of 13 families, 32 genera and 248 species. Bacteriophages constitute one subgroup, viruses causing diseases in seed plants are a second subgroup, and the third subgroup consists of viruses causing diseases in animals. The author points out that this subgrouping of viruses may have to be changed with advances in knowledge. Each species is discussed first from the standpoint of derivation of the name and is followed, where applicable, by the headings: common names, host, insusceptible species, geographic distribution, induced disease, transmission, serologic relationships, immunologic relationships, thermal inactivation, filterability, other properties and literature. The large number of viruses now recognized makes it imperative that they be named and classified. Some time will probably pass, however, before the average physician recognizes *Legio debilitans* as poliomyelitis virus and *Erro scelestus* as St. Louis encephalitis virus. The book is well indexed and contains an abundance of information about the viruses. It should prove of great value to the student of infectious diseases.

Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. THEY DO NOT, HOWEVER, REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS, BUT THESE WILL BE OMITTED ON REQUEST.

DIPHTHERIA IMMUNIZATION IN ADULTS

To the Editor:—In adults receiving active immunization against diphtheria, are dosages of $\frac{1}{4}$ cc., $\frac{1}{2}$ cc. and $\frac{1}{2}$ cc. of fluid diphtheria toxoid administered at intervals of three weeks considered to be effective? If not, what are the smallest dosages and the fewest injections that can be considered as suitable in adults?

Daniel Haffron, M.D., Elgin, Ill.

ANSWER.—Although three doses of $\frac{1}{2}$ cc. each of fluid diphtheria toxoid are often recommended, the dosage that you mention would prove probably to be satisfactory. If fewer injections are desired, two doses (0.5 cc. each) of diphtheria toxoid alum precipitated could be administered, the interval between injections being about six weeks. With the highly refined diphtheria toxoid alum precipitated which is now available, unpleasant reactions are uncommon even when this product is used for adults.

ALKALINE SULFONAMIDE COMPOUNDS

To the Editor:—In administering sulfonamide drugs to infants and young children, is it necessary to give alkali concomitantly? If so, how can the alkali (sodium bicarbonate) be made palatable and acceptable to these children?

M.D., Illinois.

ANSWER.—Recent developments have indicated two satisfactory ways of administering sulfonamide drugs without giving sodium bicarbonate concomitantly. First, pharmaceutical firms have succeeded in incorporating the sulfonamide compound and the alkali in one preparation. Citrasulfas® (Upjohn) and sulfadiazine with sodium lactate (MRT) are such products.

Second, combinations of different sulfonamide drugs (sulfadiazine, sulfamerazine and sulfamethazine) can be given. It has been shown that when two or more sulfonamide drugs are administered together their therapeutic effectiveness is additive, and yet their solubilities are independent and equivalent to that of approximately half the dose of each if given alone. Thus, the total sulfonamide blood level will be well below that at which crystalluria usually develops.

NEW ANTIBIOTICS IN TUBERCULOSIS

To the Editor:—What is the effect of the new antibiotics chloromycetin and aureomycin against the tubercle bacillus?

M.D., New York.

ANSWER.—In vitro, chloromycetin has been found to produce complete inhibition of *Mycobacterium tuberculosis* (H37Rv) (human) in a concentration of 12.5 micrograms per cubic centimeter. Data on the effect of this antibiotic on tuberculosis in vivo are not available.

Aureomycin is also active in vitro against *M. tuberculosis* and has had limited trial in tuberculous sinuses. As yet, insufficient data have been accumulated to justify a statement as to the efficacy of this antibiotic in tuberculosis.

Work is in progress at a number of institutions on the problem of the effects of streptomycin, dihydrostreptomycin, other antibiotics and certain sulfones in various combinations on tuberculous infections. Preliminary work has not shown any decided advantage for any of the combinations thus far tried.

TETANUS IMMUNITY

To the Editor:—Does a person who has had tetanus have a permanent immunity to the disease if he has had 500,000 units of antitoxin? If not, would immunization with toxoid be apt to cause an exacerbation of the condition?

Edmund A. Flexman, M.D., Milledgeville, Ill.

ANSWER.—It is not possible to say definitely whether a patient who has recovered from tetanus under treatment with antitoxin will be permanently immune to tetanus. He may be regarded, however, as well protected against tetanus for several years after the infection. The injection of tetanus toxoid in such a patient might result in more or less violent reactions in the reintroduction of foreign protein.

HYPNOSIS IN DRAMATICS

To the Editor:—Recently a school "show" was put on for the young student. Taking part in the show was a hypnotist. He hypnotized young children and then put them through the usual tricks. Is it quite the right thing to hypnotize immature children, some of them more than once, for a show? What is the latest opinion as to such performances? One psychiatrist says that he thinks it is bad. The local superintendent of schools and teachers had no part whatsoever in making up this program. It was one of a lyceum course which was given throughout the state.

J. F. Norman, M.D., Crookston, Minn.

ANSWER.—A public performance, as stated, has the probability of doing great damage. Neurotic symptoms can be created readily by direct suggestion in the average adult. But, since children are more suggestible than adults, the potential harm is even greater. In competent hands hypnosis has no harmful effects, but where it is utilized for nonsensical and dramatic effects, and where removal of symptoms is attempted without some understanding of the dynamics of the subject's personality, hypnotized persons may be adversely influenced. Since many youngsters have a sense of insecurity and are therefore potentially neurotic, they have serious problems in interpersonal relationships. They are apt to mistrust people and constantly doubt their motives. When they are exposed to an injudiciously applied hypnotic trance, they may become acutely upset, and so the mistrust and resentment becomes exaggerated.

Most certainly, hypnosis should not be allowed outside of the medical profession, and laws are needed, forbidding the use of hypnosis for entertainment purposes.

The induction of hypnosis itself involves the passivity of the subject, and suggestions given to the subject are similar to those given in a child-parent relationship. The hypnotist therefore becomes a commanding authority, and, once a person has been hypnotized, he is seldom capable of liberating himself from this authority. Self growth and the ability to become an independent and assertive person are most effectively achieved in an environment where the person is capable of working out his problem through his own capacities and resources. In the circumstances mentioned above, there is grave danger that the children would be convinced that they are under the power of a stronger person, and they would comply because of their suggestibility and because they felt that compliance was expected of them. The mentally healthy person is one who can think for himself and who is not afraid to act in such a way that he not only is efficient, but also gets most enjoyment out of his activity. Thus anything that might handicap a person from attaining such free will should be prevented.

UNILATERAL CONJUNCTIVITIS

To the Editor:—A male patient has unilateral conjunctivitis. The tear sac and meibomian glands do not show evidence of infection. Smear of eye shows a *Staphylococcus aureus*. He has had sulfonamide drugs, penicillin, bacitracin, *Staphylococcus vaccine*, tear sac lavage and gland (meibomian) massage. The eye clears and then the condition recurs. What is the next procedure?

M.D., Michigan.

ANSWER.—The cause of the condition should be established before further therapy is indicated. The conjunctival secretion should be cultured under aerobic and anaerobic conditions. Conjunctival scrapings should be Giemsa stained and the findings should be interpreted according to Thygeson's suggestions (Thygeson, P.: *The Cytology of Conjunctival Exudates*, *Ann. J. Ophth.* 29:1499 [Dec.] 1946). Self-inflicted injury should be suspected in recurrent conjunctival inflammations without apparent cause particularly when the eye on the side of the dominant hand is involved. If the inflammation is associated with preauricular adenopathy, Parinaud's oculoglandular syndrome must be considered.

SYMPATHETIC OPHTHALMIA

To the Editor:—Is the accepted method of preventing sympathetic iritis the removal of the injured eye before even mild symptoms develop in the other eye? Is it known by what route the sympathizing eye becomes involved?

M.D., Virginia.

ANSWER.—Sympathetic ophthalmia is a specific bilateral inflammation of the entire uveal tract which almost invariably is preceded by a perforating injury involving uveal tissue. When irritation of the fellow eye develops the disease is already established and removal of the exciting eye does not alter the course usually. Ideally, a suspected eye should be enucleated within fourteen days of the injury before pathologic changes commence. Enucleation after this period does not absolutely prevent the occurrence of sympathetic inflammation. The causation is not known.

The Journal of the American Medical Association

Published Under the Auspices of the Board of Trustees

VOL. 140, No. 9

CHICAGO, ILLINOIS
COPYRIGHT, 1949, BY AMERICAN MEDICAL ASSOCIATION

JULY 2, 1949

ARTHRITIS

Comments on Differential Diagnosis and New
Developments in Therapy

EDWARD F. ROSENBERG, M.D., Ph.D.
Chicago

Incidence of rheumatic diseases in this country is so high that only a small proportion of cases come to the attention of specialists. In most instances responsibility for diagnosis and treatment remains in the hands of family physicians. It is of utmost importance, therefore, for general practitioners to have an understanding of these diseases sufficient to aid in preventing the dreaded physical and mental crippling which often result in poorly handled or neglected cases.

In the past a cause of much confusion has been a complicated nomenclature and mysterious classifications employed for these diseases. Causes of the most important chronic rheumatic diseases still remain unknown, and consequently their designations and classification cannot be simplified. As a result of this confusion, roentgenologists report their observations in terms descriptive of altered appearances, but terms which they employ are often different from those which serve the practitioner in his daily work. Pathologists often report observations in terms which have a morphologic significance, describing alterations in gross and microscopic appearances of tissues, but these terms also frequently differ from those familiar to clinicians. European writers commonly discuss these diseases using designations which differ from those used in America.

To some extent, this confusion will probably continue until research has disclosed presently unknown causes for rheumatic diseases. Until that time, however, it would be very useful if uniform terms could be employed by all who deal with patients with rheumatic disease.

A committee on classification of the American Rheumatism Association has been laboring for a decade with this problem and, although still dissatisfied with results of its work, has recently prepared a classification recommended for inclusion in the "Standard Nomenclature of Disease" (outline). Only a small proportion of the hundred or more conditions which are included among "rheumatic" diseases are mentioned. However, as little can be gained by subclassification of many unknowns, subclassifications have been omitted. Many rare diseases are not mentioned. In its present form, the list provides usable terms for a majority of cases encountered during usual clinical work.

The following material reviews briefly some innovations in diagnostic and therapeutic aspects of several important rheumatic diseases.

SPECIFIC ARTHRITIS

From a numerical point of view, specific forms of arthritis constitute only a small proportion of "run of the mill" cases of arthritis. Most commonly encountered are gonorrheal arthritis, tuberculous arthritis and arthritis associated with streptococcic and staphylococcic infections. Arthritis of syphilis, pneumococcic infections, meningitis, brucellosis and typhoid are rare today. Articular disorders associated with coccidioidomycosis, although not often encountered, appear to be spreading in America.

Gonorrheal Arthritis.—Among the specific forms of arthritis, instances resulting from gonorrheal infection continue to hold an important place. The incidence of gonorrheal arthritis is decreasing significantly since discovery of sulfonamide drugs and penicillin but is still notable, and this must be kept in mind when one encounters acute arthritis in adults.

The laboratory may play only a supportive role in establishing this diagnosis in many instances. Prompt recognition more often depends on knowledge of the life history of gonorrheal arthritis than on laboratory reports. If this disease is not recognized promptly and if allowed to progress through its "normal" evolution, it ordinarily takes the form of acute polyarthritis. Less frequently arthralgias occur without actual synovial cartilaginous or osseous invasion. Affected patients are usually febrile at the onset, and the disease is often ushered in with a chill. The articular phenomena are generally migratory, as in rheumatic fever.

As a rule, a physician must be satisfied with a presumptive diagnosis of gonorrheal arthritis, a diagnosis based on analysis of behavior of the articular disease together with identification of *Neisseria* in genital secretions. Certification of the diagnosis in every instance by identification of *Neisseria* in articular exudates is impossible, since infection of intra-articular exudates occurs in only a fourth to a third of the cases. *Neisseria* are evidently excluded from synovial fluid in consequence of a barrier action of synovial lining membranes. If a diagnosis of gonorrheal arthritis has been correctly made, the disease should be cured promptly by adequate doses of penicillin. Supposed failures of penicillin therapy in gonorrheal arthritis often reflect merely a lack of appreciation of the effectiveness of gonorrheal infection in stirring up latent rheumatoid arthritis or provoking its onset. "Penicillin-resistant gonorrheal arthritis" often proves to be rheumatoid arthritis provoked to activity by the gonorrhea. Not even millions of units of penicillin will significantly

From the Department of Medicine, Michael Reese Hospital.
Read at the Interim Session of the American Medical Association, St. Louis, Nov. 30, 1948.

after the articular disease in such cases. Articular biopsies in these instances reveal changes characteristic of rheumatoid arthritis.

Tuberculous Arthritis.—The problem of tuberculous arthritis is important today despite a falling incidence of this disease since the beginning of the century. Among a series of 4,252 tuberculous patients reported recently were 160 (3.8 per cent)¹ with tuberculosis of bones or joints.

One should search carefully for tuberculosis elsewhere in each patient with articular tuberculosis. However, additional visceral lesions cannot be identified in approximately a third to a half of the cases. Tuberculosis of joints is classically a monoarticular disorder, but more than one articular or osseous region may be affected; thus the disease was polyarticular in 28 per cent of adult cases, and in 35 per cent of children in the series reported by Rosencrantz and his associates.

Classification of Arthritic Diseases

- | | |
|--|----------------------------|
| 1. Arthritis due to specific infection. Specify organism when known. | |
| 2. Arthritis due to rheumatic fever. | |
| 3. Arthritis, rheumatoid. Specify as multiple or of spine. | |
| 4. Degenerative joint disease, multiple due to unknown cause; osteoarthritis. | |
| 5. Arthritis due to direct trauma. | |
| 6. Arthritis due to gout. | |
| 7. Neurogenic arthropathy. | |
| 8. New growths of joints. | |
| 9. Hydrarthrosis, intermittent. | |
| 10. Periarticular fibrositis. | |
| 11. Diseases in which arthritis, arthropathy or arthralgia is frequently associated (diagnose disease, list joint manifestation as symptom): | |
| Acromegaly | Ochronosis |
| Acute disseminated lupus erythematosus | Osteochondritis dissecans |
| Cyst of meniscus of knee | Osteochondromatosis |
| Dermatomyositis | Periarteritis nodosa |
| Drug intoxication (specify) | Psoriasis |
| Erythema nodosum | Pulmonary osteoarthropathy |
| Erythema multiforme exudativum | Purpura, various types |
| Hemophilia | Raynaud's disease |
| Hysteria | Reiter's disease |
| | Scleroderma |
| | Serum sickness |

As many as seven regions were affected in a single patient.

The clinical picture which results when tuberculosis affects joints may be a nondescript one and may resemble notably the picture of rheumatoid arthritis. Pain and swelling together with stiffness and local heat may be observed. Atrophy of surrounding muscles may develop. The course may be indolent and may be associated with remissions and exacerbations, as in rheumatoid arthritis. Roentgenograms may not show characteristic changes, and absence of associated visceral lesions may add to the confusion. Cutaneous tests may be of little value in adults, especially among city dwellers, of whom large numbers show positive reactions with or without other signs of clinical tuberculosis. Negative cutaneous reactions have been observed in some proved cases.

To establish the diagnosis, fluid from affected joints should be obtained for bacteriologic studies

wherever possible. Unfortunately, considerable periods of time may be required before results of guinea pig tests can be determined, and even guinea pig inoculations may occasionally yield negative results in proved cases of tuberculous arthritis. Biopsy of regional lymph nodes was recommended recently for diagnosis of tuberculous arthritis.² Presumably this can be done when a patient fears to have a joint opened, but a normal observation may be inconclusive. By all odds, articular biopsy is the preferable procedure. Consideration should be given to articular biopsy in all cases of chronic progressive atrophic or destructive type of arthritis in which but one joint is affected, and consideration should be given to biopsies in cases of polyarticular arthritis when factors are present which raise a suspicion of tuberculosis. Presence of tuberculosis in other regions of the body, a strong family history of tuberculosis and involvement of tendovaginal sheaths are points which favor a possibility of articular tuberculosis.

The role which streptomycin may play in treatment of tuberculous arthritis is still uncertain. Earlier reports were pessimistic, but prolonged administration of streptomycin in doses of 1 Gm. every eight to twelve hours for three to four months favorably influenced the course of tuberculous arthritis in two thirds of the patients treated in this manner by Bickel and his associates.³ Toxic reactions were fairly common, although with these doses it was rarely necessary to discontinue administration of the drug.

Arthritis from Streptococcic or Staphylococcic Infections.—Suppurative arthritis resulting from pyogenic organisms must be considered in the differential diagnosis in all cases in which acute articular inflammation is found. Symptoms of suppurative arthritis are in general much severer than those of ordinary non-bacterial forms of arthritis, but the articular picture may be masked by the systemic reaction to suppuration.

Among instances of suppurative arthritis from all causes, staphylococci are responsible for the infection in approximately 50 per cent of cases, hemolytic streptococci in 25 per cent and miscellaneous other organisms in the remainder. In a majority of the cases, articulations are infected as a result of extension from an adjacent focus of osteomyelitis, although in some instances the organisms metastasize to joints from distant foci. Penetrating wounds are responsible in a few instances.

A prompt and complete evacuation of infective effusions by repeated aspirations and lavage, or if necessary by incisions and drainage, was the aim of treatment ten years ago. Today, the ideal treatment is daily intramuscular and intra-articular injections of penicillin, supplemented by arthrotomy only if destruction of the articulation is proceeding in spite of the antibiotic therapy. Early and adequate use of chemotherapy and antibiotics usually serves to avoid need for incisions and drainage.

Coccidioidal Arthritis.—Coccidioidal arthritis must now be given serious consideration in differential diagnosis of specific forms of arthritis encountered in this country. Though still a rare disease in most parts of the United States, coccidioidomycosis is being encoun-

1. Rosencrantz, E., Piscitelli, A., and Bost, F. C.: An Analytical Study of Bone and Joint Lesions in Relation to Chronic Pulmonary Tuberculosis, *J. Bone & Joint Surg.* 23: 628-638, 1941.

2. Gellman, M.: Regional Glandular Biopsy in the Diagnosis of Bone and Joint Infection, *School Med. Univ. Maryland* 25: 135-149, 1941.

3. Bickel, W. H., Young, H. H., Pfuetze, K. H., and Norley, T.: Phatic Glands in the Diagnosis of Tuberculous Disease of Joints, *M. J. Australia* 1: 160-166, 1942.

3. Bickel, W. H., Young, H. H., Pfuetze, K. H., and Norley, T.: Streptomycin in Tuberculosis of Bone and Joint, *J. A. M. A.* 137: 682-687 (June 19) 1948.

tered with increasing frequency. It is no longer merely a California disease. I have seen coccidioidomycosis in Minnesota, Arkansas and Illinois.

The disease occurs in two stages, and in both articular symptoms are frequently found. The first stage usually appears as a nondescript illness with features of influenza or pneumonitis. The mortality rate in the first stage is extremely low. About 2 to 5 per cent of the patients during this phase have articular pains which may resemble those of rheumatic fever and may take the form of acutely reddened and swollen joints. Erythema nodosum occurs commonly in this phase of the disease.

In the vast majority of cases, nothing further develops, but 1 in several hundred patients who are infected with the organism have progressive involvement of viscera, bones or joints. The articular involvement is readily mistaken for tuberculosis. The diagnosis must be made by culture of fluid aspirated from suspected articulations or, in doubtful cases, by articular biopsy. Specific remedies for this disease have not been developed, and, as extension to other organs may result, amputation must be considered whenever necessary.

RHEUMATOID ARTHRITIS

Rheumatoid arthritis occurs at any age, being found in children, in mature adults and in the aged. The peak incidence is between the ages of 20 and 30. In usual cases, in which rheumatoid arthritis affects peripheral joints, it is not difficult to recognize. The affected articulations are often symmetrically involved. A degree of swelling of articular and periarticular tissues becomes apparent early. Muscle atrophy and some degree of constitutional debility tend to develop promptly. Characteristic complications include subcutaneous nodules, vasomotor disturbances of the extremities and uveitis.

The arthritis is characteristically polyarticular, and its course is generally marked by an insidious onset and slow, though sometimes irregular, progression. In atypical cases, however, one may have considerable difficulty in distinguishing rheumatoid arthritis from other forms of joint disease. The involvement of joints may be sudden or violent, as in pyogenic infections. In some cases, articular involvement may be monoarticular for a long time, thus presenting one with the problem of distinguishing rheumatoid arthritis from tuberculosis or from articular involvement by neoplasms.

The laboratory may contribute little positive evidence to aid in the diagnosis of rheumatoid arthritis. One may expect to encounter hypochromic anemia, and the sedimentation rates and Schilling differential counts are frequently abnormal. These tests, however, are more useful for following the progress of the disease than for differential diagnosis, as each may be similarly abnormal in other diseases associated with articular inflammation. Increased titers of agglutinins against hemolytic streptococci are found in 50 to 80 per cent of cases, but this test has not found a popular place among the diagnostic procedures used in studying arthritis in this country. The test is difficult to perform; interpretation of results is uncertain in some instances, and the result is not abnormal in a relatively high percentage of proved cases of rheumatoid arthritis.

The roentgenologist may aid in the diagnosis of rheumatoid arthritis, but changes which he finds in an individual joint may at times be interpreted

only in terms of the clinical situation. Early stages of rheumatoid arthritis may not be associated with any roentgenographic disturbances, or only soft tissue swellings may be observed. As the disease progresses, further invasion of joints is reflected in narrowing of joint spaces resulting from destruction of articular cartilage. Finally, destruction of subchondral bone may occur. These changes, however, are not specific for rheumatoid arthritis, as similar changes can be observed in other forms of articular disease, for example in tuberculosis.

When usual diagnostic procedures fail to clarify a diagnosis, the physician is justified in performing articular biopsy to establish the diagnosis of rheumatoid arthritis with certainty. Histologic changes encountered in synovial membranes and in subcutaneous nodules of patients with rheumatoid arthritis are so distinctive that these are not readily mistaken for other common or rare forms of joint disease.

The synovial membranes of rheumatoid arthritis are marked by hypertrophy of their elements, thickening of subsynovial tissues and proliferation and reduplication of the endothelial lining layer. Synovial villi become hypertrophied, and blood vessels throughout the lining and capsular tissues proliferate actively. In the immediate subendothelial layers, lymphocytes and other inflammatory cells proliferate actively, and in some regions lymphocytes collect in follicles.

Subcutaneous nodules of rheumatoid arthritis are distinguished by central necrotic zones surrounded by reticuloendothelial cells arranged in a curiously palisaded manner. Beyond this layer is a zone of inflammatory cellular reaction held together with a stroma of varying density. These features together create an appearance which is not found in subcutaneous nodules associated with other forms of articular disease.

Diagnostic importance may also attach to the presence of widespread inflammatory lesions in muscles of patients with rheumatoid arthritis. The significance of these lesions has been appreciated only recently.⁴ Muscle lesions are found not only adjoining affected articulations but also in sites far removed from joints. Similar inflammatory nodules may be encountered in other disease, as in rheumatic fever, glomerulonephritis, tuberculosis lupus erythematosus and perhaps many more. But this type of lesion is not found in the muscles of persons with primary fibrositis or in the psychoneurotic person who complains of articular pains. When it has been studied more extensively, this muscle lesion may prove of value in direct diagnosis of rheumatoid arthritis. At present, an observation of this type of inflammatory myositis appears to have contributory value in the establishment of a diagnosis of rheumatoid arthritis.

It would, indeed, be a great pleasure to me if I could at this point discuss a new and effective remedy for rheumatoid arthritis. Unfortunately, new developments in treatment of rheumatoid arthritis do not yet include a rapidly acting and specific remedy. Nevertheless, there can be no doubt that remedies have been evolved through years of patient clinical observation which suffice for many cases. The best results obtained are not by application of any single measure, but from continuing intelligent application of a program of measures directed against the many abnormalities produced by rheumatoid arthritis.

4. Freund, H. A.; Steiner, G.; Leichtentritt, B. and Price, A. E.: Nodular Polymyositis in Rheumatoid Arthritis, *Science* 101:202-203, 1945.

Since this paper was written and during the time that it was awaiting publication, Hench, Kendall, Slocumb and Polley^{4a} have announced their discovery of the effectiveness of "compound E" and of the adrenocorticotrophic hormone of the pituitary gland in relieving symptoms of rheumatoid arthritis. Sufficient time has not yet elapsed to permit an evaluation of this discovery in terms of everyday treatment. Prospects appear hopeful, however, that these measures may indeed be capable of practical clinical application within the near future.

The outlook is not dark for every person with rheumatoid arthritis. In fact, the outcome is satisfactory in a majority of cases. A physician who undertakes the treatment of patients with rheumatoid arthritis should therefore approach this problem with a spirit of encouragement and with a reasonable degree of optimism.

It is important for physicians who undertake the care of patients with chronic arthritis to acquire a knowledge of these diseases which suffices to provide a reasonable degree of therapeutic resourcefulness. Problems which arise in the course of rheumatoid arthritis, for example, the tendency toward flexion deformities, excessive loss of body weight and progressive loss of ability to use extremities, require frequent changes in details of a therapeutic program. These complications must be recognized early and counteracted.

Time is required of the physician who would care for these patients. A person with rheumatoid arthritis generally needs instruction regarding self treatment with physical therapy measures, and he must often have dietary supervision. These details may prove of great value in the determination of the quality of results obtained.

A patient with rheumatoid arthritis who does not obtain this service from his physician will often fall into the hands of quacks and irregular practitioners, and it is precisely in this group of arthritic travelers that one encounters the most extreme deformities and severe destruction of affected joints. Care of the arthritic patient is a challenge and a responsibility for the regular physician.

In addition to "common sense" measures, certain additional forms of therapy for rheumatoid arthritis require consideration. Among these, gold therapy is perhaps the most important at the moment. Today, after two decades of use of gold compounds in treatment of rheumatoid arthritis, opinions are still divided regarding its effectiveness. Certainly, many failures of gold therapy are encountered in each series of patients who are treated thereby. Unfortunately, it is in the most seriously affected persons, in those who are in greatest need of an ameliorating measure, that gold therapy often fails. Nevertheless, there is considerable evidence that gold can, in an unknown manner, lessen the progress of inflammatory lesions of rheumatoid arthritis in a considerable proportion of those who are treated. The situation does not permit of a more precise enumeration of the benefits which can be derived from gold therapy today. With few exceptions, experienced American rheumatologists are continuing the use of gold preparations in the belief that results obtained therewith are better than those obtainable with any other single remedy. Gold is not justifiably used in the treatment of any other joint disease, with the

possible exception of psoriatic arthritis. Gold should not be administered if there is doubt as to the diagnosis of rheumatoid arthritis.

A most important advance of the past few years in regard to rheumatoid arthritis has been discovery of the effectiveness of 2,3-dimercaptopropanol (BAL) in treatment of toxic reactions resulting from gold. Granulopenia, exfoliative dermatitis, nephritis and thrombopenic purpura have been successfully treated with this compound. It is still necessary to maintain a careful watch of patients who are being treated with gold preparations, but a physician may breathe somewhat more easily while administering gold with the knowledge that a remedy for toxicity is available if needed. Toxic reactions to gold have been the greatest barrier to its wider use, and, if further experience should bear out the apparent effectiveness of BAL, there may soon be a much more extensive use of gold.

A variety of remedies introduced during the past two decades have had the common property of inducing vasodilatation in the extremities. Among these remedies are included bee venom, acetylcholine, nicotinic acid, neostigmine and physostigmine. Without exception, these remedies have been discarded by a majority of experienced workers in this field. Copper salts, bismuth preparations and intravenously administered procaine hydrochloride are now being tested. None of these has shown great promise. Para-aminobenzoic acid and gentisic acid are also under study, but these cannot yet be appraised satisfactorily.

Attempts to reproduce the ameliorating effects of jaundice and pregnancy on rheumatoid arthritis are still being studied. Results of a startling experiment conducted in Great Britain were published recently.⁵ Under the direction of a committee of the British Research Council, 312 patients with rheumatoid arthritis were inoculated experimentally with exudates containing the virus of infectious hepatitis. The incidence of jaundice in the inoculated group was approximately 10 per cent, and, among those in whom jaundice developed, an ameliorating effect of notable proportions was observed in about 75 per cent. This procedure is not ready for everyday clinical use, but the observations of this study point toward the possibility of an early discovery of a quick-acting and effective remedy for rheumatoid arthritis.

Results of treatment with transfusions of blood from pregnant women are still inconclusive. It seems doubtful that this measure will prove effective. The ameliorating effect of pregnancy generally disappears within a few weeks or within a month or two following delivery, and it therefore seems doubtful that transfusion of small amounts of blood from pregnant women can influence permanently the course of this disease. However, the procedure is still being studied.

The future may be bright for arthritic patients if ameliorating effects observed during jaundice and pregnancy can be reproduced in some artificial manner.

OSTEOARTHRITIS

Osteoarthritis of the primary type is undoubtedly the most neglected of all serious chronic diseases. Its occurrence is widespread, and its results are often distressing. Although the deformities which result are not so extensive as those which occur in rheumatoid

4a. Hench, P. S.; Kendall, E. C.; Slocumb, C. H., and Polley, H. F.: The Effect of a Hormone of the Adrenal Cortex (17-hydroxy-11-dehydrocorticosterone; Compound E) and of Pituitary Adrenocorticotrophic Hormone on Rheumatoid Arthritis, Preliminary Report, Proc. Staff Meet., Mayo Clin. 24: 181-197, 1949.

5. Gardener, F.; Stewart, A., and MacCallum, F. O.: Therapeutic Effect of Induced Jaundice in Rheumatoid Arthritis, Brit. M. J. 2: 677-680, 1945. MacCallum, F. O., and Bradley, W. H.: Transmission of Infective Hepatitis to Human Volunteers, Letters to the Editor, Lancet 2: 228, 1944.

arthritis, nevertheless, this disease can be a serious crippler and cause intense misery. Osteoarthritis has generally been ascribed to wear and tear, and the pathologic changes which appear in affected joints are said to be those expected from excessive use. However, a good many features of osteoarthritis indicate that so simple an explanation does not suffice. Localization of the disease in terminal interphalangeal joints, or in one or another of the hip joints, and appearance of severe advanced forms of the disease among persons whose joints have not been exposed to excessive use are features which cannot readily be explained with the hypothesis of overuse. Changes comparable with those encountered in osteoarthritis may be found in persons affected with a rare biochemical abnormality known as ochronosis, thus suggesting that a metabolic disturbance and not simply wear and tear, may be at fault in osteoarthritis.

In classic instances, distinction between osteoarthritis and rheumatoid arthritis is not difficult to make. A predilection for terminal joints of the fingers is characteristic of osteoarthritis, whereas proximal interphalangeal joints and the metacarpophalangeal joints are characteristically affected in rheumatoid arthritis.

Osteoarthritis affecting larger joints, as for example knees, is rarely associated with frank effusions, in contrast to the situation in rheumatoid arthritis wherein effusions are commonly present. Muscular spasms and atrophy are not often present in osteoarthritis, and a tendency to fusion of adjoining articulations is not observed. In vertebral osteoarthritis, despite formation of large spurs, fusion of adjoining vertebrae is not frequently seen; consequently, spinal ankylosis does not result. Systemic manifestations are rare in osteoarthritis; there is generally no loss of weight attributable to this disease, and constitutional symptoms, such as anemia, poor appetite, hypotension, tachycardia, hyperhidrosis and other vasomotor disturbances, characteristically present in rheumatoid arthritis do not appear unless complications are present to account for them.

Treatment of osteoarthritis will always be limited by the poor powers of cartilage to heal. Nevertheless, treatment for this disease should be planned carefully, with a view to sparing the remaining effectiveness of involved joints.

At present there is a renewal of interest in intraarticular injections for osteoarthritis. Crowe has recently recommended treatment of osteoarthritis by intra-articular injections of acid potassium phosphate.⁶ Injections of lactic acid and of benzyl salicylate were also recommended recently. Testosterone propionate has been used, presumably for its value in rejuvenating some tissue factors.⁷ These "new" measures have not been tested adequately and are not yet ready for general use.

The ability of orthopedic surgeons to bring a measure of relief to patients with osteoarthritis should not be overlooked in a discussion of new developments in treatment for this disease. Removal of loose bodies, cheilectomy, patellectomy, arthrodesis and arthroplasties have an application in individual cases and, when properly applied, may bring great relief.

Pain and stiffness resulting from osteoarthritis have been observed to disappear during jaundice, and it is therefore to be hoped that progress in application of the jaundice phenomenon to arthritis may bring relief, also to sufferers from osteoarthritis.

SUMMARY

The observations which are reviewed in this paper emphasize the role of the family physician as one of great importance in the diagnosis and treatment of chronic rheumatism in the average patient.

Included in chronic rheumatism are a great variety of disease processes, some of which result from recognizable bacterial infections, some from metabolic anomalies and some from the effects of trauma and excessive use. In addition, there are a large proportion in which causes remain unknown.

The prospects for the arthritic patient are no longer hopeless. Steady advances in many fields of science are almost yearly providing increased hope for the sufferer from rheumatism, new tools for the practitioner and for the research worker and specific cures for some forms of rheumatic disease.

RÉSUMÉ OF SKIN DISEASES MOST COMMONLY SEEN IN GENERAL PRACTICE

EVERETT C. FOX, M.D.

and

THOMAS L. SHIELDS, M.D.
Dallas, Texas

Crocker, Buckley, Pollitzer, Alderson and Reich, Gilman and other observers have presented interesting statistical studies of the incidence of common diseases of the skin. Goodman¹ and Sohrweide² have published statistical studies on more than 1,000,000 dermatologic diagnoses made in private and clinical practice. In these series of reports six common dermatoses have accounted for 44 to 64 per cent of all diagnoses. There have been some variations of the six most common dermatoses. Eczema and acne were the two most frequent diagnoses and usually represented about 30 per cent of the cases. In more recent years tinea (fungous infections) and dermatitis venenata (eczematous contact dermatitis) have become much more frequent diagnoses. These changes have occurred as more accurate diagnoses of the fungous infections were made and as atopic dermatitis, contact dermatitis and the occupational dermatoses were recognized and removed from the eczema group. Sulzberger and Baer³ stated, ". . . the ten dermatoses most commonly seen in our private practice are: acne vulgaris, eczematous contact type dermatitis and other eczemas, seborrheic dermatitis, epidermophytosis of the feet and groins, pruritus (ani, vulvae, generalized), urticaria, atopic dermatitis, drug eruptions, psoriasis and lichen chronicus simplex circumscriptus (circumscribed neurodermatitis)."

It is statistically proved and clinically observed that the ten most common skin diseases represent

From the Department of Dermatology, Southwestern Medical College. Read at the Interim Session of the American Medical Association, St. Louis, Dec. 1, 1948.

1. Goodman, H.: Statistics of the Ten Most Common Skin Diseases, *Arch. Dermat. & Syph.* 20:186 (Aug.) 1929.

2. Sohrweide, A. W.: Recent Changes in Dermatologic Diagnosis, *Arch. Dermat. & Syph.* 30:260 (Aug.) 1934.

3. Sulzberger, M. D., and Baer, R. L.: The Year Book of Dermatology and Syphilology, Chicago, The Year Book Publishers, Inc., 1947, p. 24.

6. Crowe, H. W.: Treatment of Arthritis with Acid Potassium Phosphate, *Lancet* 1:563-564, 1944.

7. Gujral, M. L.: Uses of Testosterone Propionate: Review Together with Short Reports on Its Use in Senile Pruritus and Senile Arthritis in Males, *Indian M. Gaz.* 77:75-79, 1942.

approximately 75 per cent of all the dermatoses. Therefore, the practitioner who is diagnostically and therapeutically familiar with these ten common skin diseases would be able to prescribe adequately for the majority of dermatoses seen in his practice.

The ten most common skin diseases are: (1) acne, (2) seborrheic dermatitis, (3) tinea (fungal infection of the scalp, body, groin, hands, feet, nails), (4) eczema (eczematous dermatitis, nummular eczema, infectious eczematoid dermatitis and atopic dermatitis), (5) dermatitis venenata (eczematous contact type dermatitis, occupational dermatoses), (6) impetigo, (7) scabies, (8) urticaria, (9) psoriasis and (10) pityriasis rosea.

ACNE

Acne is primarily a physiologic overactivity of the pilosebaceous system which is manifest as an oversecretion of sebum by the oil glands with follicular cornification and plugging, seen predominantly in adolescence. The primary lesion is a comedo or milium, which becomes inflamed and produces a papule and may proceed to a pustular lesion, a deep nodule or a cystic lesion with scarring. Infection plays a very little part in the development of acne, and that only secondarily. The bacterial flora of the skin in patients with acne is the same as that of the skin in patients without acne and in similar numbers.

The clinical variations of the disease represent individual reactions to the basic cause and may be changed or aggravated by many factors. Heredity, glandular activity of puberty, endocrine disturbances, intercurrent infections, anemia, use of iodides or bromides, disturbance of water balance, digestive and intestinal dysfunctions, parasympathetic nervous hyperactivity and especially excessive fat intake may be of etiologic significance.

Treatment must be varied depending on the many factors mentioned. The most important therapeutic measure is frequent cleansing with a nongreasy detergent at least once daily. Avoidance of all fatty and greasy applications and elimination of greasy foods from the diet are important general measures.

Daily routine includes (1) soap and warm water cleansing twice daily, (2) removal of comedos, (3) use of resorcinol or sulfur lotion or paste at night, (4) low fat diet (eliminate chocolate), (5) intake of vitamin A, 50,000 units one to three times daily, and (6) administration of estrogens, thyroid or tuberculin, in special cases, with (7) roentgen therapy, 50 to 75 r once weekly for ten to twelve treatments, for the cases of severer disease with deep papules, pustules and cystic lesions, but preferably not until age 17, and (8) weekly shampoo.

SEBORRHEIC DERMATITIS

The term seborrhea is used to designate a type or variety of dermatoses associated with functional hyperactivity of the sebaceous glands. It is difficult accurately to evaluate the bacterial flora present in this type of oily skin, especially in the frequent secondary pyodermic infections. Many observers insist that the flask bacillus (*Pityrosporum ovalae*) is a causative factor. Seborrheic dermatitis may at times be aggravated by emotional disturbances.

The frequent manifestations of seborrheic dermatitis of the scalp are generalized scaling, itching, folliculitis and loss of hair. The external ears and ear canals are frequent sites of scaling, itching, crusting and secondary pyoderma. Seborrheic dermatitis is probably the most common cause of itching of the external ear

canal. Erythematous dermatitis of the eyebrows, eyelids, lid margins, nasolabial folds and at times about the hair line, cheeks, neck and center of the chest are often observed in seborrheic dermatitis.

More extensive cases involve the axillas, the folds beneath the breasts, the umbilicus, groin, vulva and anal area. The eruption may at times become generalized, with extensive areas of erythematous and exudative dermatitis.

The treatment in the acute phase consists of use of wet dressings and soothing emollients. Persistent lesions will usually respond to 3 per cent ammoniated mercury ointment or to combinations of sulfur, salicylic acid and tar ointments. Recalcitrant cases may respond to a few roentgen treatments of 50 to 75 r.

TINEA

The fungus infections of the skin considered are those more frequently observed and, therefore, of practical importance. They are largely superficial in character, affecting mostly local areas.

Trichophytosis (ringworm) manifests itself differently in certain part of the body, presenting distinctive features characteristic of the area of involvement. Treatment of the various types of fungous infections and the involvement of special locations demands considerable variation in therapy.

The more important dermatomycoses are: (1) tinea circinata (corpis), (2) dermatophytosis of the feet, (3) tinea cruris, (4) tinea capitis and (5) onychomycosis.

Tinea Circinata.—*Tinea circinata* is characterized by one or more pea-sized to 2 cm. or larger, circular, circumscribed, slightly erythematous, usually dry, scaling patches. The borders usually are slightly raised above the level of the normal skin and are studded with many small vesicles. The annular arrangement is produced as the lesion extends peripherally, and in some cases concentric circles develop. The majority of cases of tinea circinata are produced by *Microsporon lanosum*. Five to 10 per cent ammoniated mercury ointment, half-strength benzoic and salicylic acid ointment (Whitfield's ointment), undecylenic or propionic acid ointment or 2 to 5 per cent salicylic acid in alcohol usually suffices.

At times extensive lesions develop about the feet and ankles, groin, thighs and buttocks and on the body. These lesions are usually produced by *Trichophyton purpureum* and are very resistant to treatment.

Dermatophytosis of the feet is the most common of the fungous infections. On the feet the primary lesion usually consists of vesicles with patches of macerated epidermis and fissures between and under the toes. Any of the interdigital webs may be affected although the fourth and fifth interspaces are most often involved. Deep-seated multilocular vesicles are observed on the soles, from a single small vesicle to small or large groups, sometimes widely distributed. In chronic cases there may develop thickened hyperkeratotic lesions about the tips of the toes and the edges of the soles and heels. These lesions rarely become acutely inflamed, but frequently persist for long periods.

Absorption of fungous products (trichophytin) from the acute vesicular and bullous lesions of the toes and soles at times produce vesicular lesions elsewhere about the feet and frequently about the fingers and hands. Microscopic examination for fungi from the scaling borders or the vesicular tops of lesions on the feet should be made to prove that the process is actually a fungous infection. The more difficult cases may

require cultural examinations for identification of the organism.

It has been stated that 50 to 70 per cent of the male population have dermatophytosis of the feet. Examinations made during the war period on large groups of troops bore out this impression, and previous surveys made of groups of college students also confirm the frequency of this infection.

The acute infections of the feet should have soap and water cleansing, wet dressings or soaks with aluminum acetate solution (Burrow's solution) or dilute potassium permanganate solution, followed by the application of aqueous solution of merbromin (mercurochrome[®]), methylosaniline chloride (gentian violet) or 2 to 5 per cent ammoniated mercury ointment at night and a drying lotion or powder for use during the day. After the acute process has subsided, undecylenic and propionic acid ointments or half-strength benzoic and salicylic acid ointment may be used and should be continued for several weeks to prevent recurrence. A 1 per cent salicylic acid dusting powder is effective for daytime. A large majority of the complications are either from secondary pyogenic infection or from overtreatment. Roentgen therapy, 50 to 75 r, is effective in controlling the acute inflammatory process, and four to six such treatments are usually sufficient. Roentgen therapy should not be relied on for the major treatment, as it is impossible to destroy fungi by irradiation alone.

Tinea Cruris.—*Tinea cruris* occurs more frequently in men about the upper and inner surfaces of the thighs and is popularly referred to as jockey-strap itch or dhubie itch. The condition begins as a small erythematous scaling or vesicular area, which spreads peripherally with partial clearing in the center. The lesion becomes characterized by its irregular serpiginous, well defined border which has many small vesicles. The process frequently extends downward on the thighs or onto the perineum, about the anus and over the buttocks. At times several palm-sized or larger areas develop, with progression or recurrence for a period of years. These lesions usually are produced by *Epidermophyton inguinale* or *Tr. purpureum*.

If considerable care is not exercised in the treatment of ringworm of the groin an acute exudative dermatitis is produced which greatly increases the patient's discomfort. Undecylenic and propionic acid ointments are less likely to irritate and are very useful in the acute stage. In the more chronic infections, 5 per cent crude coal tar ointment, half-strength benzoic and salicylic acid ointment, 2 to 5 per cent salicylic acid or resorcinol in alcohol are useful. Two parts each of resorcinol and sulfur, 20 parts each of zinc oxide, talcum and glycerine, and sufficient 70 per cent alcohol and camphor water in equal parts to make 120 (Gm. or cc.) will frequently control itching, produce mild exfoliation and effect relief in a high percentage of cases.

Tinea Capitis.—Ringworm of the scalp is an infectious disease occurring principally in school children, occasionally in infants but rarely in adults. In recent years there have been widespread epidemics of ringworm infection of the scalp in many Eastern and Midwestern cities. In these cases 90 per cent of the infections were due to *Microsporum audouinii*. In the Southern states the majority of the infections are produced by *Microsporum lanosum*. The lesions produced by *M. lanosum* are usually contracted from children's pets (dogs and especially cats).

The suddenly appearing small 0.5 to 1 cm. lesion on the scalp more frequently is only slightly inflamed; broken stumps of hairs and scaling rapidly develop, and the area increases in size. There may be only a single lesion, but by careful search of the scalp multiple lesions may be found. In every case there should be careful inspection of the lesion and of the entire scalp with filtered ultraviolet rays, which produce the typical brilliant greenish fluorescence of the infected hairs. By this method infected hairs may be identified and specimens obtained for direct microscopic examination and cultural studies. The lesions produced by *M. lanosum* are much more amenable to local therapeutic measures than those produced by *M. audouinii*. Formerly it was considered essential to have roentgen epilation in every case of infection produced by *M. audouinii*. However, in recent years newer drugs have been introduced which give a high incidence of cure.

The treatment of ringworm of the scalp by topical methods requires detailed instructions: (1) clipping of the hair or shaving of the entire scalp, (2) once or twice daily shampoo with soap and water and the removal of all crusts and loose hairs, (3) manual epilation of all hairs in the involved lesions, and these hairs should be disposed of by burning, (4) the application of the topical medicinal agent to the entire scalp night and morning, (5) covering of the involved areas, or, better, the entire scalp, with disposable paper tissue or some similar material and (6) the wearing of a stocking top cap which should be boiled daily.

These patients should be examined by the physician at one to two week intervals with filtered ultraviolet rays to determine accurately improvement or progression. When manual epilation of the infected hairs is carried out under the Wood light, more rapid improvement may be obtained.

Medication: In past years 5 to 10 per cent ammoniated mercury ointment has been widely used, and combinations of mercury and sulfur, such as 6 parts each of mercuric sulfide and precipitated sulfur, 3 parts salicylic acid and sufficient water soluble ointment base to make 100 (Gm. or cc.) are useful. Schwartz has recently popularized the use of salicylanilide 5 per cent in carbowax 1500. This has been a very effective method, and a large per cent of patients with infections with *M. audouinii* have been cured in ninety to one hundred and twenty days. Cases which are resistant to salicylanilide and the fatty acids, such as undecylenic acid, zinc undecylenate, propionic acid and the propionic salts, will still require roentgen epilation, which must be carefully administered by the Kienbock-Adamson technic after the hair is clipped and the scalp properly marked.

Ringworm infection of the scalp offers much difficulty as an infectious disease. When the importance of diligent treatment is not stressed and in resistant cases, infections may continue for a year or more.

Onychomycosis.—Fungous infections of the nails are caused principally by *Trichophyton gypsum* and *T. purpureum*. Onychomycosis results in destruction of the nails, which become brittle, discolored, lusterless, grooved, pitted and thickened. The nail itself is gradually destroyed, usually from its free edge proximally so that its surface is irregular and has the appearance of being gouged or eaten away. The process may progress over many years, and at times paronychia reactions develop in the adjacent soft tissues. Ringworm infection of the nails is a frequent source of reinfection of dermatophytosis of the feet. Onychomy-

cosis does not respond readily to local medicinal agents, and infections of this type are usually resistant to irradiation. By careful paring and daily filing, followed by the application of benzoic and salicylic acid ointment, one may cure a single infected nail in a small percentage of cases. When several nails are involved, the best therapeutic measure is surgical avulsion of the individual nail. This is followed by daily treatment, first with 5 per cent ammoniated mercury ointment and later by gentle daily filing with an emery board and the application of half to full strength benzoic and salicylic acid ointment. Recurrence of infection will develop in the new nails in 10 to 25 per cent of cases and may require second or even third removal. Surgical removal offers the only high percentage of permanent cures.

ECZEMA

The term eczema is used to include a variety of scaling, papular erythematous, vesicular, exudative, itching or burning cutaneous eruptions which frequently cannot be readily relegated to a more definite category. These lesions may be acute, subacute or chronic, with the many associated secondary cutaneous changes.

A high percentage of eczematous skin diseases will be found to have been produced or aggravated by the topical medications previously used. Many early irritative reactions may be recognizable as contact dermatitis, but subsequently have no resemblance to the original disease. Many dermatoses result from sensitivity to oral medication, such as with sulfonamide drugs, penicillin and barbiturates. A few are related to focal infections of teeth, tonsils or other foci. There are still eczemas of undetermined origin which probably stem from combinations of systemic, infectious, allergic and local factors. A detailed history and observation of the individual lesion is helpful in evaluation of the process and in determination of the causative factors. There are many articles on eczema which clearly and adequately outline the various differential diagnoses and help the practitioner more accurately to evaluate eruptions that otherwise would be considered as types of eczema. Such diseases as fungous infections, seborrheic dermatitis, psoriasis, neurodermatitis, contact dermatitis and occupational dermatoses should be recognized and properly diagnosed. The disease in many of the complicated cases can be determined or proved only at some subsequent date after the process has subsided and appropriate tests carried out to prove the diagnosis. The more complicated cases will require detailed study by physicians trained in cutaneous diseases. It is readily seen that, in its broad sense, not only is eczema protean in its clinical manifestations but its causes are varied, numerous and frequently complex.

Diet plays very little part in the eczema type of disease, except in atopic dermatitis, especially the infantile eczemas which are due more frequently to milk, egg or wheat. Diet may play a part in a small number of the vesicular dermatoses of the hands.

Treatment usually can be initiated on a morphologic basis—mild and soothing applications, such as poultices and wet dressings, in acute dermatitis followed by emulsions and mild emollients. Five per cent bismuth tribromphenate or 3 to 5 per cent mercury ointment is useful for the infectious lesions. The wet dressings may be applied as local compresses or as oatmeal, soda and starch baths. Lotions may be applied several times daily and rarely require dressings. In the acute processes ointments and pastes, when used,

may best be spread on dressings. The more frequently used lotions are aqueous calamine lotion and the oily calamine emulsion, to either of which may be added camphor, menthol, resorcinol or coal tar solution. When the acute reaction has subsided, resorcinol paste or mild tar ointments may be used. Tar, sulfur, salicylic acid and resorcinol are useful in the cases of more chronic disease. Control of the acute eczematous process and pruritus may be relieved by the use of low voltage roentgen rays.

DERMATITIS VENENATA

Dermatitis venenata is the diagnostic term used for the many dermatoses resulting from a variety of irritating external contact substances. The skin is the only organ constantly exposed to external injuries from physical and chemical agents.

Dermatitis which develops as a sensitization phenomenon, after previous exposure to a contactant, is more accurately entitled eczematous contact dermatitis. Many cases develop in certain industries and come under the classification of occupational dermatoses.

Many cases in which the eruption is considered as dermatitis venenata result from contact with materials that are primary irritants. There may be no preceding contact or exposure, and these substances will produce dermatitis in the majority of persons. A number of materials may be primary irritants in high concentration and produce dermatitis in the majority of persons exposed. The same material in less concentration may produce dermatitis in a small number of persons, and then only after previous or continued exposure.

Lane has estimated that 10 to 12 per cent of all dermatoses are of industrial origin and that dermatoses comprise 65 per cent of industrial diseases, exclusive of accidents.

The most important problem in the eczematous dermatitis venenata type of dermatoses is to determine whether the dermatitis was caused by an external irritant, an epidermal sensitivity or some internal agent or other mechanism.

The substances to which the skin reacts and the occupations in which these substances are met are great in number. Weber listed all reported external causes of dermatitis. Five hundred and eighty-five occupations were included, along with the various substances which have been found responsible for cutaneous reactions. Shelmire has listed fifty-five weeds which he considers important in producing contact dermatitis. These and many other reports will give accurate lists of the substances and the occupations in which they are encountered.

A brief list of the more frequent materials producing eczematous contact dermatitis are: (1) hair dyes, fur dyes, hair tonics, hair lacquers, bleaches, creams, depilatories, deodorants, nail polish, perfumes, soap and hand lotions; (2) wool, silk, rayon, nylon and the aniline dyes; (3) flowers, plants, weeds, woods, insecticides, leather, silver, nickel, rubber, tobacco and matches, and (4) medicinal preparations: mercury; cresol, phenol, sulfur, resorcinol, quinine, sulfonamide drugs, local anesthetics, formaldehyde, picric acid and medicated soaps.

The most frequent causes of occupational dermatoses are: (1) acids and alkalis, including cement; (2) petroleum products: oils, greases and tar; (3) solvents: turpentine, carbon bisulfide, carbon tetrachloride, toluene, petroleum distillates and alcohol; (4) paints,

varnishes and lacquers; (5) rubber and rubber compounds; (6) metals and metal plating; (7) chromic acid, salts and picric acid; (8) resins and waxes, natural and synthetic; (9) dyes: aniline, anthracene, nitro compounds and paraphenyldiamine; (10) plants: primrose, ivy, hemp, dandelion, daisy, parthenium, ragweed, cocklebur, mahogany, boxwood, cocobolo wood, satinwood and mesquite wood; (11) insecticides: pyrethrum, creosote, fluorides, mercury, phenol, arsenic and dichlorodiphenyltrichloroethane (DDT); (12) soaps, excess alkali, antiseptics and perfume, and (13) photographic chemicals: methyl-amino-cresol-sulfate (metol[®]), bichromates, pyrogallol and hydroquinone.

IMPETIGO

Impetigo is an acute infectious disease characterized by the occurrence of discrete thin-walled vesicles and bullae which rapidly become pustular and then dry to form yellowish crusts. There are many clinical variations of the disease. The face and other exposed portions of the body are more frequently involved. The primary lesion is a small, thin-walled vesicle which becomes pustular, dries and develops a yellow crust. New vesicular borders continue to develop, which increase in size with the formation of variously shaped lesions. After a few days concentric lesions may be observed with a vesicular area at the periphery and varying degrees of drying and crusting in the central portion. Bullous lesions may occur, especially about the neck, axillas and groin.

The disease is produced by several pyogenic bacteria. Streptococci and staphylococci usually are found either singly or in combination. A majority of the cases probably are due to hemolytic streptococci.

The most important therapeutic measure is the thorough and frequent removal of the vesicular tops and crusts. This is accomplished by soap and water scrubbing, cleansing with one of the antiseptic detergents or by the use of hydrogen peroxide. After all of the crusts are removed, with debridement of the vesicular borders, topical medication may be applied. The more useful local applications are: (1) 2 to 5 per cent solution of merbromin (mercurochrome[®]), (2) 2 to 5 per cent solution of methylrosaline chloride, (3) alibour lotion, (4) 2 to 5 per cent ammoniated mercury ointment, (5) 5 per cent bismuth tribromphenate ointment, (6) penicillin ointment, (7) nitromersol (metaphen[®]), 1:500 in collodion, and (8) penicillin and the sulfonamide drugs, which may be used for their systemic effect in extensive and resistant infections. The sulfonamide drugs should not be used locally because of their high sensitizing factor and the many serious complications. Mercury and penicillin may produce sensitization dermatitis. Solution of silver nitrate may produce pigmentation or permanent tattooing.

SCABIES

Scabies is a contagious disease of the skin produced by *Acarus scabiei* and characterized by intense itching, which occurs chiefly at night. The typical primary lesion is the burrow. It is produced as the female *Acarus* invades the skin. The most frequent lesions are small papules, followed by the development of vesicles, pustules and excoriations.

The distribution follows a definite pattern, involving finger webs, thenar and hypothenar eminences, flexor surface of the wrists, elbows, axillary folds, abdomen, buttock, the breast in female patients and the penis and

scrotum in male patients. The extent of the eruption is directly proportional to the degree of hygiene. In children and unclean persons, the eruption may be widespread, whereas in scrupulously clean persons only a few scattered lesions may be found.

The diagnosis is made by recognition of the multi-forme eruption, in the sites of predilection associated with nocturnal itching. Observation of the adult parasite, nymphs or eggs in potassium hydroxide mounts establishes unequivocal diagnosis.

Treatment includes use of: (1) soap and water baths, (2) sulfur ointment (sulfur dermatitis is a frequent complication), (3) benzyl benzoate 25 per cent emulsion, (4) kwell[®] (hexachlorocyclohexane) ointment, (5) DDT, benzyl benzoate, ethyl aminobenzoate, tween 80[®] (tweens comprise a series of polyoxyalkylene derivatives of hexitol anhydride partial long-chain fatty acid esters) and water (Eddy's formula) (sensitivity to ethyl aminobenzoate may occur), (6) pyrethrum ointment 25 per cent and (7) clean personal and bed clothes after completion of treatment.

URTICARIA

Urticaria occurs in acute and chronic types. The acute type is common, and there may be only one attack or there may be several at regular or irregular intervals. The chronic type is fortunately rare, but it may last for months or years and prove refractory to all treatment unless definite causative factors can be determined. The ordinary lesions consist of wheals, white, pink or red, and papules, small to palm sized or larger. Itching usually is the presenting symptom and varies from a mild sensation to extreme distress with severe prolonged pruritus.

The cases of acute disease usually are of short duration, three days to three weeks. They frequently develop after a recent febrile illness or gastrointestinal upset, but may be related to drugs, focal infection or serum reaction. The majority of the cases of acute disease appear suddenly, following some indiscretion of food or drink with varying degree of intestinal upset, and are usually manageable with a single saline purge or administration of castor oil and an antihistaminic drug.

In former years, epinephrine, ephedrine, propadrine[®] hydrochloride (d 1-1-phenyl-2-aminopropanol hydrochloride) and similar drugs were fairly effective control measures. In the past three years, a new group of antihistaminic drugs have been introduced which give more accurate methods of treatment of the majority of the cases of acute urticaria and are extremely helpful in chronic urticaria. There are more than a dozen of these new drugs which have been fully discussed and evaluated in recent medical literature. There is, however, some difficulty in selection of these drugs because of their chemical similarity.

Frequently, it is advisable on the initial visit to give: (1) castor oil, (2) an adequate dose of epinephrine in oil (1:500) and (3) one of the antihistamines. In many of the cases of acute disease this suffices. Cases of severer disease may require antipruritic lotions and soda and starch baths to alleviate itching.

Few of the cases of acute disease have a definite food allergy basis, but often there is an allergic manifestation due to drugs. This has been particularly true with the use of penicillin and more frequently with the use of penicillin in oil and wax. The antihistamines have made the continued use of penicillin possible in

many cases that would otherwise require discontinuance of this drug.

In cases of chronic disease, which has been present for six months to several years, an exhaustive history is necessary in identifying the causative factors. Most of these cases will be found to be due to drugs taken over a considerable period of time, chronic focal infections, food allergies or psychosomatic disturbances.

In the management of these cases all drugs ingested during the period of the urticaria should be ascertained and, except where essential, immediately discontinued. Thus rapid evaluation of the effect of drugs can be obtained. When study of foods seems indicated, dietary restriction is necessary. It is frequently helpful to eliminate all foods except buttermilk and rye crisp® wafers for a week or more. After this period, one food may be added daily until a recurrence of the urticaria develops. Then the last three foods are discontinued, but additional foods may be added. Later foods to which there is an apparent reaction may be added at an interval of several days, and in this manner the foods may be identified. When drugs and foods have been eliminated as causative factors, determination, evaluation and eradication of foci of infection become important. The more frequent foci are the teeth, tonsils, sinuses, nasopharynx, gallbladder, appendix, cervix, gastrointestinal tract and genitourinary system. Surgical intervention for foci of infection should be the last of the investigative procedures in the evaluation of chronic urticaria.

PSORIASIS

Psoriasis is a chronic inflammatory disease, occasionally acute, characterized by formation of papules that have a dull red base and are covered by imbricated micaceous scales. The number and shape of the lesions vary from a few isolated papules to numerous thickened plaques forming gyrate and circinate configurations. The lesions are surrounded by normal skin. Subjective symptoms, such as itching and burning, are absent in most cases. The lesions heal without scarring.

The most common involved areas are the elbows, knees, scalp, trunk and sacral region. The nails, palms or soles may be affected without evidence of lesions elsewhere. Psoriasis of the nails gives characteristic stippling and accumulation of hyperkeratotic material beneath the nail that subsequently causes separation. In the scalp thickened plaques usually are limited to hairy areas, but may extend onto the face. Psoriasis at times involves primarily the moist folds, especially the groin, perineum, the area between the buttocks, the umbilicus and beneath the breasts. Lesions of this type are erythematous, exudative and much less characteristic. This type of psoriasis frequently is mistaken for infection due to *Monilia* organisms or seborrheic dermatitis.

Psoriasis is a disease of all ages but predominantly affects persons in the second and third decades. The course is unpredictable. It may remain localized in sites of predilection for years, with periods of quiescence and recurrence. The tendency to recurrence is the most prominent feature of the disease.

Psoriasis is incurable but does not affect the patient's general health. The lesions in many patients entirely disappear during the summer and recur in winter. The few cases seen in the tropics and the improvement in recalcitrant cases points to beneficial effects of ultraviolet rays. In general, psoriasis is a manageable disease, and most patients may remain free of lesions

a major portion of the time by diligent treatment of each exacerbation.

The cause of this disease is still unknown; however, present evidence points a disturbance in lipid metabolism. Most investigators recognize that heredity is a factor in about 25 per cent of cases.

Acute cases of psoriasis frequently are associated with recent febrile infections or other acute diseases. Treatment must not be energetic. Colloid baths, boric acid ointment, Lassar's paste or coal tar ointment should be used until the acute phase subsides. Otherwise, the disease may rapidly develop into generalized erythroderma or exfoliative dermatitis.

The chronic nummular lesions will usually respond to 5 to 10 per cent ammoniated mercury ointment or ammoniated mercury and sulfur, 5 per cent each, or 5 to 10 per cent crude coal tar ointment followed by ultraviolet rays as advised by Goeckerman. Chrysarobin ointment, 3 to 5 per cent, or chrysarobin in chloroform, 30 per cent crude coal tar paint is useful in resistant plaques. Chrysarobin must be used carefully and should not be applied about the face and scalp. A few irradiations of 75 r to individual lesions will usually produce prompt involution. However, a single area should not receive more than twelve 50 to 75 r treatments in a lifetime. Roentgen therapy should be used only for the more resistant lesions, because of recurrences and chronicity of the disease. After two or three roentgen treatments, ultraviolet rays and tar ointments are used for prolonged therapy.

Low fat diet, small doses of thyroid, pancreatic extracts, whole blood injections, tar or sulfur baths and sun baths are of general value.

PITYRIASIS ROSEA

Pityriasis rosea is an acute papulosquamous eruption characterized by round or oval lesions that have slightly raised borders and a cigaret-paper-like center. The lesions are dry and are covered by a fine fawn-colored scale. The disease is seasonal, occurring principally in the spring and fall. The eruptive nature and lack of recurrence of the disease suggests an infectious process.

The trunk, arms and thighs are the sites of predilection, with lesions developing along the lines of cleavage. Rarely does the eruption occur on the face. In half of the cases, the generalized eruption is preceded by a primary lesion or herald plaque, by four to seven days. The eruption may vary from a few 1 to 2 cm. lesions to an extensive generalized dermatitis with hundreds of 1 to 4 cm. oval and circinate lesions. Itching may be moderate to severe.

The disease is self limited and runs its course in three to twelve weeks. This period may be decreased by treatment with antipruritic lotions, starch baths and ½ erythema doses of ultraviolet rays every five to seven days for two or three treatments. Application of 8 parts each of resorcinol and glycerine and sufficient 70 per cent alcohol and camphor water in equal parts to total 240 (Gm. or cc.) twice daily relieves itching, produces mild exfoliation and speeds recovery.

SUMMARY

A review of the literature as to incidence of the most common cutaneous diseases is presented. The ten most common cutaneous diseases are named and treatment discussed. Physicians familiar with these ten diseases may care for the majority of cutaneous diseases seen in their practice.

318 Medical Arts Building.

RESECTION OF THE LEFT AURICULAR
APPENDIX

A Prophylaxis for Recurrent Arterial Emboli

JOHN L. MADDEN, M.D.
New York

A therapeutic problem which remains unsolved is the one pertaining to recurrent arterial emboli. Once a peripheral embolus has occurred there is a high incidence of recurrence. Unfortunately, all too frequently the recurrent embolus is fatal, commonly involving one of the cerebral arteries.¹ As Jefferson so aptly stated²: "In the nature of things a very high percentage of successes is unlikely ever to be attained, for emboli are apt to be multiple and further infarction will sometimes carry off the patient in whom a local success has been won."

Since a thrombus is the precursor of every arterial embolus, the ideal prophylaxis for recurrent arterial emboli should be the removal of the thrombus together with its site of origin. Rheumatic mitral stenosis is one of the commonest causes of a peripheral arterial embolus, an embolus occurring in approximately 45 per cent of the cases.^{1b} In this disease the embolus originates as a mural thrombus within the left auricle or its appendix, more commonly the latter.

In accordance with this fact, Dr. William Dock in 1946 suggested a resection of the left auricular appendix in cases of rheumatic heart disease with mitral stenosis, auricular fibrillation and recurrent arterial emboli. This suggestion provided a stimulus for a study which was recently culminated in the performance of the operation on 2 patients.

Hellerstein and his associates,³ and more recently Burdette,⁴ have reported the feasibility of resection of the atrial appendages in the dog. In a series of 8 experiments reported by Hellerstein, a left atrial appendectomy was performed in 5, a right atrial appendectomy in 2 and a bilateral atrial appendectomy in 1. All but 1 of the dogs survived the operation. A post-mortem study at varying intervals four to twelve weeks postoperatively revealed complete endothelialization at the site of the atrial scar. No subjacent mural thrombi were found. The operation was suggested as a possible therapeutic approach to the problem of peripheral arterial emboli in patients with rheumatic mitral valvular disease.

Two cases are herein reported in which a resection of the left auricular appendix was performed in the human being as a prophylaxis for recurrent arterial emboli.

REPORT OF CASES

CASE 1.—The patient, a 38 year old white woman, was admitted to the hospital on Sept. 9, 1946, complaining of pain, numbness and tingling in the left leg of thirteen hours' duration. The past history revealed the presence of chronic rheumatic heart disease with mitral stenosis and auricular fibrillation. Three months before the patient's admission symptoms of congestive heart failure occurred, which subsided with appropriate digitalis treatment. A maintenance dose of digitalis was prescribed.

From the Department of Surgery, Long Island College of Medicine, and the Surgical Service, Long Island College Division, Kings County Hospital, Brooklyn.

1. (a) Levine, S. A., in discussion on Garvin,⁵ (b) Weiss, S., and Davis, O.: Rheumatic Heart Disease, *Am. Heart J.* 9: 45-52, 1933-1934.
2. Jefferson, G.: A Successful Case of Embolotomy with a Review of the Literature, *Brit. M. J.* 2: 985-987, 1925.

3. Hellerstein, H. K.; Sinaiko, E., and Dolgin, M.: Amputation of the Canine Atrial Appendages, *Proc. Soc. Exper. Biol. & Med.* 66: 337, 1947.

4. Burdette, W. C.: Personal communication to the author.

Examination disclosed an embolic occlusion of the left common iliac artery. The heart was not decompensated. Approximately twenty hours after the onset of symptoms a transperitoneal embolectomy was performed successfully.

The patient was admitted to the hospital for the second time on Jan. 11, 1948 (fifteen month interval), complaining of numbness and tingling in the right leg of two hours' duration. In the interval between admissions to the hospital manifestations of congestive heart failure occurred several times, but the symptoms abated after an increase in the maintenance dose of digitalis.

Examination showed an embolic occlusion of the right popliteal artery. About five hours after the onset of symptoms the embolus was removed successfully.

In view of the history of chronic rheumatic heart disease with mitral stenosis, auricular fibrillation and recurrent peripheral arterial emboli, a resection of the left auricular appendix was advised. On February 21, with intratracheal anesthesia (gas, oxygen and ether) a resection of the left auricular appendix was performed.

During the operation stoppage of the heart occurred. Immediate manual massage of the heart was begun concomitant with the maintenance of artificial respiration by a rhythmic compression of the breathing bag. The recovery of the patient was complete.

An examination immediately postoperative revealed a left hemiparesis, which was believed to be secondary to a right cerebral embolus. Subsequently, a decided personality change was observed, which persisted throughout the stay in the hospital.

The improvement in the general condition of the patient was continuous. There was a gradual restoration of function in the left lower but none in the left upper extremity. On discharge from the hospital, on May 13, eleven weeks after the operation, the patient was ambulatory with assistance.

A recent examination, in November 1948, eight months postoperatively, disclosed a continued improvement. The return of the personality to normal was apparent immediately. A spastic hemiplegic gait was present, but the patient walked well without support. In the left lower extremity the return of function approached the normal, whereas in the left upper extremity the movements were limited. Auricular fibrillation with a pulse rate deficit of 16 was present. There was no recurrence of peripheral arterial emboli.

*Results of Examination of Tissue (by Dr. Caspar G. Burn).—*Gross Observations: The specimen, a large auricular appendix (left), measured 3.0 cm. by 2.5 cm. by 2.0 cm. It was filled with an organizing red to white thrombus. The thrombus was firmly adherent to the endocardial surface of the appendix.

Microscopic Observations: Decided hypertrophy and fibrosis of the appendix were present. The myocardial cells contained large irregularly shaped hyperchromatic nuclei, which on cross section were stellate in shape. Vacuolization and fibrillary degeneration of the myocardial fibers were present. There was diffuse interstitial fibrosis and congestion of vascular channels. The endocardium was thickened and hyalinized. An ante-mortem thrombus, in which interlacing lines of Zahn were present, was attached to a denuded area of the endocardium. In the epicardial adipose tissue focal areas of hemorrhage were present.

Diagnosis: The diagnosis was (1) myocardial hypertrophy and fibrosis of the left auricular appendix and (2) mural thrombus of the left auricular appendix.

Comment.—In this patient the indication for the operation was supported by the pathologic observations. The auricular appendix was approximately three times its normal size, immobile, tense and distended. Mural thrombi were palpable within the auricula, and future embolic phenomena appeared inevitable.

It was assumed that the cerebral embolus occurred during the operation. It may have occurred when the clamp was applied to the base of the auricular appendix or when massage of the heart was performed. Because of the pathologic observations at the operation, the former view was considered the more probable. The personality change could not be explained solely on the basis of a cerebral embolus. The cerebral anoxia

concomitant with the cardiac stoppage was believed a contributory cause.

CASE 2.—The patient, a 52 year old white man, was admitted to the hospital on Dec. 21, 1947, complaining of pain in the lower extremities of one and one-half hour's duration.

In 1946 the diagnosis of chronic rheumatic heart disease with mitral stenosis, auricular fibrillation and congestive heart failure was made. Digitalis was prescribed, and treatment was maintained until the patient's admission to the hospital. There were no recurrent attacks of congestive heart failure.

Examination showed an embolic occlusion of the abdominal aorta at its bifurcation. Approximately five hours after the onset of symptoms a transperitoneal aortic embolectomy was performed successfully.

In this patient, because of the diagnosis of rheumatic heart disease with mitral stenosis, auricular fibrillation and a recent embolic occlusion of the abdominal aorta, a resection of the left auricular appendix was advised. On March 6, 1948, with intratracheal anesthesia (gas, oxygen and ether) the left auricular appendix was resected.

Hospital Course.—In the early postoperative period, oliguria, abdominal pain and distention were complicating features. Tenderness in the right upper quadrant of the abdomen was severe. With relief of the abdominal distention the tenderness was less severe and overlay an enlarged liver.

One week after the operation the patient was out of bed and apparently much improved. However, on the ninth postoperative day he complained of weakness and was apprehensive.

TABLE 1.—Site of Mural Thrombi in Coronary Thrombosis with Myocardial Infarction

Author	Number of Cases	Ventricular Thrombi	Auricular Thrombi	Auricular Thrombi Alone
Hay and Levine.....	37	37 (100%)	1 (2.7%)	0 (0.0%)
Garvin.....	89	78 (87.6%)	6 (6.7%)	0 (0.0%)
Total.....	126	115 (91.2%)	7 (5.5%)	0 (0.0%)

The heart beat, though irregular, was slow and forceful. The pulmonary observations were normal. Blood and urine values were relatively normal. The only positive clinical observation was the hepatomegaly. The subjective weakness and apprehension persisted. At 5 p. m. the same day, the patient sat up to take a drink of water and suddenly died. An immediate aspiration of the left pleural cavity showed no abnormality. Permission for a necropsy was not granted.

Results of Examination of Tissue (by Dr. Caspar G. Burn).—Gross Observations: The specimen, an auricular appendix (left) measured 3.0 cm. by 0.5 cm. A mural thrombus was present within the lumen of the appendix and conformed to the fossae formed by the musculi pectinati. The thrombus, a homogeneous pale brown, was "rubbery" in consistency.

Microscopic Observations: The muscular component was slightly hypertrophic, and cellular fibrosis was present. The epicardial fat was normal. The endocardial surface was covered in some areas by the remains of a thrombus composed of fibrin, red cells and debris.

Diagnosis: The diagnosis was mural thrombus of the left auricular appendix.

Comment.—In this patient, in contrast to the preceding, the left auricular appendix was normal in size and in appearance. Fibrillary auricular contractions were present. Because of the possibility that the prior aortic occlusion was the result of a complete detachment of a mural thrombus, a prophylactic resection of the auricular appendix was done. Although not palpated at operation, in the resected specimen an organized mural thrombus was found.

The diagnosis of an embolic occlusion of the aorta may be questioned. The thrombus at operation extended from a point just below the level of the renal arteries, downward beyond the bifurcation of the abdominal aorta into the common iliac

arteries on either side. Atherosclerotic changes in the aorta were present. The clot was unduly adherent to the intima. To dislodge the clot completely, a forceful "milking" action of the fingers was necessary. The "embolus" in this patient may have been a local thrombotic occlusion of the abdominal aorta.

The embolic theory was not without support. Microscopic examination of the resected auricular appendix revealed that the endocardial surface was covered in some areas by the remains of a thrombus composed of fibrin, red cells and debris. From this report it is conceivable that an embolus could have formed by a detachment of a portion of the mural thrombus.

The differential diagnosis between an autochthonous thrombus (a thrombus formed where found) and an embolus may be most difficult, if not impossible. In the older age groups, despite the increased incidence of mural thrombosis, the possibility that the existent arterial occlusion may be due to a local thrombus always must be considered.

GENERAL COMMENT

The first prerequisite to a resection of the left auricular appendix should be the establishment of a sound pathologic basis for the operation. Accordingly, several questions were proposed: (1) What is the mode of origin of peripheral arterial emboli? (2) what are the predisposing causes, if any, to the formation of such thrombi? (3) How frequently do mural thrombi form in the left auricle and its appendix? (4) What is the relationship between the presence of a thrombus in the left auricle and/or its appendix and the occurrence of peripheral arterial emboli?

Bull⁵ mentioned five different possible sites of origin of peripheral arterial emboli: (1) a central spot in an artery, especially the aorta; (2) the left side of the heart; (3) pulmonary veins; (4) the right side of the heart, and (5) systemic veins. The last two presuppose the presence of a patent foramen ovale (paradoxical embolus). The first two are the most frequent sites and merit particular study.

An ulceration overlying an atheromatous plaque in an artery, such as the aorta, may be the focus of origin of a thrombus. This thrombus may remain localized, increase in size and ultimately produce a thrombotic occlusion of the artery. On the contrary, the thrombus may become wholly or partially detached and form a peripheral arterial embolus. The differentiation between an autochthonous thrombus and a peripheral embolus is not always possible, even at operation or necropsy. Many conditions classified as embolic arterial occlusions are local thrombotic occlusions. The converse is also true.

The commonest mode of origin of a peripheral arterial embolus is the detachment, in whole or in part, of a mural thrombus located in one of the chambers of the left side of the heart. The exact mechanism of formation of a mural thrombus may not be ascertained in every case. However, there are predisposing factors which, whether alone or in combination, underlie the formation of cardiac mural thrombi, viz., (1) an underlying heart disease, (2) congestive heart failure, (3) disturbances in cardiac rhythm and (4) age of the patient.

A relationship exists between the type of heart disease and the location of a mural thrombus. In coronary thrombosis with myocardial infarction, mural thrombi are frequently present. Garvin⁶ has reported an inci-

5. Bull, P.: What Can More Than 6,000 Postmortem Examinations Teach Us about Emboli and Embolic Gangrene of the Extremities? *Acta chir. Scandinav.* 54: 315-338, 1921-1922.
6. Garvin, C. F.: Mural Thrombi in the Heart, *Am. Heart J.* 21: 713-720, 1941.

dence of 67 per cent. In approximately 90 per cent of the cases the mural thrombi are located within the ventricles, particularly the left ventricle (table 1).

In over 30 per cent of the cases of uncomplicated hypertensive heart disease, mural thrombi may be present.⁶ As in coronary thrombosis the thrombi are located predominantly in the ventricles.

In rheumatic heart disease with mitral stenosis the incidence of mural thrombus formation has been reported to vary from 13 per cent⁷ to 32 per cent.⁸ However, in contrast to coronary thrombosis and hypertensive heart disease, in about 90 per cent of the cases the mural thrombi are located in the auricles, mainly in the left auricle and its appendix.⁶ In an analysis of a composite study of 69 cases of rheumatic heart disease (table 2) with mural thrombus formation, a thrombus was found in the left ventricle alone only in 2 cases (2.9 per cent).

Congestive heart failure and auricular fibrillation predispose to the formation of cardiac mural thrombi and peripheral arterial emboli. Graef and his associates⁷ noted the presence of congestive heart failure in 21 of 24 cases in which mural thrombi were found at necropsy. In the remaining 3 a history of previous attacks of congestive heart failure was obtained.

In Garvin's⁶ series of 60 patients with auricular fibrillation, 26 (43.3 per cent) had mural thrombi, whereas in 51 patients without auricular fibrillation mural thrombi were present in only 9 (18 per cent). Weiss and Davis^{1b} studied a group of 28 patients with auricular thrombi. In 25 the rhythm had been determined, and in 22 (88 per cent) auricular fibrillation was present.

The final factor in the formation of mural thrombi is the age of the patient. Garvin⁶ and subsequently Hay and Levine⁸ demonstrated that mural thrombi occurred more frequently in the older age groups.

What is the relationship between the presence of a mural thrombus and the incidence of peripheral arterial emboli? In the study by Bull⁶ mural thrombi were present in one or more of the heart chambers in 86.6 per cent of the cases in which embolic gangrene of the extremities was present. A mural thrombus that occurs as a complication of rheumatic heart disease is the commonest mode of origin of a peripheral arterial embolus. Levine^{1a} found that thrombi in the auricles were the immediate cause of death in 20 per cent of all cases of rheumatic heart disease. Weiss and Davis^{1b} analyzed 164 cases of rheumatic heart disease in which the cardiac damage was the direct cause of death. In 73 (45.5 per cent) of the cases a peripheral arterial embolus had occurred. In 30 (41.1 per cent) the source of the embolus was demonstrated. In 28 (93.5 per cent) of the latter the auricles were the site of mural thrombi. Garvin⁶ showed that in the presence of mural thrombi in the right side of the heart, pulmonary infarcts occur three times more frequently than in their absence. Similarly, infarcts of the brain, kidney, spleen and extremities are more than twice as common in the presence of mural thrombi in the left side of the heart as in their absence. In the series reported by Harvey

and Levine,¹⁰ peripheral arterial emboli occurred in 56 per cent of the cases with auricular thrombi and in 43 per cent of the cases with ventricular thrombi.

The antemortem clinical diagnosis of a mural thrombus in one of the heart chambers may be most difficult. There is no one sign or symptom which is pathognomonic. However, the presence of a cardiac thrombus may be suspected in the following instances¹⁰: (1) in cases of coronary thrombosis with evidence of peripheral arterial embolism and (2) in cases of chronic valvular heart disease with auricular fibrillation and evidence of either pulmonary or peripheral arterial infarction. In the former, the mural thrombi are predominantly ventricular in location, whereas in the latter, the auricles, particularly the auricular appendices, are the site of thrombus formation.

In an analysis of the data presented, the one indication for a resection of the left auricular appendix is in a patient with rheumatic heart disease and mitral stenosis, with or without auricular fibrillation, who has had one or more recent peripheral arterial embolic occlusions.

The operation is not a standard one. Unfortunately, it is only by trial and error that a satisfactory

TABLE 2.—Site of Mural Thrombi in Rheumatic Heart Disease with Mitral Stenosis

Author	Number of Cases	Auricular Thrombi	Ventricular Thrombi	Ventricular Thrombi Alone
Garvin.....	37	32 (86.5%)	5 (13.5%)	2 (5.4%)
Graef.....	24	24 (100%)	0 (0.0%)	0 (0.0%)
Harvey and Levine.....	8	8 (100%)	0 (0.0%)	0 (0.0%)
Total.....	69	64 (92.7%)	5 (7.2%)	2 (2.9%)

technic may be evolved. It is hoped that this report will serve as a stimulus to others who are interested in this field of surgery. Improvements in and refinements of surgical technic should be acquired as experience with the operation becomes general. The value of resection of the left auricular appendix as a prophylaxis for recurrent arterial emboli may be established only after a prolonged period of observation and a careful evaluation of the clinical results obtained.

SUMMARY AND CONCLUSIONS

The commonest mode of origin of a peripheral arterial embolus is the detachment in whole or in part of a mural thrombus located in one of the chambers of the heart. Mural thrombi occur most frequently in cases of coronary thrombosis with myocardial infarction and in rheumatic heart disease.

In approximately 90 per cent of the cases of myocardial infarction, the ventricles, particularly the left, are the site of thrombus formation. In over 90 per cent of the cases of rheumatic heart disease, the thrombi are located in the auricles, particularly in the auricular appendices.

Cardiac mural thrombosis varies in a direct ratio to the age of the patient, the presence of auricular fibrillation and/or congestive heart failure. Peripheral arterial emboli are associated most frequently with

7. Graef, I.; Berger, A. R.; Bunim, J. J., and De La Chapelle, C. E.: Auricular Thrombosis in Rheumatic Heart Disease, *Arch. Path.* 24: 344-365 (Sept.) 1937.

8. Hay, W. E., and Levine, S. A.: Age and Auricular Fibrillation as Independent Factors in Auricular Mural Thrombus Formation, *Am. Heart J.* 24: 1-3, 1942.

9. Garvin, C. F.: Mural Thrombi in the Heart as a Source of Emboli, *Am. J. M. Sc.* 201: 412-415, 1941.

10. Harvey, E. A., and Levine, S. A.: A Study of Uninfected Mural Thrombi of the Heart, *Am. J. M. Sc.* 180: 365-372, 1930.

rheumatic heart disease, occurring in approximately 45 per cent of the cases. In 15 to 20 per cent of the cases of rheumatic heart disease, a cerebral embolus is the immediate cause of death. The differentiation between an autochthonous thrombus and an arterial embolus may be impossible even at operation or necropsy.

Two cases are reported in which a resection of the left auricular appendix was done as a prophylaxis for recurrent arterial emboli. The first patient survived, and the second died.

Resection of the left auricular appendix is suggested as a prophylaxis for recurrent arterial emboli. The one indication for the operation is in a patient with rheumatic heart disease and mitral stenosis, with or without auricular fibrillation, who has had one or more recent peripheral arterial embolic occlusions.

SURGICAL TREATMENT OF THE "CARDIAC LUNG"

Ligation of the Inferior Vena Cava and/or Tricuspid Valvulotomy

PEDRO COSSIO, M.D.

and

ISIDRO PERIANES, M.D.
Buenos Aires, Argentina

Engorgement of the lung is the most important complication produced by left ventricular failure or mitral stenosis. Medical treatment is effective, but only during a period of months or years. Sooner or later life becomes intolerable for the patient, and the physician finds himself forced to resort to the use of morphine for the few days or months of life before fatal termination. The medical treatment of the "cardiac lung" is based on the reduction of the waterlogged blood in the lungs, either by improving the efficiency of the left ventricle by administration of digitalis or by reducing the output of the right ventricle by venesection, mercurial diuretics, low sodium diet and morphine (Fishberg¹).

Surgical treatment must likewise be directed toward the same objective, restoration of equilibrium between the two ventricles. Two types of operation were devised. One is intended to drain off blood from the pulmonary venous system toward some sector of the systemic circulation, by end to end anastomosis of a large pulmonary vein with the axillary artery, the splenic vein or the azygos vein. The second is directed to reduction of the right ventricular output either by tricuspid regurgitation following a tricuspid valvulotomy or by reduction of the return of venous blood to the right side of the heart by ligation of one of the main veins.

Anastomosis was performed in dogs between the distal portion of the upper left pulmonary vein and the distal segment of the left axillary artery, end to end with a high thoracotomy approach. The operation was well tolerated. The limb deprived of its normal circulation showed no discoloration or change in temperature, notwithstanding the absence of arterial pulsation. A month later the animal was able to walk and run about. However, the upper lobe of the left lung had become atelectatic, hydrothorax was present and an

incision in the left axillary artery failed to draw blood, signifying that the anastomosis had failed functionally, owing to the absence of pressure gradient, collateral circulation being responsible for the efficient blood supply to the limb.

Attempts at end to end anastomosis of the distal portion of the lower left pulmonary vein with the proximal portion of the splenic vein, via transpleuro-diaphragmatic approach, were performed after the removal of the spleen. Injection of sodium iodide or methylene blue enabled us to verify that the anastomosis was satisfactory. However, pressure was insufficient to secure hepatic parenchymal clearance. End to end anastomosis of the distal portion of the upper right pulmonary vein and the proximal portion of the azygos was also performed, but the gradient of the pressure was also inadequate.

Tricuspid insufficiency was produced in dogs by a valvulotomy. A specially designed hook was introduced into the right auricle, after thoracotomy, or into the right jugular vein. Equal results were attained with both approaches. The mortality rate, however, was high with the thoracotomy approach, and practically nil in the jugular vein approach. Therefore, all later investigations were carried out with the latter approach.

The instrument is a hollow metal rod, about 2 to 3 mm. in diameter and 30 cm. in length, with a shallow hook, or fish hook, at one end, with an opening roughly 2 mm. wide, and having a sharp concave edge. It is provided with a guide that enables the opening to be widened or narrowed during the operation (fig. 1).

A Hamilton manometer is attached to the opposite end when it is desired to make pressure readings, or a simple aneroid manometer is used to follow the variations in pressure of the pulsations, when only this is required. After the instrument is sterilized and filled with a sterile 3 per cent solution of sodium citrate, the outer surface is lubricated with sterile petrolatum. Aided by a slight rotatory movement and two traction threads, the hook is then inserted through a small incision in the jugular vein. The threads are so placed as to avoid a hemorrhage through the longitudinal incision. With the vein held taut over the instrument between the thumb and forefinger of the left hand, the lower thread is loosened, while the right hand advances the instrument toward the heart by gentle but firm pressure, with careful attention to the manometer, which will register very faint pulsations until the instrument reaches the auricle. To make sure that no air gets into the vein, this vessel may be adjusted over the instrument by a strip of rubber band. When the hook end of the instrument enters the auriculoventricular orifice, the pulsations registered by the manometer increase in amplitude and, as soon as it has passed through the orifice, there is a further sudden increase, while the systolic pressure rises in the dog, approximately 20 mm. of mercury or 26 cm. of water (fig. 2A). Once it has reached this position, the instrument must be gently advanced until resistance is encountered from the right ventricular wall; then, with the guiding sleeve drawn back, the instrument is turned outward and is drawn backward so as to engage the chordae of the external cusp. If they are successfully engaged, resistance will be experienced, associated with rhythmic tractions due to the heart's pulsation. At this point, the manometer may show a ventricular, auriculoventricular

From the Buenos Aires Medical School.
Read in the Plenary Session of the Third Interamerican Cardiological Congress, Chicago, June 17, 1948.
1. Fishberg, A. M.: Heart Failure, Philadelphia, Lea & Febiger, 1940.

or even auricular type of pulsation with the corresponding pressures, revealing the position of the cusp involved.

Firm traction of the instrument will section whatever has been engaged by the hook. This will become evident by the freeing sensation felt by the hand that holds the instrument or by a sharp sound that may be heard on precordial auscultation or even at a distance. The same procedure is repeated two or three times until a systolic murmur is heard to the right of the sternum, often associated with fremitus caused by extensive valvulotomy. The hook is then covered by the protecting sleeve and the instrument carefully withdrawn.

Two mishaps may occur during the operation. Instead of the manometer pulsation increasing in amplitude as the instrument advances toward the auriculoventricular orifice, they disappear altogether. This is due to the hook's having been introduced into

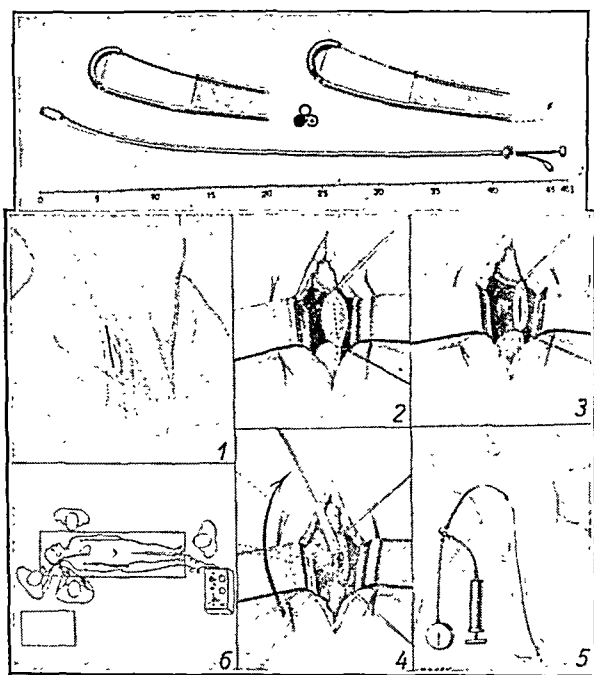


Fig. 1.—The instruments used and the surgical approach in tricuspid valvulotomy.

the inferior vena cava. Careful withdrawal of the instrument will return it to the auricle, and manometer pulsations will reappear. A further attempt is then made to reach the ventricle by inclining the instrument toward the midline, when it will normally tend to advance toward the auriculoventricular orifice. The second complication, and a much more serious one, as it may cause death, is the appearance of extrasystoles, bundle branch block and even auriculoventricular block during the operation.

RESULTS

In our experiments intracardiac pressure readings demonstrated clearly the effect of the tricuspid incompetence on cardiac dynamics. When valvulotomy was satisfactory, systolic pressure in the right ventricle fell to approximately 50 per cent of the initial pressure, while it rose only 1 mm. of mercury in the right auricle and in the superior vena cava. These variations in the pulse did not exist before (fig. 2 *B* and *C*).

This sudden fall of systolic pressure in the right ventricle did not last, it rose some time later, but did not return to the original values, remaining about 20 per cent or 30 per cent lower.

We determined to attempt the operation in human beings after trials on cadavers under roentgenologic control.

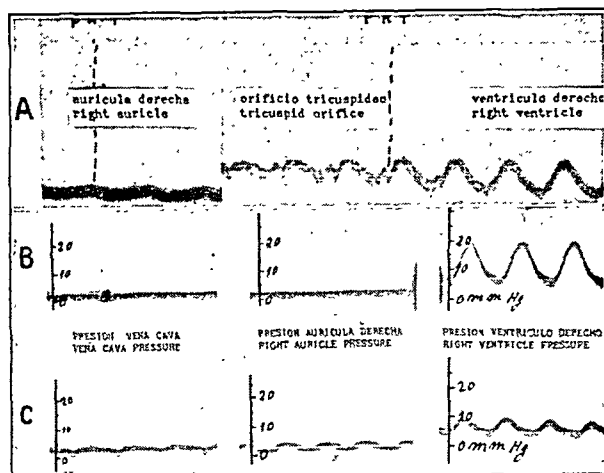


Fig. 2.—*A*, behavior of the manometer, according to the position of the hook. *B*, Vena caval, right auricular and right ventricular pressures before tricuspid valvulotomy. *C*, Vena caval, right auricular and right ventricular pressures after tricuspid valvulotomy.

Our first patient was one with syphilitic aortic regurgitation and severe heart failure, no longer responding to absolute rest, low sodium diet, intravenous administration of strophanthine and mercurial diuretics.

The internal jugular vein was exposed with local anesthesia, and an incision was made in the tricuspid valve without difficulty. Heparin was administered immediately, to avoid formation of thrombi. That same night the patient was able to sleep comfortably with only one pillow—having previously been in permanent upright position. After six months his condition was

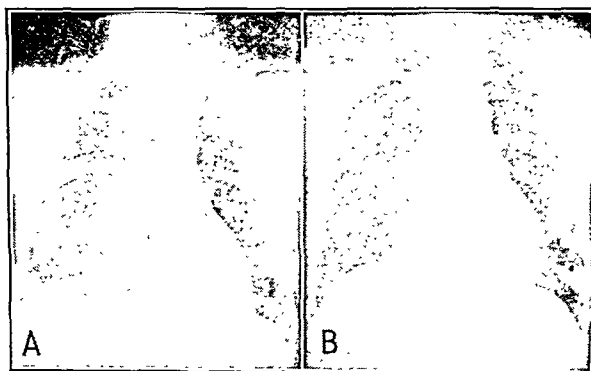


Fig. 3.—Teleroentgenograms before (*A*) and after (*B*) tricuspid valvulotomy, showing decrease of pulmonary congestion.

such that he experienced only slight dyspnea on fast walking. He presented no signs of pulmonary congestion (fig. 3).

We attempted the same approach in 4 other patients, 3 of these presenting permanent orthopnea and uncontrollable heart failure. The fourth, although relatively healthy, was suffering from recurrent attacks of pulmonary edema, despite intensive treatment. Valvulot-

omy failed in only 1 case, in which the attempt was abandoned because of sudden collapse while the instrument was in the heart. It was probably caused by protracted attempts to remove coaguli. Two hours later the patient completely recovered, but died a month later, during an attack of pulmonary edema.

In each of the other 3 patients the operation proved to be relatively simple, and venous pulse became positive and undulating in type (Cossio, Sotomayor and Marguery²). The patients were definitely improved, one of them surviving the operation by five months. Another, however, died two and a half months after the operation from a pulmonary infarct. Necropsy revealed that the incision in the external cusp had healed without thrombosis (fig. 4). The third patient died in collapse within eight hours of the operation, which was undertaken during an acute attack of pulmonary edema, brought on by tachycardia which developed the moment the jugular vein had been exposed. Notwithstanding, the operation was quickly completed. In this case ventricular pressure reached 70 cm. of water (54 mm. of mercury), while it never exceeded 35 cm. of water (27 mm. of mercury) in either of the others. Once the tricuspid valve had been extensively sectioned, the intraventricular pressure fell to 42 cm. of water (32 mm. of mercury) and dyspnea and tracheal stridor disappeared rapidly; however, tachycardia persisted and terminated in death.

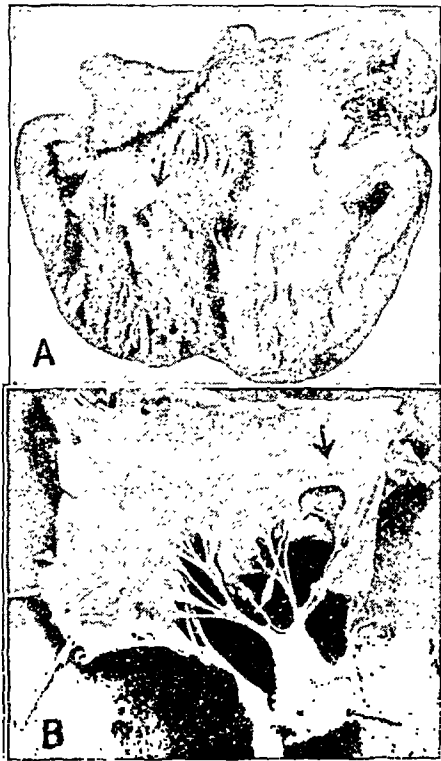


Fig. 4.—A healed tricuspid valve (arrow) of a dog one year after valvulotomy. B, healed tricuspid valve (arrow) of a human being seventy-five days after valvulotomy.

LIGATION OF THE INFERIOR VENA CAVA

In our first experiments on ligation of the inferior vena cava, the ligature was applied immediately above the venae hepaticae, and all the animals died within one

to three days from infarctions in the bowels and in the liver. Ligation just below the renal veins gave satisfactory results. The blood pressure drop was evident both in the pulmonary artery and in the right ventricle, although somewhat different in each. It was sudden and pronounced when occlusion or pronounced narrowing was placed above the venae hepaticae and



Fig. 5.—Hypertensive heart disease, with enlargement of the heart and pulmonary congestion before ligation of the inferior vena cava.

gradual, representing only 35 per cent of the initial value, when the occlusion was placed below the renal veins. However, an abrupt return of pressure takes place once the vein is freed and blood flow is reestablished (fig. 6).

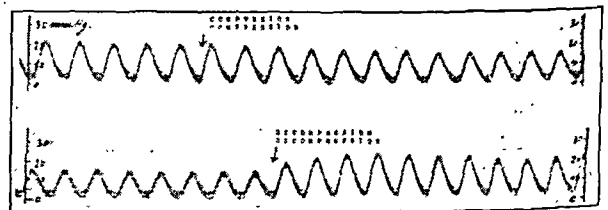


Fig. 6.—Right ventricular pressure before, during and after the inferior vena cava compression and decompression (arrows).

The first attempt in a human being met with failure, because of the patient's serious heart condition. In the following cases the operation was successfully performed with general anesthesia (ether-oxygen), morphine and scopolamine premedication and pentothal sodium® (sodium 5-ethyl-5-[1-methylbutyl] thiobarbiturate) induction.

The effect on the pulmonary circulation was evident as dyspnea decreased or disappeared altogether, to the extent that the patients were quite comfortable in the recumbent posture. Notwithstanding the fall in the venous pressure being less than had been antici-

2. Cossio, P.; Sotomayor Moreno, O., and Marguery, E.: Pulso venoso ventricular ondulante. *Medicina* 6:1. 1945.

pated, the quick and notable rise so constant when the patient's legs were raised before the operation was no longer present. Moreover, in hypertensive cardiopathy with high systolic values, the operation brought both systolic and diastolic pressures down to normal, and they remained so during a period of two months, the length of our observation.

COMMENT

Drainage of a large proportion of pulmonary venous blood into the systemic circuit represents a physiologic approach to surgical management of the "cardiac lung." Thereby the excessive blood discharged by the right ventricle reaches the general circulation directly from the lungs, and pulmonary stasis disappears. The stress on the left ventricle is reduced and allows for an increase in output once it has reached a point below the critical level.

Our investigations demonstrated that this procedure is not feasible because of the absence of pressure gradient, pulmonary vein pressure being lower than atmospheric pressure, while that of all vessels not contained within the thorax is higher. This, however, applies to normal circulatory conditions, such as those of our experimental investigations, but not so in the case of the "cardiac lung," where pressure within the

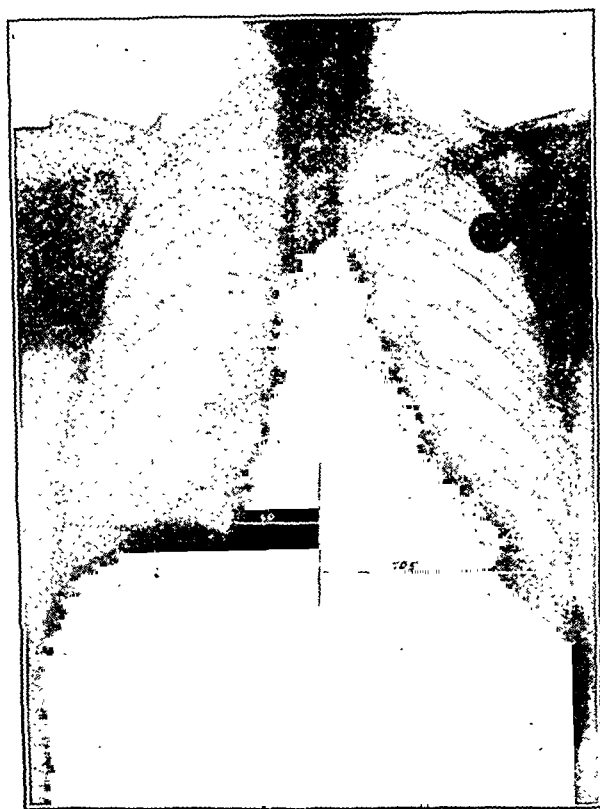


Fig. 7.—The same patient as in figure 6, with medically uncontrollable "cardiac lung." Roentgenogram taken after ligation of the inferior vena cava.

veins of the lungs is probably higher than the atmospheric pressure.

Another difficulty that precluded its being attempted in human beings, is the large thoracotomy wound and prolonged general anesthesia, intervention not being likely to be tolerated by patients in an advanced stage of cardiac disease.

On the other hand, both tricuspid valvulotomy and ligation of the inferior vena cava are relatively simple operations and are well tolerated. Animal experiments and tests made in human beings seem to bear evidence that both procedures attain the contemplated objectives: a reduction in the volume of right ventricle output, with subsequent decrease of the passive congestion of the lungs, and, consequently, improved left ventricle efficiency identical to the effect of venesection, but of more lasting results.

Ligation of the inferior vena cava is a much more serious operation than tricuspid valvulotomy, as it requires a general anesthetic and produces post-operative disorders; but it is more effective for the following reasons: the surgeon can see what he is doing; the operation is in itself a prophylactic measure against pulmonary embolism, which so often causes death, and it overcomes the 50 per cent increased output caused by supine posture (Bercovsky³).

Vast experience has been acquired in spontaneous tricuspid insufficiency. Half a century ago, Duroziez⁴ observed that lesions of the tricuspid valve, far from aggravating a mitral lesion, exerted a healthy effect thereon, and contrasted the cyanosis and edema with the patient's comfortable recumbent position over a period of years. Later Herrick,⁵ Barié,⁶ Crummer,⁷ Trevor Cook and White⁸ and Aceves and Carral⁹ expressed the same opinion. Furthermore, Smith and Levine¹⁰ demonstrated that survival time is doubled or even trebled once heart failure is established.

We believe that the surgical treatment of the medically uncontrollable "cardiac lung" should begin by ligation of the inferior vena cava and be followed by tricuspid valvulotomy, unless there are extensive vascular obstructions in the limbs that would render the first operation useless. The absence of a manifest increase in the venous pressure as a result of the lower limbs being raised may be considered as an indication for valvulotomy from the outset. In mitral stenosis it is probably most satisfactory to undertake valvulotomy from the beginning.

SUMMARY

Three operations were devised for the management of the "cardiac lung": anastomosis of a pulmonary vein with the subclavian artery, the splenic artery or its homonymous vein; tricuspid valvulotomy, and ligation of the inferior vena cava below the renal veins. These last procedures were attempted in patients suffering from

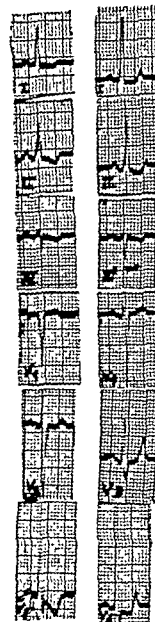


Fig. 8
(See legend below)

Legend to fig 8.—Left ventricular strain in hypertensive heart disease before (left) and after (right) ligation of the inferior vena cava, with the same amount of digitalization.

3. Bercovsky, I.: El volumen circulatorio por minuto en el estado normal y patológico, *Semana méd.* 2: 570, 621, 737 and 817, 1930.

4. Duroziez, P. L.: Retrecissement tricuspidien, *Gaz. d. hôp.* 41: 310, 1868.

5. Herrick, J. B.: Tricuspid Stenosis, *Boston M. & S. J.* 136: 245, 1897.

6. Barié, E.: *Maladies du cœur*, Paris, J. Rueff, 1912.

7. Crummer, L.: *Clinical Features of Heart Disease*, New York, Paul B. Hoeber, 1925.

8. Trevor Cook, W., and White, P. D.: Tricuspid Stenosis, *Brit. Heart J.* 3: 147, 1941.

9. Aceves, S., and Carral, R.: The Diagnosis of Tricuspid Valve Disease, *Am. Heart J.* 24: 114, 1947.

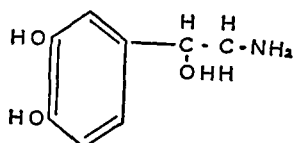
10. Smith, J. A., and Levine, S. A.: *Am. Heart J.* 23: 739, 1942.

heart failure and permanent orthopnea and who were no longer responsive to medical treatment. An immediate and dramatic improvement has been the rule over a period of six months, which is our longest observation time. The technic for tricuspid valvulotomy is described in detail, and a preliminary attempt is made to postulate on the indications for the last two operations.

NOR-EPINEPHRINE (ARTERENOL,[®] SYMPATHIN N) AS A PRESSOR DRUG

MARCEL GOLDENBERG, M.D.
VIRGINIA APGAR, M.D.
RALPH DETERLING, M.D.
and
KERMIT L. PINES, M.D.
New York

Epinephrine and the corresponding primary amine 1-nor-epinephrine (nor-adrenaline, arterenol[®]) normally exist in the mammalian body. Nor-epinephrine was first shown to be present in significant amounts in postganglionic, adrenergic nerves of cattle by pharmacologic methods.¹ Recently its presence has been demonstrated in the adrenal medulla of cattle by paper chromatography² and in tumors of chromaffin tissue (pheochromocytomas) of human beings by pharmacologic and chemical methods.³ 1-Nor-epinephrine is believed to function as excitator sympathin in most of the investigated areas of the cardiovascular system with



Formula for nor-epinephrine.

the exception of cardiac muscle and the vessels of the skin. In these areas epinephrine appears to be the mediator of excitator functions.⁴ (Sympathin N [nor-epinephrine] and sympathin A [epinephrine], as suggested by von Euler, should be used rather than the term sympathin E, since at least two excitator sympathins seem to exist.⁵)

Recent investigations of the hemodynamics of epinephrine and nor-epinephrine in human beings, with the method of catheterization of the right side of the heart, have shown that epinephrine, within a physiologic and therapeutic range, acts as an over-all vasoconstrictor and causes hypertension only by increase of

cardiac output. Nor-epinephrine, on the other hand, functions as an over-all vasoconstrictor without change or only slight decrease of cardiac output. It may therefore be conceived as being the sympathetic mediator of over-all vasoconstriction in human beings.⁶ Its action is similar to that of the synthetic pressor amines phenylephrine hydrochloride—neo-synephrine[®] hydrochloride and paredrinol[®] (para-[2-methylaminopropyl]-phenol).

A schematic summary of the changes observed in certain cardiovascular functions during the continuous infusion of epinephrine (0.1 to 0.3 micrograms per kilogram of body weight per minute) and nor-epinephrine (0.1 to 0.4 micrograms per kilogram of body weight per minute) is given in table 1.

These observations may help to explain the clinical failure of epinephrine as a pressor drug in the past and suggest an investigation of the therapeutic potentialities of nor-epinephrine. The acute hypotension due to loss of vasomotor tone encountered during and after thoracolumbar sympathectomy in patients with hypertensive vascular disease was selected as the starting point for the study.

METHOD AND MATERIALS

In devising a technic of administration of nor-epinephrine, an attempt was made to simulate physiologic mechanisms and to overcome the failure of reflex vasomotor regulation by varying the speed of a continuous intravenous infusion of nor-epinephrine. Since the effect of nor-epinephrine on arterial pressure appears within a few seconds and subsides within three minutes after the infusion is stopped, a continuous intravenous infusion, and not single injections, was used to maintain a steady level of arterial pressure.

The solution employed in these studies was prepared by the addition of 4 cc. of a 1:1,000 1-nor-epinephrine hydrochloride⁷ solution to 1 liter of isotonic sodium chloride solution; hence each cubic centimeter contained 4 micrograms of 1-nor-epinephrine hydrochloride. This solution was given intravenously

TABLE 1.—Changes of Certain Cardiovascular Functions During the Infusion of Epinephrine and Nor-Epinephrine *⁶

Substance	Cardiac Output	Systemic Blood Pressure			Total Peripheral Resistance	Pulse Rate	Mean Pulmonary Pressure
		Systolic	Diastolic	Mean			
Epinephrine	+++	+++	⊕	+	—	+	++
Nor-Epinephrine	÷	+++	++	++	+++	—	++

* ⊕ Is no change or slight increase; ÷ Is no change or slight decrease.

The 1-nor-epinephrine was supplied by Dr. M. L. Tainter of the Sterling Winthrop Research Institute. From the Departments of Medicine, Anesthesia and Surgery, College of Physicians and Surgeons, Columbia University and the Presbyterian Hospital, New York.

1-Nor-epinephrine hydrochloride was used in these studies. The drug is now supplied as the bitartrate in vials containing 1.0 mg. of the base per cubic centimeter. Since the ratio of the molecular weights of the base to the hydrochloride is 0.83, the nor-epinephrine values given in the text multiplied by this ratio give equivalent values for the base.

1. von Euler, U. S.: A Specific Sympathomimetic Ergone in Adrenergic Nerve Fibers (Sympathin N) and Its Relation to Adrenaline and Nor-Adrenaline, *Acta physiol. Scandinav.* **12**: 73 (Aug.) 1946.

2. Goldenberg, M.; Faber, M.; Alston, E. J., and Chargaft, E. C.: Evidence for the Occurrence of Nor-Epinephrine in the Adrenal Medulla, *Science* **109**: 534 (May 27) 1949.

3. Goldenberg, Faber, Alston and Chargaft.² Holton, P.: Nor-Adrenaline in Adrenal Medullary Tumors, *Nature, London* **163**: 217 (Feb. 5) 1949.

4. von Euler, U. S.: La pharmacologie du système nerveux autonome et particulièrement du sympathique, d'après la théorie neuro-humoral, *Ann. de physiol.* **10**: 467, 1934. Loewi, O.: Quantitative und qualitative Untersuchungen über den Sympathicusstoff, *Arch. f. d. ges. Physiol.* **237**: 504 (May) 1936. Gaddum, J. H., and Kwiatkowski, H.: Properties of the Substance Liberated by Adrenergic Nerves in the Rabbit's Ear, *J. Physiol.* **96**: 385 (Sept.) 1939.

5. von Euler, U. S.: Sympathin and Nor-Adrenaline, *Science* **107**: 422 (April 23) 1948.

through a previously calibrated Murphy drip bulb, thus permitting an accurate estimation of the dosage from the rate of flow in drops per minute. After observation of the response to an initial dose of 0.1 microgram per kilogram of body weight per minute, the rate of flow was adjusted to produce and maintain the desired level of blood pressure.

If, at the conclusion of the operation, a decrease in the rate of flow was followed by an excessive fall of blood pressure, the infusion was continued into the postoperative period. Otherwise, it was discontinued before the patient left the operating room. After second stage operations, it was occasionally necessary to con-

6. Goldenberg, M.; Pines, K. L.; Baldwin, E. deF.; Greene, D. G., and Roh, C. E.: The Hemodynamic Response of Man to Nor-Epinephrine and Epinephrine and Its Relation to the Problem of Hypertension, *Am. J. Med.* **5**: 792 (Dec.) 1948.

7. Tainter, M. L.; Tuller, B. F., and Ludueña, F. P.: *Levo-Arterenol*, *Science* **107**: 39 (Jan. 9) 1948.

tinued the infusion at decreasing rates up to seventy-two hours postoperatively.

Nor-epinephrine was given, by the method described, during the course of 23 thoracolumbar sympathectomies, of which 11 were first and 12 were second stage operations. In all but 1 of the cases, the blood pressure level was maintained satisfactorily during the period of administration of the drug. Table 2 summarizes the data in 5 typical cases.

A variety of anesthetic agents was used, including thiopental sodium (pentothal® sodium), ether and nitrous oxide. As is shown in table 2, anesthesia alone

grams per kilogram of body weight per minute was required to maintain the blood pressure at a proper level.

RESULTS AND COMMENT

There was 1 operative death which occurred during a second stage sympathectomy in a hypertensive patient who had received thiopental sodium, nitrous oxide and curare. Irreversible cardiac arrest occurred after two and a half hours of anesthesia and two hours of nor-epinephrine infusion. Intra-arterial transfusion of whole blood, intracardiac administration of epinephrine and cardiac massage were ineffective. It is noteworthy

TABLE 2.—Systemic Blood Pressure Response to Nor-Epinephrine in Hypertensive Patients Undergoing Thoracolumbar Sympathectomy

Patient	Stage	Anesthetic	Blood Pressure						Nor-Epi- nephrine Dose Infused, Mg./Kg./ Min.
			Pre- operative	At Start of Anesthesia After Pre- medication	Time After Start of Anesthesia, Minutes	Lowest Level During Anesthesia	During Nor- Epinephrine Infusion	At End of Operation	
B. H.....	1	(1) Nitrous oxide	290/100	280/140	38	124/88	.....	.....	0
		(2) Thiopental sodium	.....	.....	50	120/90	.....	.....	0
			.....	.....	61	.....	172/120	.....	0.13
			.....	.....	97	.....	210/136	.....	0.33
			.....	.....	145	.....	.....	210/130	0.1
.....	.....	.....	.....	17*	.....	.....	140/100	0	
B. H.....	2	(1) Ether	.....	260/150	28	138/110	.....	.....	0
		(2) Nitrous oxide	.....	.....	47	.....	230/156	.....	0.14
			.....	.....	110	.....	180/126	.....	0.36
			.....	.....	188	.....	.....	90/74	0
			.....	.....	194	.....	.....	184/124	0.25
O. M.....	1	(1) Ether	230/160	210/130	30	70/60	.....	.....	0
		(2) Thiopental sodium	.....	.....	34	.....	195/110	.....	0.13
			.....	.....	179	.....	.....	190/122	0.03
			.....	.....	20*	.....	.....	178/120	0
J. R.....	2	(1) Ether	270/140	260/155	89	120/90	.....	.....	0
		(2) Nitrous oxide	.....	.....	98	.....	190/130	.....	0.13
			.....	.....	108	.....	220/146	.....	0.14
			.....	.....	155	.....	.....	206/146	0.13
			.....	.....	10*	.....	.....	130/104	0
.....	.....	.....	.....	184	.....	.....	160/120	0.04	
K. L.....	1	(1) Ether	235/155	160/100	42	110/90	.....	.....	0
			.....	.....	56	.....	190/140	.....	0.17
			.....	.....	73	.....	180/120	.....	0.14
			.....	.....	168	.....	180/110	.....	0.28
			.....	.....	268	.....	.....	184/114	0.28
.....	.....	.....	.....	294	.....	.....	160/110	0.17	
C. W.....	1	(1) Thiopental sodium	170/135	170/105	25	124/90	.....	.....	0
		(2) Nitrous oxide	.....	.....	34	.....	168/114	.....	0.13
			.....	.....	104	.....	190/126	.....	0.11
.....	.....	.....	.....	...	.....	.....	142/90	0	
C. W.....	2	(1) Thiopental sodium	.....	220/110	20	130/70	.....	.....	0
		(2) Nitrous oxide	.....	.....	75	.....	200/130	.....	0.15
			.....	.....	230	.....	.....	180/116	0.24
							251	.....	.....	90/78	0

* After nor-epinephrine infusion was stopped.

lowered the blood pressure to normal and subnormal levels in most cases. Severance of the sympathetic chains and splanchnic trunks often was followed by a further drop in pressure of major degree. The depressor effect of anesthesia was noted particularly with thiopental sodium-nitrous oxide, but was also found with various combinations of ether and oxygen and ether-nitrous oxide mixtures. It seems to constitute a typical pattern of response to anesthesia in the hypertensive patient.

In most cases administration of the pressor agent was begun after the blood pressure had fallen to hypotensive levels, despite transfusion of whole blood. The data obtained indicate that increasing amounts of nor-epinephrine were often required as anesthesia and operation progressed, but not more than 0.36 micro-

grams per kilogram of body weight per minute was required to maintain the blood pressure at a proper level.

In view of the satisfactory maintenance of arterial pressure by nor-epinephrine in the acute hypotension associated with thoracolumbar sympathectomy, an effort was made to determine whether a pressor response could be obtained in acute hemorrhage, and in vasomotor collapse accompanying central depression. Comparable studies have been undertaken elsewhere.^{7a} Nor-epinephrine, in doses slightly higher than those required in thoracolumbar sympathectomy, was given by infusion to 2 patients in whom the blood pressure

7a. Page, I. H.: Personal communication to the author.

had fallen to shock levels during the course of acute hemorrhage into the gastrointestinal tract and into the peritoneum, respectively. In both cases, repeated transfusions of whole blood intravenously had failed to produce significant elevations of the arterial tension, which, however, rose to normal values during administration of nor-epinephrine given for one to four hours.

Three cases were selected as examples of central vasomotor depression. In the first respiratory failure and hypotension appeared suddenly following a longer operation; the patient was placed in a Drinker respirator for five days, during which time the blood pressure had to be maintained almost constantly by nor-epinephrine infusion. The second patient had unexplained coma and hypotension during the course of progressive hypertensive vascular disease; the blood pressure was readily maintained at desired levels by nor-epinephrine infusion during a three day period. Hypotension in the third case appeared in association with coma following an overdose of barbiturates. In addition to the usual measures, nor-epinephrine was given with a prompt and adequate pressor response.

Evaluation of nor-epinephrine as contrasted with other pressor agents will be the subject of a subsequent publication. It should be pointed out, however, that this substance—as sympathin N—plays an integral part in normal vascular function and possesses the necessary rapidity of action and inactivation to make it suitable for therapeutic use in acute hypotension. Its flexibility of control permits the closest approximation to the physiologic regulation of vasomotor tone.

The effect of nor-epinephrine on the coronary circulation is of vital concern. A recent study⁸ in dogs (blood flow in the cannulated left descending coronary artery measured by rotameter) showed consistent increases of coronary blood flow on intravenous injection of nor-epinephrine (2.5 to 30.0 micrograms per kilogram of body weight). The most striking increments—up to 20 times control value—occurred in animals with initial blood pressure at shock level. Improvement in the coronary circulation may therefore be anticipated in cases of hypotension treated with this compound.

The vasodilator component in shock is generally not recognized, partly because of the observed vasoconstriction of kidney and skin arterioles. In our opinion, this regional vasoconstriction does not exclude over-all vasodilatation, as evidenced by the hemodynamic pattern of epinephrine action in human beings.⁶ Furthermore, increases in the calculated total peripheral resistance which have been found in shock, at low mean pressure values, cannot be regarded as evidence of vasoconstriction. At mean pressures of less than 80 mm. of mercury the total peripheral resistance may vary inversely with pressure without change in diameter of the vessels.⁹

It is therefore of interest that a pressor response could be obtained in patients with acute hemorrhagic shock that was not reversed by blood transfusion alone. This suggests that decreased peripheral vascular tone may be an important factor in shock syndrome and that certain vasoconstrictor agents in conjunction with replacement of blood volume may be of value in its treatment.

The studies reported indicate that nor-epinephrine (sympathin N) is an effective agent in treatment in certain cases of acute hypotension. Its use in operative, hemorrhagic and traumatic shock, and in hypertensive patients undergoing thoracolumbar sympathectomy, is being continued and will be reported later in more detail.

Clinical Notes, Suggestions and New Instruments

WESTERN EQUINE ENCEPHALOMYELITIS IN CHICAGO

Report of a Patient Successfully Treated with Gamma Globulin

WILLIAM SAPHIR, M.D.

and

ALBERT MILZER, Ph.D.
Chicago

Shortly after the virus of Western equine encephalomyelitis was isolated from the central nervous system of affected horses in California by Meyer, Haring and Howitt,¹ infections were noted in persons who worked in close association with infected animals.² Howitt³ first recovered the virus from a human being in 1938. Since then outbreaks of the disease have occurred in several Western and Central states. The largest epidemic occurred in Manitoba, Minnesota and North Dakota in 1941⁴; over 3,000 cases were reported with a mortality rate of 8 to 15 per cent. At present an endemic focus of this disease is known to exist along the Pacific coast. Annual outbreaks occur in the Yakima valley (Washington)⁵ and in Kern and Fresno counties of California.⁶

Present epidemiologic and experimental evidence point to the spread of equine encephalomyelitis by an arthropod vector rather than by contact. *Culex tarsalis* mosquitoes⁷ and the cone nose bug (*Triatoma sanguisuga*)⁸ have been found infected in nature. Experimentally, several species of mosquitoes,⁹ the wood tick¹⁰ and the cone nose bug⁸ can be infected and transmit the virus to laboratory animals. In addition to infected horses, chickens and other birds are believed to be the natural reservoir of the virus.⁴

Practically all proved cases of Western equine encephalomyelitis to our knowledge have been encountered in rural or semirural districts. A unique exception to this epidemiologic rule was reported by Richter¹¹ involving an isolated case of

From the Departments of Medicine & Bacteriology, Research Institute, Michael Reese Hospital, Chicago.

Aided by a grant from the Committee on Scientific Research of the American Medical Association. Supported in part by The Michael Reese Research Foundation.

1. Meyer, K. F.; Haring, C. M., and Howitt, B. F.: The Etiology of Epizootic Encephalomyelitis of Horses in the San Joaquin Valley, *Science* **74**: 227-228, 1931.

2. Meyer, K. F.: A Summary of Recent Studies on Equine Encephalomyelitis, *Ann. Int. Med.* **6**: 645-654, 1932.

3. Howitt, B.: Recovery of the Virus of Equine Encephalomyelitis from the Brain of a Child, *Science* **88**: 453-456, 1938.

4. Rivers, T. M.: Viral and Rickettsial Infections of Man, Philadelphia, J. B. Lippincott Company, 1948, p. 181.

5. Hammon, W. M.; Reeves, W. C.; Benner, S. R., and Brookman, B.: Human Encephalitis in the Yakima Valley, Washington, 1942, with Forty-Nine Virus Isolations (Western Equine and St. Louis Types) from Mosquitoes, *J. A. M. A.* **128**: 1133-1139 (Aug. 18) 1945.

6. Buss, W. C., and Howitt, B. F.: Human Equine Encephalomyelitis in Kern County, California, 1938-1940, *Am. J. Pub. Health* **31**: 935-944, 1941.

7. Hammon, W. M.; Reeves, W. C.; Brookman, B.; Izumi, E. M., and Gjullin, C. M.: Isolation of the Viruses of Western Equine and St. Louis Encephalitis from *Culex tarsalis* Mosquitoes, *Science* **94**: 328-330, 1941.

8. Kitzelman, C. H., and Grundmann, A. W.: Equine Encephalomyelitis Virus Isolated from Naturally Infected *Triatoma sanguisuga* Le Conte, Technical Bulletin 50, Kansas Agricultural Experiment Station, 1940, p. 1.

9. Hammon, W. M.; Reeves, W. C., and Gray, M.: Mosquito Vectors and Inapparent Animal Reservoirs of St. Louis and Western Equine Encephalitis Viruses, *Am. J. Pub. Health* **33**: 201-207, 1943.

10. Syvertson, J. T., and Berry, G. P.: An Arthropod Vector for Equine Encephalomyelitis, Western Strain, *Science* **84**: 186-187, 1936.

11. Richter, R. B.: Western Equine Encephalomyelitis Occurring Sporadically in a Metropolitan Area, *J. A. M. A.* **119**: 486-487 (June 6) 1942.

8. Wegria, R.; Ward, H. Frank, C. W., and Dreyfuss, F.: To be published.

9. Green, H. D.: Circulation: Physical Principles, in Glasser, O.: *Medical Physics*, Chicago, The Year Book Publishers, Inc., 1944, pp. 208-232.

Western equine encephalomyelitis in the Chicago metropolitan area.

This report deals with another isolated case of Western equine encephalomyelitis in urban Chicago. Diagnosis was established by the demonstration of a significant rise in both complement-fixing and neutralizing antibody titers for the Western virus during convalescence. The patient was apparently treated successfully with gamma globulin, and evidence is presented concerning the presence of Western equine encephalomyelitis neutralizing antibodies in the gamma globulin used for therapy.

REPORT OF A CASE

Mrs. A. B., aged 38, was admitted to Michael Reese Hospital on May 19, 1948, with a history of general malaise, headaches, chills and fever for the previous ten days. Physical examination revealed a well developed, acutely ill patient with flushed face and mild cyanosis. There was considerable restlessness and agitation. The temperature was 102 F., respiratory rate 20 per minute and the pulse rate 112. The blood pressure was 100 mm. of mercury systolic and 60 mm. diastolic. There was slight nuchal rigidity and a bilateral positive Kernig sign. The tendon reflexes were moderately increased. The results of the remainder of the physical examination were normal. The blood cell count revealed an erythrocyte count of 4,200,000 per cubic millimeter, hemoglobin of 83 per cent and a white cell count of 9,800, of which 71 per cent were neutrophils, 9 per cent nonsegmented neutrophils, 4 per cent monocytes and 16 per cent lymphocytes. The urine was normal except for a faint trace of albumin.

During the next few days the patient's condition grew worse. The temperature was of a spiking nature, rising to 104 or 106 F. and falling to 99 F. within a twenty-four hour period and accompanied with chills and drenching sweats. Repeated malaria smears taken at different hours of the day were negative. A trial dose of quinine given for three days was ineffective. Roentgenograms of the chest were normal. Repeated blood cultures showed no growth. Results of agglutination tests for brucellosis, tularemia, typhoid and paratyphoid A and B were consistently negative, as were the Weil-Felix reaction and heterophil agglutination reaction for infectious mononucleosis. The Kahn and Wassermann reactions of the blood were negative.

A spinal tap was performed on May 20. The spinal fluid was under normal pressure. Examination of the spinal fluid disclosed a cell count of 6 erythrocytes and 1 leukocyte, a negative Pandy reaction, a glucose content of 63 mg. per hundred cubic centimeters and a chloride content of 691 mg. per hundred cubic centimeters.

Penicillin therapy, 75,000 units intramuscularly every three hours, was started. Chills and fever continued. The patient complained of severe headaches and thirst. Five per cent dextrose in isotonic sodium chloride solution was given intravenously without significant change in the clinical picture. There was transient mental confusion and disorientation, and the patient appeared more toxic and cyanotic. Symptoms of peripheral circulatory failure became manifest. The condition seemed rapidly to approach a critical state. At this point, on May 21, the patient's serum showed a positive reaction to the complement fixation test for Western equine encephalomyelitis virus antigen in a titer of 1:5. This is discussed later.

Gamma globulin therapy, in doses of 10 cc. intramuscularly, was started on May 24 and was continued daily for seven days. Gradual and distinct improvement took place. The temperature remained at 103 F. for two succeeding days and then fluctuated between 102 and 100 F. for the remainder of the week. Headaches, signs of meningeal irritation and peripheral circulatory failure subsided. Subsequent complement fixation tests on June 1 and September 20 showed significant rises in titer.

The patient was discharged on June 10 feeling very weak but afebrile and asymptomatic. Subsequent examination four weeks later revealed complete recovery and restoration of health.

VIRUS STUDIES

No attempt was made to isolate virus or other causative agents by animal or chick embryo inoculation because the patient was not seen until the tenth day after onset of illness.

Specimens of serum obtained from the patient during the acute stage, in convalescence and after complete recovery, were tested for the presence of both complement-fixing¹² and neutralizing antibodies for various neurotropic viruses. Serum collected on the twelfth day after onset of illness (May 21) had a complement-fixing antibody titer of 1:5 (serum dilution) for Western equine encephalomyelitis antigen. Results of complement fixation tests for Eastern equine encephalomyelitis, St. Louis encephalitis, lymphocytic choriomeningitis, mumps, Japanese B encephalitis and Q fever were negative. Serum obtained during early convalescence (June 1) showed a complement-fixing titer of 1:20 for Western equine encephalomyelitis but remained negative for the other virus and Q fever diagnostic antigens. Two and a half months after complete recovery (September 20) the complement-fixing titer was still 1:20 for the Western virus and negative for the rest.

Neutralization tests for Western and Eastern equine encephalomyelitis, St. Louis encephalitis and lymphocytic choriomeningitis viruses were performed in the manner described in a previous publication.¹³ Undiluted serum obtained during the acute stage (twelfth day after onset) failed to neutralize approximately 10 or 100 LD₅₀ units of the Eastern equine, St. Louis or choriomeningitis viruses. However, approximately 10 LD₅₀ units of Western equine virus were neutralized at that time. Serum collected during convalescence (June 1) neutralized approximately 10,000 LD₅₀ units of Western equine virus, but failed to neutralize the Eastern equine, St. Louis and choriomeningitis viruses. Two and a half months after complete recovery the patient's serum neutralized approximately 100,000 LD₅₀ units of the Western equine virus but still failed to neutralize the other three viruses.

A sample of the gamma globulin administered to the patient was tested in the same manner for the presence of Western equine neutralizing antibodies and was found to neutralize approximately 10,000 LD₅₀ units of virus when diluted 1:10 with isotonic sodium chloride solution.

COMMENT

The diagnosis of Western equine encephalomyelitis cannot be made by the clinical observations or results of a spinal fluid examination. The clinical picture in our patient was that of an overwhelming infection, chills and fever, meningeal irritation, transient mental confusion and peripheral circulatory failure. The spinal fluid was essentially normal. The observation of normal spinal fluid in the presence of signs and symptoms of central nervous system involvement, however, does not necessarily rule out a neurotropic virus infection. One of us (A. M.) has reported several proved cases of lymphocytic choriomeningitis¹⁴ with normal spinal fluid. There have been similar reports for poliomyelitis.¹⁵ Usually a specific diagnosis of Western equine encephalomyelitis and other virus encephalitis is readily made by demonstration of a significant rise in specific neutralizing or complement-fixing antibodies in serum obtained during the acute stage and later in convalescence or after recovery. This was done in our patient. Two and a half months after complete recovery, the patient's serum

12. Commercial virus and rickettsial complement-fixing diagnostic antigens obtained from The Markham and Lederle laboratories were employed. The patient's serum was inactivated by heating at 60 C. for 20 minutes prior to testing, and a modified Kolmer complement fixation test as recommended by the respective manufacturer was done.

13. Milzer, A.: Neurotropic Virus Infections in Chicago, 1939-1941: Nine Cases of Lymphocytic Choriomeningitis, *Proc. Soc. Exper. Biol. & Med.* 54: 279-282, 1943.

14. (a) Milzer.¹³ (b) Milzer, A., and Levinson, S. O.: Laboratory Infection with the Virus of Lymphocytic Choriomeningitis: A Two Year Study of Antibody Response, *J. A. M. A.* 120: 27-30 (Sept. 5) 1942. (c) Treusch, J. V.; Milzer, A., and Levinson, S. O.: Recurrent Lymphocytic Choriomeningitis, *Arch. Int. Med.* 72: 709-714 (Dec.) 1943.

15. Boines, G. J., and Pollak, O. J.: Evaluation of Spinal Fluid Examination in Patients with Poliomyelitis, *Delaware State M. J.* 18: 171-175, 1946. Levinson, S. O.: Early Acute Anterior Poliomyelitis Without an Increase of Cells in the Spinal Fluid, *J. Pediat.* 1: 337-345, 1932.

neutralized approximately 100,000 LD₅₀ units of Western virus and showed a complement fixation titer of 1:20. Antibodies obtained from the gamma globulin therapy would have largely disappeared by this time.

No attempt was made to isolate the virus from this patient because she was not seen until the tenth day after onset of illness. Except for lymphocytic choriomeningitis, most of the encephalitis viruses are found in the blood stream for a very short time and only during the incubation period. Furthermore, the Western equine virus has been isolated from the blood and spinal fluid rarely.⁴

The work of Zichis and Shaughnessy¹⁶ on the successful treatment of experimental equine encephalomyelitis with hyperimmune rabbit serum prompted us to attempt serum therapy in our patient. Since no such serum was available for human use, and one of us (A. M.) had reported a case of recurrent lymphocytic choriomeningitis that was apparently successfully treated with pooled normal adult serum,^{14c} we administered gamma globulin on an empiric basis, with the hope that specific neutralizing antibodies might be present. Moreover, to our knowledge there have been no reports on the development of serum hepatitis from the use of gamma globulin. The clinical improvement following its use in large dosages in our case appeared pronounced and distinct. Subsequent studies confirmed the presence of a high titer of Western equine encephalomyelitis neutralizing antibodies in the lot of gamma globulin given. The presence of antibodies for a wide variety of viruses and pathogenic bacteria in gamma globulin has been reported by Enders.¹⁷ Obviously, different batches will vary in viricidal properties, depending on the source of the original blood. For this reason perhaps the gamma globulin fraction of hyperimmune rabbit serum as prepared by Zichis and Shaughnessy^{16a} would be more suitable for human use.

After completing the treatment of our patient, we learned of the paper by Gold and Hampil,¹⁸ in which a technician infected in the laboratory with equine encephalomyelitis (Western type) showed progressive improvement following the administration of large doses of horse antiserum (1,595 cc.) over a period of five days. On the other hand, inconclusive results were obtained in the Saskatchewan epidemic in 1941 with relatively small quantities of specific horse serum given to each patient.¹⁹ We feel that possibly better results might have been obtained in the Saskatchewan outbreak with larger dosages and more potent antiserum.

The manner in which our patient became infected is unknown. She resided in Chicago most of her life and had not left the city for several years. There was no history of contact with sick animals. The species of mosquitoes (*Culex tarsalis*) shown to be the vector of the Western type virus in California is known to occur in the suburbs of Chicago.²⁰ A few attempts to isolate virus from this species and *Culex pipiens* collected in the Chicago area in the past have been unsuccessful.²¹

SUMMARY AND CONCLUSIONS

An isolated case of Western equine encephalomyelitis in urban Chicago is reported. The diagnosis was made by demonstration of significant rise in titer of both complement-fixing and neutralizing antibodies for the virus of Western equine encephalomyelitis. Complete recovery followed the use of gamma globulin containing specific neutralizing antibodies in high titer.

16 (a) Zichis, J., and Shaughnessy, H. J.: Experimental Western Equine Encephalomyelitis: Successful Treatment with Hyperimmune Rabbit Serum, *J. A. M. A.* **115**: 1071-1078 (Sept. 28) 1940. (b) Zichis, J., and Shaughnessy, H. J.: Successful Treatment of Experimental Western Equine Encephalomyelitis with Hyperimmune Rabbit Serum, *Am. J. Pub. Health* **35**: 815-823, 1945.

17. Enders, J. F.: Chemical, Clinical, and Immunological Studies on the Products of Human Plasma Fractionation: X. The Concentrations of Certain Antibodies in Globulin Fractions Derived from Human Blood Plasma, *J. Clin. Investigation* **23**: 510-530, 1944.

18. Gold, H., and Hampil, B.: Equine Encephalomyelitis in a Laboratory Technician with Recovery, *Ann. Int. Med.* **16**: 556-569, 1942.

19. Davison, R. O.: Encephalomyelitis in Saskatchewan, 1941, *Canad. Pub. Health J.* **33**: 388-398, 1942.

20. Clarke, J.: Personal communication to the authors.

21. Milzer, A.: Unpublished data.

SEVERE ERYTHEMA MULTIFORME WITH INTESTINAL INVOLVEMENT

G. MARSHALL CRAWFORD, M.D.
Brookline, Mass.

and

RALPH H. LUIKART II, M.D.
Los Angeles

Under various names (severe erythema multiforme, Stevens-Johnson's disease, erythema multiforme exudativum and ectodermosis erosiva pluriorificialis), the literature indicates infrequent involvement of the alimentary canal in the toxic eruption commonly known as erythema multiforme. In 1874 Hebra¹ reported a patient with "erythema gyratum" in whom the autopsy revealed ". . . in the small bowels similar red circles as on the skin." In 1895, 1900 and 1904, Osler² published groups of cases, totaling 29, the disease in which he first described as erythema multiforme. In several of these cases there were signs and symptoms referable to the alimentary canal. However, in 1914 Osler³ revised his view in an article referring to most of these cases as examples of Henoch's and Schönlein's purpura. Lever⁴ and Costello⁵ each published reviews and case studies in more recent years. Of Lever's 2 patients, neither had signs or symptoms of lesions in the gastrointestinal tract other than at the orifices. Of Costello's 33 patients, 2 had hematemesis and 2 had tarry stools. At autopsy 1 of Costello's patients revealed ". . . congestion more evident in the duodenum."

The patient reported here had an ulcerating process involving the proximal three fourths of the large bowel.

REPORT OF A CASE

J. M., a 26 year old white woman, had transient conjunctivitis accompanied with a lesion in her mouth in June 1947. A seven day episode of conjunctivitis, an oral lesion, diarrhea and an evanescent maculopapular eruption took place in March 1948. Three months later, on June 19, 1948, diarrhea without abdominal symptoms reappeared and persisted. Four days later a sore throat and lesions of the mouth were present, followed in three more days by an eruption on the trunk and vulva. The patient received a vitamin B mixture, penicillin troches, and penicillin intramuscularly intermittently from June 24 to July 3. She had been febrile and passed four or five loose brown stools a day for several days prior to hospitalization on July 3.

Physical Examination.—Examination revealed a moderately dehydrated uncomfortable woman with a temperature of 100 F. About forty discrete lesions were dispersed on the chest and back. These were flaccid vesicles and pustules, but most of them had been ruptured and were surrounded by a narrow rim of erythema. On the soft palate, tonsillar pillars, buccal mucosa and labia minora were several shallow erosions. Some were covered with a white membrane which was easily wiped off, leaving a bright red base. There was moderate conjunctivitis. Results of physical examination of the patient's lungs were normal, and no other abnormalities were noted in the balance of the examination.

Laboratory Procedures.—Results of frequent examinations of the urine were normal except for many leukocytes in the sediment. On her admission, the patient's blood was found to contain 14.3 Gm. of hemoglobin, 4,820,000 erythrocytes and

From the Department of Dermatology, Massachusetts General Hospital.
1. Hebra, F., and Kaposi, M.: Erythema exudativum multiforme, in *Lehrbuch der Hautkrankheiten*, ed. 2, Erlangen, F. Enke, 1874, vol. 1, p. 249.

2. Osler, W.: (a) On the Visceral Complications of Erythema Exudativum multiforme, *Am. J. M. Sc.* **110**: 629, 1895; (b) The Visceral Lesions of the Erythema Group, *Brit. J. Dermat.* **12**: 227, 1900; (c) On the Visceral Manifestations of the Erythema Group of Skin Diseases, *Am. J. M. Sc.* **127**: 1, 1904.

3. Osler, W.: The Visceral Lesions of Purpura and Allied Conditions, *Brit. M. J.* **1**: 517, 1914.

4. Lever, W. F.: Severe Erythema Multiforme, *Arch. Dermat. & Syph.* **49**: 47 (Jan.) 1944.

5. Costello, M. J.: Erythema Multiforme Exudativum, *J. Invest. Dermat.* **8**: 127, 1947.

6,800 leukocytes per cubic millimeter. A differential smear revealed 60 per cent polymorphonuclear leukocytes, 36 per cent lymphocytes, 4 per cent monocytes and no eosinophils. A blood cell count subsequent to hydration of the patient demonstrated a drop of the erythrocyte count to 4,350,000 and hemoglobin to 11.1 Gm. Results of numerous later examinations of the blood did not vary significantly. A culture of material taken from the pharynx on admission grew *Escherichia coli*, alpha hemolytic streptococci and coagulase-positive hemolytic *Staphylococcus aureus*. Pathogenic intestinal bacteria could not be found in cultures of the stool taken on the second and third days of hospitalization. Result of guaiac tests for blood in the stool were 4 plus on admission, but there was a negative reaction by the eighteenth hospital day. An electrocardiogram was normal on the seventeenth day after admission.

Therapy and Course.—Isotonic sodium chloride solution, dextrose and water were administered intravenously during the first three hospital days. Penicillin was injected in a dose of 100,000 units intramuscularly every six hours. One gram of bismuth subcarbonate was given orally after each stool. The lesions of the mouth, vulva and skin were painted daily with 2 per cent aqueous methylrosaniline chloride. From admission to the eleventh day of hospitalization the oral temperature varied between 104 F. and 99 F. On the third hospital day 30 cc. of crude liver extract and 5 cc. daily of vitamin B complex were added to the oral medication. Beginning the next day 4 cc. of camphorated opium tincture and 15 cc. of a suspension of kaolin and pectin were each given twice daily by mouth.

On the patient's fourth hospital day a roentgenogram of the chest revealed no significant abnormalities. On the ninth day results of roentgenologic and fluoroscopic examination with a barium sulfate enema were reported as follows: The entire bowel proximal to the midsigmoid was involved by a process which had produced swelling of the folds giving the appearance of islands of swollen mucosa with ulcerations both pyramidal and collar-button-like in outline. These appeared to stop abruptly at the ileocecal valve. Proctoscopy on the same day permitted observation of a few isolated ulcerations of 0.5 to 1.0 cm. in diameter in the rectal mucosa. At this time 1 Gm. of sulfadiazine was ordered every four hours with equal amounts of sodium bicarbonate and 0.26 Gm. three times daily of ferrous sulfate. The stools continued to be loose, brown and watery and numbered six to eight per day until the tenth hospital day. Thereafter the evacuations decreased and became normal by the nineteenth day. The sulfadiazine blood level on the eleventh day of hospitalization was 7.2 mg. per hundred cubic centimeters of blood; it was 7.8 on the sixteenth day. Striking clinical improvement was noted on the twelfth day, and the penicillin, liver, kaolin and pectin were omitted at that time. By the following day the anorexia had vanished and the patient appeared alert. The oral temperature dropped abruptly to normal on the nineteenth day, and sulfadiazine therapy was discontinued.

Further roentgen studies with barium sulfate enemas on the twenty-fourth hospital day showed improvement, but there were polyp-like small filling defects throughout the major length of the colon. Proctoscopic examination on the following day revealed a normal-appearing mucosa with a few localized areas of erythema, but no ulceration was seen. The patient was discharged after twenty-six days in the hospital and remained well to our knowledge for six months.

COMMENT

Erythema multiforme in its severest form often affects the alimentary tract at its orifices, but it is uncommon for the balance of the canal to be attacked. In the patient herein reported the colon appeared to be involved in the disease process.

Bifocal Glasses.—A notable American contribution to ophthalmology, although not by an ophthalmologist, was the invention of bifocal glasses in 1784 by Benjamin Franklin.—F. H. Verhoeff, *American Ophthalmology During the Past Century*, *Archives of Ophthalmology*, April 1948.

Council on Pharmacy and Chemistry

REPORT OF THE COUNCIL

The Council has authorized publication of the following report.

AUSTIN SMITH, M.D., *Secretary.*

PIT-THYROCAS (FORMERLY ANTI-OBESE) AND GLAN-OBESE (GERRITT COMPANY)

The Gerritt Company of Los Angeles, California, circularizes physicians with a form letter containing excerpts from "unsolicited" testimonials of other physicians to promote the sale of a tableted "shotgun" mixture of drugs for obesity under the name Pit-Thyrocas. This advertising makes it plain that the name of the product was formerly Anti-Obese and that the firm claims it to be "An Ethical Product, Sold Only in an Ethical Way." The firm proposes to send to the recipient as a special 30-day offer, five prescription labeled boxes of 100 tablets each at a net cost of \$3, for which the selling price of \$17.50 (\$3.50 per box) is quoted—leaving a profit of \$14.50! This remarkable offer to physicians also includes a free "diet schedule" sheet, in each box if desired, cleverly designed to oversimplify the management of patients who desire to reduce weight. The product is backed by the familiar guarantee, "Your Money Back If, After Trial, You Are Not Satisfied."

The firm's advertising leaves little to the judgment or, indeed, intelligence of the physician. It includes the following formula for Pit-Thyrocas: "Thyroid Des. $\frac{5}{8}$ gr.; Pituitary Whole Des., $\frac{1}{40}$ gr.; Powd. Ext. Phytolacca Berries, $\frac{1}{4}$ gr.; Phenolphthalein, $\frac{1}{4}$ gr.; Precip. Cal. Carbonate, 3 gr.; Extract Cascara Sagrada, $\frac{1}{4}$ gr." This is identical with the formula previously promoted under the name Anti-Obese and is subject to the same alteration: "Occasionally these tablets are too laxative, so we make them with and without Phenolphthalein—same price, color and size." This makes the formula identical with "Thyrop" of the Cole Chemical Company, which has been the subject of adverse comments in a previous Council Report.¹

Although also sold to pharmacies for filling prescriptions, an appeal to dispensing physicians is made as follows: "This is one tablet which many physicians prefer to dispense in order to observe the effect on the heart."—and then, there is a profit motive: \$2.90 per hundred at the special rate; \$1.75 to \$2.45 per hundred at regular list prices, "or any other price you may choose to charge!" The form letter further has this to say concerning the mixture:

"Pit-Thyrocas Tablets reduced weight because of the well-known action of Thyroid and Pituitary in hyperthyroidism. Poke Root lessens the desire for food. Calcium Carbonate partially alkalizes the HCl in the stomach. Phenolphthalein and Cascara Ext. make it the perfect eliminant for treating adiposity."

The foregoing quoted explanation of the mixture is an attempt to lend a "scientific" aspect to the product. Well trained physicians should not be "taken in" by this verdant verbiage! For the sake of the less wary, it may be stated that neither thyroid (which is active orally) nor whole pituitary (which is inert by mouth) is presently considered useful in the treatment of obesity except when this is secondary to hypothyroidism, in which cases thyroid alone would be sufficient and oral pituitary wholly ineffective. In fact, thyroid should be considered potentially harmful and dangerous in persons with a normal basal metabolism. Phytolacca-Poke (puke) berries or root, formerly employed as an antirheumatic of dubious value, should be relegated to folklore medicine, where it belongs. There are superior agents now available for depression of the appetite when this action is helpful in eliminating the habitual excessive intake of food that characterizes most cases of obesity. Just why it should be desirable to buffer the hydrochloric acid of the stomach in such cases, unless there is a definite hyperchlorhydria, is not explained by the firm. Possibly the idea is to interfere with protein digestion in the stomach and so enable the patient to eat more, but absorb less. In any case, 3 grains of calcium carbonate would do very little buffering. If it is

1. Drugs for Obesity. Report of the Council on Pharmacy and Chemistry, J. A. M. A. 134: 527-529 (June 7) 1947.

intended to reduce appetite, its effectiveness for this purpose is nil. Hurrying the passage of partially digested food through the intestinal tract by means of cathartics at most interferes a little with caloric intake at the level of the intestine instead of at the table. The increased elimination of water by the use of cathartics, if it is sufficiently severe, produces some temporary reduction of weight, but not of "fat." The formula thus represents an irrational approach to the treatment of obesity in which the importance of correction of habits of overeating is mostly ignored. The "diet schedule" offered also is unscientific in that it is based on a qualitative rather than a quantitative restriction of caloric intake.

The form letter does not stop with Pit-Thyrocas. The closing paragraphs promote what is described as a newer product designated "Glan-Obese Pluraglandular Solution." Concerning this mixture, it is stated "that an additional glandular product was necessary to satisfactorily treat such cases of obesity where Pit-Thyrocas Tablets alone would not produce the desired effect." This admission may come as somewhat of a shock to the gullible reader of the testimonials for the tablets! An accompanying leaflet titled, "Glan-Obese No. 1," states:

"Each 2 cc. of this formula contains the aqueous extractives of the highest quality Glandular substances as follows:

Ovarian Substance	40 gr.
Anterior Pituitary Substance	30 gr.
Suprarenal Cortex Substance	30 gr.
Thyroid Substance	3 gr.
Posterior Pituitary	3 I.U.
Chlorobutanol	0.5%

Net wholesale prices are also quoted for 30 and 60 cc. vials of this mixture. It is blatantly recommended by the firm for the parenteral treatment of obesity (to be administered alternately or in conjunction with the oral Pit-Thyrocas) and for "Multiple Glandular Deficiency Troubles in the Male and Female." The form letter concludes with the additional information that physicians "are using Glan-Obese solution for treating such painful uterine conditions as Amenorrhea and Dismenorrhea." Yet with the utmost candor, it is stated in the Glan-Obese No. 1 leaflet that "Hormone activity in this solution has not been investigated." This statement stands in curious contradiction to other statements in the leaflet that, "Most authorities agree that lack of gland functions is the direct cause of obesity in most cases" and that "Glan-Obese is a 100% gland stimulant." The claim that lack of gland function is the primary cause of most cases of obesity is absolutely false and not supported by any scientific authority.

The advertising for Glan-Obese goes on with the maze of contradictions in the statement, "It has become a well established fact that parenteral injections of glandular extracts are far more potent in reducing weight, than the same products are when taken orally." This of course means nothing when applied to the gland "substances" in the mixture which are not potent hormones. The physician might well ask why the firm offers the oral preparation Pit-Thyrocas Tablets if the last quoted statement has any significance. He may well ask why Glan-Obese solution, also glibly recommended for the treatment of multiple glandular deficiency, is of any value for this purpose or in obesity due to "lack of gland functions," when the product is said not to have been tested for hormone activity! Most physicians will realize that thyroid is active by mouth and is almost never injected even in the form of thyroxine for the treatment of severe hypothyroidism. It will also be realized that when one wishes to inject hormones, potent extracts or synthetic compounds, assayed for hormone activity, must be employed to obtain therapeutic results. A "shotgun" mixture of untested "substances" has no value given either by mouth or by injection.

It seems obvious that the Gerritt Company promotes the sale of Pit-Thyrocas and Glan-Obese for obesity wholly on a commercial appeal to profit. This is not new in the annals of questionable advertising for worthless remedies. In this particular instance it seems incredible that the manufacturer could induce well trained and thoughtful physicians to prescribe these products, but the protests which have been received at the Council office make it advisable to issue this statement so as to dispel any doubt concerning the character of these two "remedies" for obesity.

Council on Physical Medicine and Rehabilitation

REPORTS OF THE COUNCIL

The Council on Physical Medicine and Rehabilitation has authorized publication of the following report.

HOWARD A. CARTER, Secretary.

VACOLITE MODEL J HEARING AID ACCEPTABLE

Manufacturer: Vacolite Company, 3003 N. Henderson, Dallas 6.

The Vacolite Model J Hearing Aid contains microphone, amplifier and batteries in a single metal case 106 by 62 by 19 mm. (4 1/8 by 2 1/2 by 3/4 inch). The measurements are made exclusive of a small knob in the center of the microphone opening and the two control wheels at the upper corners. They are available with both crystal and magnetic types of receiver. The weights of the instruments are:

Vacolite Crystal J with batteries and receiver, 162.5 Gm. (5 3/4 ounces); without batteries, 99 Gm. (3 1/2 ounces).

Vacolite Magnetic J with batteries and receiver, 169.5 Gm. (6 ounces); without batteries, 106.5 Gm. (3 3/4 ounces).

The manufacturer provided electroacoustic characteristics and other pertinent information concerning the instrument. The manufacturer's data were confirmed.

Battery Drain:

	Voltage	Current
A battery.....	1.25 volts	38.0 ma.
B battery.....	22.0 volts	0.55 ma.

Two subjects, both veteran users of hearing aids, participated in performance tests of these instruments. Subject A, aged 37, suffers from a mixed deafness with considerable high tone hearing loss. His loss for speech is 42 decibels. Subject B, aged 39, has a pure conductive deafness with a nearly flat audiogram. Her loss for speech is 44 decibels.

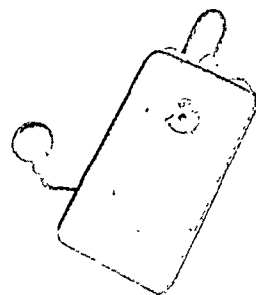
Acoustic Gain.—Acoustic gain was measured by Auditory Test no. 9 (spondee words, recorded version) as follows:

Subject	Loss for Speech	Vacolite Model J					
		Settings	Crystal		Magnetic		
			Aided Gain	Threshold	Aided Gain	Threshold	Gain
A	42 decibels	1 full	2	40 decibels	6	36 decibels	
B	44 decibels	2 full	9	35 decibels	4	40 decibels	
			Average		37.5 decibels		28 decibels

Discrimination.—Discrimination tests with the same 2 subjects were conducted with two phonetically balanced lists of fifty monosyllables each (recorded version) delivered at 60 decibel or 65 decibel input to the microphone. The scores for Vacolite Crystal and Vacolite Magnetic are as follows:

Sub-ject	Amplifi-cation (No Aid)	Reference Instrument	Vacolite Crystal	Differ-ence	Vacolite Magnetic	Differ-ence
A	92	86 (43)	70 (36)	-16	90 (32)	+4
B	94	83 (37)	79 (34)	-4	86 (34)	+3
			Average		-10	
					+3.5	

The numbers in parentheses after each articulation score show the number of decibels above the subject's no. 9 threshold at which the test words reached him. Both subjects used full



Vacolite Model J Hearing Aid

volume to attain a comfortable listening level. Subject B preferred the "tone" of the magnetic to that of the crystal, and both made significantly better scores with the magnetic. Even the lower score is acceptable, however.

The acoustic gains are well above the minimum required and the articulation scores for the magnetic receiver are better than those obtained with the reference instrument.

The Council on Physical Medicine and Rehabilitation voted to include the Vacolite Model J Hearing Aid (Crystal and Magnetic) in its list of accepted devices.

TELEVOX MODEL E HEARING AID ACCEPTABLE

Manufacturer: Televox Manufacturing Company, 117 South Broad Street, Philadelphia 7.

The Televox Model E Hearing Aid is housed in a flat, rectangular-shaped case with rounded edges and contains microphone, amplifier and batteries. The microphone and the two wheel type controls are also in the conventional positions, and the socket for the receiver cord is in the center of the upper edge. The clothing clip is riveted to the upper back part of the case. The outside dimensions excluding the projecting controls and the clothing clip are 103 by 63 by 20 mm. ($4\frac{1}{10}$ by $2\frac{1}{2}$ by $\frac{3}{4}$ inch). The weight of the instrument, including receiver and cord, but without batteries, is 112 Gm. (4 ounces); with batteries, 159.5 Gm. ($5\frac{1}{2}$ ounces). It is equipped with a magnetic receiver only.

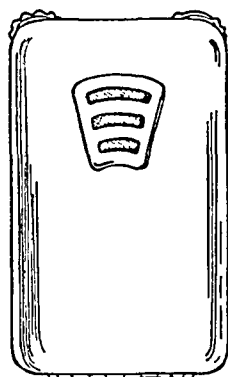
The manufacturer submitted data on the acoustical and electrical characteristics of the instrument which were confirmed by the Council.

Battery Drain Data:

	Voltage	Current
A battery.....	1.5 volts	39.0 ma.
B battery.....	22.5 volts	0.45 ma.

Two subjects, both veterans users of hearing aids, participated in performance tests of these instruments. Subject A, aged 37, suffered from a mixed deafness with considerable high tone hearing loss. His loss for speech was 42 decibels. Subject B, aged 39, had a pure conductive deafness with a nearly flat audiogram. Her loss for speech was 44 decibels.

Acoustic Gain.—The acoustic gain for these 2 subjects was measured with recorded spondee word lists (Test no. 9) with the following results:



Televox Model E
Hearing Aid

Subject	Loss for Speech	Tone Setting	Volume Setting	Aided Threshold	Gain
A	42 decibels	1	Full	-7	49
B	44 decibels	2	Full	-2	40
Average					47.5

The acoustic gain is sufficient to bring the subjects' aided thresholds below normal. The test, therefore, may not reveal the full acoustic gain of the instrument, but it is indirect evidence of absence of undue inherent noise.

Discrimination.—Discrimination tests with the same 2 subjects were conducted using two phonetically balanced lists of 50 monosyllables each (recorded version) delivered at 60 decibels. The scores are as follows:

Subject	Amplification (No Aid)	Reference Instrument	Televox Model E	Difference
A	92	86 (43)	83 (45)	-3
B	94	83 (37)	92 (40)	+9
Average				+3

The numbers in parentheses following the articulation scores indicate the number of decibels above the no. 9 threshold at

which the words reached the listener. The input to the instrument was 60 decibels in each case, and the volume control adjusted for a "loud but comfortable level."

The acoustic gain is beyond the minimum requirements and the discrimination very good.

The Council on Physical Medicine and Rehabilitation voted to include the Televox Model E Hearing Aid in its list of accepted devices.

Council on Foods and Nutrition

REPORT OF THE COUNCIL

The following statement has been accepted by the Council on Foods and Nutrition. JAMES R. WILSON, M.D., Secretary.

THE ADDITION OF SURFACE-ACTIVE COMPOUNDS TO FOODS

An increasing proportion of the nation's food supply is subjected to industrial processing. Accordingly, alterations in processing technics may have a direct bearing on the quality of the national diet and health. In general, the food industries are to be commended for their awareness of the responsibility which they carry for the protection of the nation's food supply. Improved methods of processing have been developed for preservation of nutrients in foodstuffs, and "fortification" and "enrichment" of foodstuffs have been developed as recommended by various official and nonofficial agencies.

At present, however, there is being introduced a new processing practice which the council views with considerable apprehension—namely, the widespread addition of certain surface-active compounds to a variety of foods, especially bread and other bakery products.

Among the most widely used surface-active agents are derivatives of polyoxyethylene, combined with fatty acids and, in some instances, with sorbitol. They are added to foodstuffs during processing in order to aid emulsification and for other purposes. Their use allows the production of a smooth-textured product, often of superior sales appeal, which contains less fat than one made without the emulsifying agent. In some instances the addition of the agent also permits the lowering of the proportions of other important food ingredients in the product—for example, the use in bread and cake imparts similar properties of "freshness" as does the use of nonfat milk solids.

Available knowledge of the possible toxicity of these substances is fragmentary; particularly is evidence lacking as to chronic toxicity. The employment of these agents in the processing of such basic foods as bread and bakery goods, as well as other foods (such as ice cream, candy and peanut butter) could lead to the ingestion of considerable quantities of these materials of uncertain toxicologic action. *Unless the complete harmlessness of these agents can be demonstrated beyond reasonable doubt, they should not, in the Council's opinion, be employed in basic foods.*

When these agents are used as extenders, particularly in making bread, cakes and pastries, the nutritive quality of the produce is usually diluted. This dilution results from the decrease in amounts of fat, milk solids and, in some cases, eggs required to produce an "acceptable" product. The caloric value of the extender itself is not completely defined, but is considerably less than the shortening which it may replace. Any reduction in content of milk and eggs in products would obviously reduce the quantity of a number of important nutrients in the food. Such a dilution is not desirable from a nutritional standpoint.

The Council's concern in reference to the use of these substances in foods resides in the inadequacy of knowledge concerning their toxicity and the deterioration in nutritive value of basic foods which their introduction allows.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

535 NORTH DEARBORN STREET - - - CHICAGO 10, ILL.

Edited by
MORRIS FISHBEIN, M.D.
Assistant Editor, **AUSTIN SMITH, M.D.**

Associate Editors
JOHNSON F. HAMMOND, M.D. **RICHARD J. PLUNKETT, M.D.**

Editor for Current Medical Literature, **GEORGE HALPERIN, M.D.**

Assistant to the Editor, **JEWEL F. WHELAN**

Subscription price - - - Twelve dollars per annum in advance

Cable Address - - - "Medic, Chicago"

Please send in promptly notice of change of address, giving both old and new; always state whether the change is temporary or permanent. Such notice should mention all journals received from this office. Important information regarding contributions will be found on second advertising page following reading matter.

SATURDAY, JULY 2, 1949

THE LYMPHOCYTE AND IMMUNITY

Although the leukocytes have long been regarded as important in defense against disease, only some twenty-five years have passed since the suggestion¹ was made that the lymphocytes, specifically, produce the antibodies. The arrangement and drainage of the vast system of lymphatic vessels would suggest that antigenic material might be carried to lymph nodes and other lymphoid tissue where its presence might stimulate formation of antibodies. The observation² that agglutinins appear in the lymph nodes before they are found in the serum supports such a view. Furthermore, the relatively high agglutinin and hemolysin titer of the washed cells of the lymph nodes of immunized mice indicate that antibodies are concentrated in the lymphocytes.³ The incubation of lymphocytes with one kind of antibody in plasma which contains another kind of antibody, indicates that the antibodies are formed by the lymphocytes and not absorbed by them from surrounding plasma.⁴

Efforts have been made to identify the antibodies with certain proteins. By chemical fractionation of human plasma,⁵ a large proportion of the antibodies were shown to react with a variety of pathogens and viruses and to reside in the alpha, beta and gamma globulins. Later gamma globulin was demonstrated in the human lymphocyte.⁶ A more complete separation of the proteins extracted from lymphoid tissue has been made recently by the method of electrophoresis,⁷ and three main components have been identified, i. e., alpha, beta and gamma globulin. From these observations the antibodies either are or are associated with the globulin fractions of the serum proteins.

The probable mechanism of the production of the immune proteins has been elucidated by injecting pituitary adrenotrophic hormone. A decrease in the weight of the lymphoid tissue, decrease in number of lymphocytes therein, lymphopenia and an increase in plasma proteins and antibody titer⁸ follow. Whereas serum albumin is formed in the liver, at least a part of the globulins are apparently formed from lymphocytes in lymphoid tissue and are there endowed with immune properties.

USE OF ISOTOPES IN STUDIES OF HEMOGLOBIN FORMATION

Isotopes of a number of chemical elements are now used as "tracers" for studying the mechanism and site of formation of substances in the animal organism. Investigations over the past five years which have elucidated the biosynthesis of creatine may be cited as an example. Recent work in the biosynthesis of hemoglobin is further evidence of the value of this experimental approach. The iron of the hemoglobin molecule is derived from either dietary iron or, apparently preferentially, from the destroyed red cell itself. The question of the formation of the porphyrin and the globin portions has remained unanswered until recently. The fact that the porphyrins may be synthesized in the body was clearly demonstrated in 1939 in rats fed porphyrin-low diets.¹ The globin moiety has been generally assumed to be derived from dietary protein. Using isotopic nitrogen (nitrogen 15) investigators at Columbia University² have found that the simple amino acid glycine serves as a precursor of protoporphyrin in both man and the rat. Under comparable conditions, glutamic acid, leucine and ammonia did not contribute to this synthesis, thus suggesting some degree of specificity of glycine as a porphyrin precursor. Other studies by this group³ using labeled deuterioacetate indicated that acetic acid was also used in the biosynthesis of protoporphyrin. Further recent studies⁴ with glycine labeled with radioactive carbon (carbon 14) have confirmed the earlier studies and have shown, in addition, that the alpha carbon atom of glycine,^{4a} but not the carboxylcarbon,^{4b} is incorporated into the protoporphyrin molecule. These investigators also observed that the radioactive carbon of the glycine appeared in the globin portion of the molecule, thus confirming the older belief that amino acids from dietary protein were used in the synthesis of globin. Further observations on the possible incorporation of other amino acids in globin will be awaited with interest.

Studies on the site of the biosynthesis of hemoglobin have also been made by the use of isotopes. Again

1. Dunting, C. H.: *Wisconsin M. J.* **24**: 305, 1925.
2. McMaster, P. D., and Hudack, S. S.: *J. Exper. Med.* **61**: 783, 1935.
3. Dougherty, T. F.; Chase, J. H., and White, A.: *Proc. Soc. Exper. Biol. & Med.* **57**: 295, 1944.
4. Harris, T. N.; Grimm, E.; Mertens, E., and Ehrlich, W. E.: *J. Exper. Med.* **51**: 73, 1945.
5. Enders, J. F.: *J. Clin. Investigation* **23**: 510, 1944.
6. Kass, E. A.: *Science* **101**: 337, 1945.
7. Roberts, S., and White, A.: *J. Biol. Chem.* **178**: 151, 1949.

8. White, A., and Dougherty, T. F.: *Endocrinology* **56**: 207, 1945.
1. Kirkman, N. F.: *J. Physiol.* **95**: 508, 1939.
2. Shemin, D., and Rittenberg, D.: *J. Biol. Chem.* **159**: 567, 1945; *ibid.* **166**: 621, 1946.
3. Bloch, K., and Rittenberg, D.: *J. Biol. Chem.* **159**: 45, 1945.
4. (a) Altman, K. I., and others: *J. Biol. Chem.* **176**: 319, 1948.
(b) Grinstein, M.; Kamen, M. D., and Moore, C. V.: *ibid.* **174**: 767, 1948.

using glycine labeled with nitrogen 15, the Columbia University workers⁶ have found that the synthesis of the glycine into protoporphyrin can occur in nucleated red blood cells (duck) and, curiously enough, in the blood cells of human patients with sickle cell anemia.⁶ This work has been confirmed using glycine labeled with radioactive carbon, which was incubated with bone marrow homogenates from rabbits.⁷ Confirmation was also obtained with "radioautographs" of blood smears made from rats given injections of the labeled glycine.⁸

The isotopic studies thus indicate that hemoglobin is formed in the body from such substances as glycine, acetic acid and undoubtedly other amino acids and that this process may occur primarily in the primitive nucleated erythrocyte in the bone marrow of man and other mammals. The utilization of such simple and abundant units for the biosynthesis of the vital pigment hemoglobin may be cited as another outstanding example of "the wisdom of the body" and one which undoubtedly has played a major role in the evolutionary survival of species whose blood contains hemoglobin as the respiratory pigment.

HOME CARE AS AN EXTRAMURAL HOSPITAL FUNCTION

Home care¹ of patients was inaugurated by the Montefiore Hospital of New York City in 1947. The program was limited to 50 patients who could not afford the services of a private physician. Ward patients who can do as well in their own homes as they can in the hospital, as determined by specially trained doctors and social workers, are returned there with a promise of complete hospital care, either in their own homes entirely or by a return to the hospital as necessary. At a later date the patient who can afford the services of a private physician but not the more expensive services which his condition demands will be included. This should result in a form of cooperation between hospital and practitioner in which the practitioner will have the diagnostic and therapeutic facilities at his disposal in the patient's home.

Extramural service provides for carefully selected patients the kind of care thus far available only to intramural patients. These patients secure consultations through participation in the teaching program. Clinical research is aided because it is under continuous observation over longer periods of time. Nursing is done by the Visiting Nurse Service of New York through a contractual arrangement. The cost of home care is about one fourth the cost of maintaining the same patient in a hospital bed.

A similar experiment was begun by Bellevue Hospital, New York, in 1948. Unterman and co-workers² stress the importance in this program of a careful evaluation of the patient's home situation by the social worker in determining his eligibility for home care. The decision to accept a patient to home care is made jointly by the physician and the medical social worker. Nursing care is provided by the Visiting Nurse Service of New York on a fee for service basis, at the request of the home care physician. The cost of treating patients at home amounted to \$2.83 per patient day, or approximately one fourth of the cost of hospital care.

Home care is a practical means of extending continuous medical service to indigent patients. The method results in economy of hospital beds.

PARATHYROID ACTIVITY AND THE KIDNEY

The relation of the activity of the parathyroid gland to calcium metabolism has been demonstrated repeatedly in the laboratory. Clinically, the syndrome known as osteitis fibrosa cystica and the latent and manifest tetany following the removal of too large a proportion of the gland are recognized as hyperparathyroidism and hypoparathyroidism, respectively. Clear as this relationship is, the precise mechanism whereby the hormone exerts its influence on mineral metabolism has not been elucidated. One view¹ considers that the change in blood calcium after the injection of parathyroid extract represents an adjustment due to alteration of phosphate concentration; another theory² relates the action of the hormone directly to the removal of calcium from the bones with the consequent elevation of this element in the plasma.

Any final explanation of the effect of the parathyroids on calcium and phosphorus metabolism might involve the control of blood levels by the kidney through tubular reabsorption and excretion. A recent study³ has been directed to this point; the glomerular filtration of calcium and phosphorus, the tubular reabsorption of these elements and their concomitant excretion in the urine have been determined in dogs in which some stress has been induced by the injections of saline solutions containing various concentrations of sodium phosphate. In part of the experiments, parathyroid extract was administered prior to the infusion. Over a range of induced plasma inorganic phosphate concentrations of 0.9 to 5.48 millimols per liter, the rate of reabsorption of phosphate in the renal tubules was essentially uninfluenced by the parathyroid extract injection. Under the same experimental conditions, the administration of the hormones was accompanied by

5. Shemin, D.; London, I. M., and Rittenberg, D.: *J. Biol. Chem.* **173**: 799, 1948.

6. London, I. M.; Shemin, D., and Rittenberg, D.: *J. Biol. Chem.* **173**: 797, 1948.

7. Altman, K. I.; Salomon, K., and Noonan, T. R.: *J. Biol. Chem.* **177**: 489, 1949.

8. Boyd, C. A., and others: *Science* **108**: 529, 1948.

1. Bluestone, E. M.: Home Care an Extramural Hospital Function, *Survey* **84**: 99 (April) 1948.

2. Unterman, D.; DeGraff, A. D., and Meleney, H. E.: Study of Home Care in a Municipal Hospital, *J. A. M. A.* **140**: 152-155 (May 14) 1949.

1. Albright, F.: *J. A. M. A.* **117**: 527-533 (Aug. 16) 1941.

2. Selye, H.: *Endocrinology* **16**: 547-558 (Sept.-Oct.) 1932.

3. Jahan, I., and Pitts, R. F.: *Am. J. Physiol.* **155**: 42 (Oct.) 1948.

hypercalcemia, increased tubular reabsorption of calcium and hypercalcuria. Apparently, therefore, the changes in the calcium level of the blood and increased loss in the urine are not closely associated with any pronounced alterations in the way in which the kidney handles phosphate under the influence of parathyroid hormone. The changes in calcium are no doubt produced by the hormone through extrarenal mobilization of calcium from body stores.

Current Comment

CHEMICAL CONTAMINANTS OF FOODS

A food, to be regarded as wholesome, must make its expected contribution to human nutrition and must be clean and free from harmful bacteria or poisonous substances such as harmful chemical contaminants. Since the recent war many new chemical technologic aids have been developed for use in the growth, storage or processing of foods. Some have been pretested and shown to be harmless; others have not. The potential health hazards of chemicals of little known or unknown toxicity is obvious. Safety can be assured only if there is adequate pretesting of materials prior to their use in foods. Information concerning the contaminant's fate in the body, a knowledge of chronic as well as acute toxicity, and practical analytic methods are essential. Elsewhere in this issue of *THE JOURNAL* (page 783), the Council on Foods and Nutrition calls attention to the necessity of a careful consideration of the use of surface-active agents in foods. Thus far, the use of these substances is limited, but their possible range of application includes almost all foods containing starch or fat. When a chemical technologic aid may find its way into the daily diet of nearly everyone from infancy to the grave, the necessity for being assured of its safety becomes significantly increased. A problem of these dimensions is difficult to solve and requires the expert opinion of a group of specialists whose independence of thought and action is unquestioned. Physicians are not opposed to the development of new chemical technologic aids which may be useful in the growth, storage or processing of foods. However, past experience forces them to call attention to the necessity of an orderly development of essential information concerning chemical contaminants of foods so that safe methods of use may be developed before these chemicals are offered for general use on food crops or for use in food storage or processing. Failure to recognize the necessity of adequate preliminary study is an invitation to trouble.

PRIMARY AMYLOIDOSIS

Primary or systemic amyloidosis is a comparatively rare disease, less than 60 cases having thus far been reported, according to the review by Dahlin.¹ Probably, however, additional examples have been recorded under such names as atypical amyloidosis, paramyloidosis and idiopathic amyloid disease and still other cases have been overlooked. The condition differs from secondary

amyloidosis in that such etiologic factors as tuberculosis or chronic suppuration are absent; involvement of the liver, spleen, kidneys and adrenal glands is minimal; amyloid is deposited in such unusual situations as the heart, lungs, skin and striated muscles; reactions to specific stains for amyloid material, are atypical and sometimes there are tumor-like collections of amyloid. In 57 recorded cases the average age was 55 years; the oldest patient was 80 and the youngest 15 years of age. No significant sex predilection has been noted, 30 of the patients having been males and 25 females. A most remarkable feature of the disease is involvement of the heart muscle. It was specifically mentioned in 46 of 54 instances that were investigated at necropsy. In 25 of this series myocardial insufficiency was believed to have been the cause of death. In the same number of cases involvement of the gastrointestinal tract was noted in 33 and pulmonary changes in 24. Deposits in the skin are present in about one fourth of all cases and are an important diagnostic feature. Changes in the bones and joints have been recorded occasionally. Involvement of the small arteries and veins of many different organs is commonly observed. Of 44 cases of amyloid disease in which necropsy was made at the Mayo Clinic during a period of about twenty-six years, 8 were examples of primary systemic amyloidosis.¹

ABNORMAL HEART RHYTHMS IN DIGITOXIN THERAPY

Aspects of toxicity associated with digitoxin therapy have been studied recently by Levine¹ at the Peter Bent Brigham Hospital. Among 338 patients with heart disease who received digitoxin therapy, 7 patients experienced abnormally rapid cardiac rhythms, including idioventricular rhythms, paroxysmal ventricular tachycardia or interference and dissociation phenomena. The incidence of toxicity resulting in rapid rhythms was greater in the group that received digitoxin therapy than in a control group treated with digitalis leaf, even though significant statistical difference could not be shown. Toxic rhythms that did occur from therapy with digitalis leaf were much less insidious in onset than were those caused by digitoxin. A rising ventricular rate or a sudden regularization of a totally irregular rhythm was considered a clue to imminence of onset of toxicity. The problem of toxicity from digitalis preparations will probably remain unsolved until a practical chemical test to determine blood level of digitalis bodies is developed. In the 7 patients described, dosage of digitoxin was believed to be excessive in 3 and not excessive in 3. Dosage in the seventh case may have been excessive. Levine's observations were not intended as a deprecation of digitoxin therapy. The uniform potency of this glycoside is considered a boon to both patient and physician, since toxic side effects noted with other forms of digitalis therapy do not occur. However, lack of the warning signs of the usual toxic side effects demands that the physician be more alert to the possible insidious development of other evidences of toxicity.

1. Dahlin, D. C.: Primary Amyloidosis, with Report of Six Cases, *Am. J. Path.* 25:105, 1949.

1. Levine, H.: Abnormal Rapid Rhythms Associated with Digitoxin Therapy: *Ann. Int. Med.* 29:822 (Nov.) 1948

ORGANIZATION SECTION

PROCEEDINGS of the ATLANTIC CITY SESSION

MINUTES OF THE ANNUAL SESSION OF THE HOUSE OF DELEGATES OF
THE AMERICAN MEDICAL ASSOCIATION, HELD IN
ATLANTIC CITY, JUNE 6-10, 1949

HOUSE OF DELEGATES

Second Meeting—Tuesday Afternoon, June 7

The House of Delegates was called to order at 2:15 p. m. by the Speaker, Dr. F. F. Borzell.

Report of Reference Committee on Credentials

Dr. H. B. Everett, Chairman, stated that 183 delegates had filed credentials with the reference committee.

Presentation of Minutes

It was moved by Dr. Mather Pfeiffenberger, Illinois, seconded by Dr. Thomas P. Murdock, Connecticut, and carried, that the House dispense with the reading of the minutes.

Report of Reference Committee on Executive Session

Dr. John W. Cline, Chairman, presented the following report: Your Reference Committee on Executive Session has met and examined the three items referred to it. It is the unanimous opinion of the committee that there is no cause to consider these items in Executive Session.

Resolutions on the Confidential Nature of Birth Records and Resolution on Child Health Programs on the State and Local Levels: Two of the resolutions referred to the committee have been returned to the Speaker for re-reference inasmuch as the committee believes they are in a category better handled by other committees.

Resolution on Membership in the American Medical Association: The one item with which this committee has dealt is the resolution introduced by Dr. Stephen R. Monteith, New York. This resolution calls for the appointment of a committee to study certain conditions supposedly involved in membership in the American Medical Association.

After consideration of the resolution and discussion with those interested in it, the committee is of the unanimous opinion that the fundamental basis of organization of the American Medical Association is the component county society. The Constitution and By-Laws of the Association clearly express this intent. The manner of admission to membership is entirely a county society function, and unless the Constitution and By-Laws were amended, the appointment of such a committee would serve no useful purpose. The committee unanimously recommends that this resolution be rejected.

Respectfully submitted,

JOHN W. CLINE, Chairman.
R. H. HAYES.
THOMAS P. MURDOCK.
HOWARD K. PETRY.
HUGH P. SMITH.

The report of the reference committee contained in the second section was adopted on motion of Dr. Cline, seconded by Dr. Thomas P. Murdock, Connecticut, and carried.

The Speaker requested Dr. Cline to read the two resolutions referred to in Section 1 of the report of the reference committee. After Dr. Cline read them the Speaker referred both resolutions to the Reference Committee on Legislation and Public Relations.

Report of Reference Committee on Miscellaneous Business

Dr. Mather Pfeiffenberger, Chairman, presented the following report:

1. Resolution on Establishment of Committee on General Practice: Your reference committee recommends that the appointed committee be reactivated and allowed to work.

2. Resolution on Single Membership Classification: Your committee recommends acceptance of this resolution.

3. Resolution on American Medical Association Assessment and Dues: Your committee approves this in principle but advises delay of action until the interim session.

4. Resolution on General Practice Sections in Hospitals: Your committee approves the principle of the resolution but does not believe it should be made mandatory.

5. Resolution on Supporting the American Medical Association: Your committee disapproves the resolution on the grounds that it feels that every effort is being expended to accomplish the purpose of the resolution.

6. Resolution on Displaced Physicians: Your committee approves this resolution if it is feasible.

7. Resolution on Affiliation of Medical Students with the American Medical Association: Your committee approves this resolution.

8. Resolution on General Practitioner's Award: Your committee approves the Resolution on General Practitioner's Award effective Jan. 1, 1950.

9. Resolutions on Suggested Educational Device: Your committee approves these resolutions and recommends they be referred to the Public Relations Committee to be used as they see fit.

Respectfully submitted,

MATHER PFEIFFENBERGER, Chairman.
GEORGE BRAUNLICH.
WILLIAM R. BROOKSHER.
ANDREW A. EGGSTON.
HOYT B. WOOLLEY.

Dr. Pfeiffenberger moved adoption of the report of the reference committee on the Resolution on Establishment of Committee on General Practice (Section 1) and the motion was seconded by Dr. George W. Kosmak, New York, and carried.

It was moved by Dr. Pfeiffenberger that the report of the reference committee dealing with the Resolution on Single Membership Classification (Section 2) be adopted. After discussion by the Speaker, Dr. Walter E. Vest, West Virginia, and Dr. George F. Lull, Secretary, Dr. Vest moved that the resolution be referred to the Board of Trustees for study and report at the interim session and the motion was seconded by Dr. T. K. Gruber, Michigan, and carried.

On motion of Dr. Pfeiffenberger, seconded by Dr. Charles H. Phifer, Illinois, and carried, the report of the reference committee on the Resolution on American Medical Association Assessment and Dues (Section 3) was adopted.

Dr. Pfeiffenberger moved adoption of the report of the reference committee referring to the Resolution on General Practice Sections in Hospitals (Section 4) and the motion was seconded by Dr. Val H. Fuchs, Louisiana, and carried after discussion by Dr. James R. Reuling, New York, and Dr. Pfeiffenberger.

Dr. Pfeiffenberger moved that the report of the reference committee dealing with the Resolution on Supporting the American Medical Association (Section 5) be adopted, and the motion was seconded by Dr. Charles H. Phifer, Illinois. After discussion by Dr. Val H. Fuchs, Louisiana, Dr. Pfeiffenberger and the Speaker, Dr. John W. Cline, California, moved an

amendment that the House heartily endorse the resolution as introduced and this motion was seconded by Dr. Thomas P. Murdock, Connecticut, and adopted after discussion by Dr. Val H. Fuchs, Louisiana; Dr. G. Henry Mundt, Illinois, Dr. T. K. Gruber, Michigan; Dr. Lowell S. Goin, California, the Speaker and Dr. Cline. The report of the committee on this resolution, as amended, was then adopted.

It was moved by Dr. Pfeiffenberger that the portion of the report of the reference committee approving the Resolution on Displaced Physicians if feasible (Section 6) be adopted, and the motion was regularly seconded and carried after discussion by the Speaker, Dr. Walter E. Vest, West Virginia, and Dr. Pfeiffenberger.

On motion of Dr. Pfeiffenberger, regularly seconded and carried, the report of the reference committee approving the Resolution on Affiliation of Medical Students with the American Medical Association (Section 7) was adopted.

A motion of Dr. Pfeiffenberger to approve the report of the reference committee approving the Resolution on General Practitioner's Award (Section 8), was lost after discussion by the Speaker; Dr. Pfeiffenberger; Dr. E. L. Henderson, Chairman, Board of Trustees; Dr. Thomas P. Murdock, Connecticut; Dr. Walter E. Vest, West Virginia, and Dr. Charles H. Phifer, Illinois.

Dr. Pfeiffenberger moved that the report of the reference committee approving of the Resolutions on Suggested Educational Device (Section 9) and recommending its reference to the Public Relations Committee, be adopted. After discussion by the Speaker and Dr. Pfeiffenberger, Dr. James R. Reuling, New York, offered an amendment that the House heartily approve the suggestion and use it in every way possible and this was seconded by Dr. Walter E. Vest, West Virginia, and discussed by Dr. Pfeiffenberger and the Speaker, who suggested that it be referred to the Coordinating Committee rather than to the Public Relations Committee, which was accepted by Dr. Pfeiffenberger, who then moved adoption of this section of the report, as amended. The motion was seconded by Dr. Charles H. Phifer, Illinois, and carried.

On motion of Dr. Pfeiffenberger, seconded by Dr. Thomas P. Murdock, Connecticut, and carried, the report of the reference committee as amended was adopted as a whole.

Report of Reference Committee on Emergency Medical Service

Dr. Leland S. McKittrick, Chairman, presented the following report, which on motions of Dr. McKittrick, duly seconded and carried after discussion, was adopted section by section:

REPORT OF COUNCIL ON NATIONAL EMERGENCY MEDICAL SERVICE

1. Elevation of Position of Surgeon General: Your reference committee considered the portion of the Report of the Council on National Emergency Medical Service dealing with the elevation of the position of Surgeon General, shares the satisfaction of the Council in its report and commends the Council for its excellent work in helping to bring about this change.

2. Division of Medical Services in Office of Secretary of Defense: Your reference committee considered that portion of the Report of the Council on National Emergency Medical Service relative to the directive establishing in the Office of the Secretary of Defense a Division of Medical Services to be headed by a Director of Medical Services of the Armed Forces, notes with satisfaction this directive and later will report on the subsequent developments in the medical services of the Armed Forces. Your committee recommends that a proper note of commendation be forwarded to the President of the United States and the Secretary of Defense in recognition of this constructive and forward-looking action.

3. Proposed Establishment of a Section on Military Medicine and Surgery: Your committee has also reviewed the background leading up to its approval of the establishment of a Section on Military Medicine and Surgery. It recommends that the question of the establishment of such a Section be referred to the Council on Scientific Assembly for definite recommendation.

4. Action Favoring Passage of H. R. 3039 and S. 1698: This pertains to the impossibility of reserve officers in Army, Navy and Air Force Medical Corps obtaining credit points necessary to complete a satisfactory year of federal service during the first year of operation of Public Law 810 of the 80th Congress. S. 1698 and H. R. 3039 have been introduced to make satisfactory changes in the present law. Your committee recommends that the American Medical Association go on record as favoring the passage of S. 1698 and H. R. 3039 and/or other suitable legislation looking toward the deferment for one year of the basis on which the point requirements in such law shall become effective and that copies of this action be forwarded to the President of the United States, to the Secretary of Defense, to the Secretary of the Army, Navy and Air Force, to the Chairman of the Armed Services committees of the Senate and House and to Senator Johnson and Representative Ford.

Respectfully submitted,

LELAND S. MCKITTRICK, Chairman.
KARL S. J. HOHLEN.
GEORGE S. KLUMP.
ROLAND W. STAHR.
ROBERTSON WARD.

Report of Reference Committee on Reports of Officers

Dr. F. J. Pinkerton, Chairman, presented the following report, which on motions of Dr. Pinkerton, duly seconded and carried, was adopted section by section and as a whole:

1. Address of President: Your reference committee finds itself in complete accord with the views of our President as expressed in his report. However, there are observations of special significance which it feels should be emphasized. His address is divided into four parts. Your committee will comment briefly on each.

(1) Medical education, hospitals and medical schools, students and teaching facilities, teacher and endowment shortages, specialization boards, etc., are problems that have already been referred to appropriate reference committees. Complex as they are in solution, your committee feels that every means should be exhausted to solve them, and that this should be the obligation of the profession in cooperation with the proper authorities concerned.

(2) Your committee notes with approval the President's comments relative to the problems of securing adequate personnel for the Armed Forces. He has made a studied analysis of the current situation and has offered many constructive suggestions. These matters will undoubtedly be the concern of the Council on National Emergency Medical Service, and policies which will be developed will be presented by this body. Your committee recommends that the Council give the President's remarks serious consideration.

(3) The President has expressed tersely and with great clarity the philosophy behind the drive for compulsory sickness insurance, and the false tenets on which it is founded. He has emphasized particularly the technics of the protagonists of this movement and the pressure on our national legislators which in his words is "ghastly and unending. Bureaucracy degrades the individual and destroys personal service and freedom." Your committee is wholeheartedly in accord with this.

(4) The President points out our willingness to cooperate wherever possible in an effort to reduce misunderstandings, but in such cooperation we must recognize the basic principles and moral issues involved and not yield to compromise where the dignity and welfare of the human being is at stake.

In conclusion, your committee senses deeply the spirit of confidence and determination which is so evident in the reports of the officers and in the discussions by the members of this House. This augurs well for the future.

2. Address of Speaker: In reviewing and studying the report of the Speaker, your committee commends him for his excellent observations, actions and recommendations. It agrees especially with that portion suggesting that the delegates invite selected members from their state societies to attend at least one meeting of the House. It believes that in this manner the mem-

bership at large can and will learn that the meetings of the House of Delegates are conducted in a truly democratic manner.

Your committee commends the Speaker's action in appointing the special Committee on Publicity to transmit to the press a proper interpretation of the deliberations of the House.

Your committee notes with approval the Speaker's comments of appreciation to the delegates for their letters and personal communications expressing a desire and willingness to serve and to fulfil their important duties. Delegates must be ever alert and must accept the responsibility of keeping the officers constantly informed as to happenings in their respective localities.

Your committee feels it important to reiterate and emphasize the remarks of the Speaker when he says: "We, then, must lead and not be led. As long as we hold to a course of dignity, singleness of purpose and unwavering solidarity we can win."

Respectfully submitted,

F. J. PINKERTON, Chairman.
J. B. LUKINS.
GEORGE E. EARL.
J. STANLEY KENNEY.
CHARLES J. KICKHAM.

Report of Reference Committee on Sections and Section Work

Dr. Edward L. Compere, Chairman, presented the following report, which on motions of Dr. Compere, duly seconded and carried, was adopted section by section and as a whole:

1. Request for Section on Military Medicine and Surgery: The request of the Council on National Emergency Medical Service that the Council on Scientific Assembly recommend to the House of Delegates that a Section on Military Medicine and Surgery be created was referred by the Speaker of the House to the Reference Committee on Sections and Section Work. The arguments favoring the creation of this new section were presented in a letter from Rear Admiral Joel T. Boone and in person by Lt. Col. Harold W. Glascock.

Your committee recognizes merit in the proposal that this new section be created and recommends, in accordance with Article 9, Section 3 of the Constitution, that this request for the creation of a Section on Military Medicine and Surgery be referred by the House of Delegates to the Council on Scientific Assembly for study and recommendation to the House of Delegates.

2. Increase in Membership of Council on Scientific Assembly. The request of the Council on Scientific Assembly that the membership of this Council be increased to seven in number was referred, at the interim session held in St. Louis in 1948, to the Reference Committee on Sections and Section Work. That committee reported that "The advisability of granting an increase in the membership of the Council from five to seven in number was clearly apparent for reasons adequately expressed."

Your committee approves the enlargement of the Council as set forth in the proposed amendment to the By-Laws, Division Three, Chapter X, Section 4 (b) submitted by the Council on Scientific Assembly.

Respectfully submitted,

EDWARD L. COMPERE, Chairman.
J. W. BIRD.
CHARLES H. PHIFER.
JOHN M. PORTER.
CHARLES T. STONE.

Resolution on Board of Trustees

Dr. Floyd S. Winslow, New York, presented the following resolution and moved its adoption:

Resolved, That this House of Delegates of the American Medical Association has full confidence in the Board of Trustees to carry on the duties imposed on it by the Constitution and By-Laws.

The motion was seconded by Dr. F. J. Pinkerton, Hawaii, who moved that the resolution be adopted by acclamation. The motion was adopted unanimously.

Resolution on Special Committee on Displaced Physicians

Dr. Charles L. Farrell, Rhode Island, presented the following resolution, which was referred to the Reference Committee on Miscellaneous Business.

WHEREAS, It is generally admitted that there is a need for more qualified physicians than are now available in this country; and

WHEREAS, There is at present a large group of physicians who, with their countrymen, have been rendered homeless and are now living as displaced persons under the care of the International Refugee Organization in Western Germany and elsewhere; and

WHEREAS, Many of the physicians are known to be highly trained specialists and practitioners; and

WHEREAS, Many of these physicians have entered and many more will be resettled throughout the civilized world, including the United States; therefore be it now

Resolved, That a Special Committee on Displaced Physicians be appointed by the President of the American Medical Association, to consist of six members, whose duty it shall be to study the problems of displaced physicians generally and as far as possible to cooperate with the International Refugee Organization and the various state authorities in furthering the resettlement of these individuals in a spirit of friendly cooperation with unfortunate colleagues.

Resolution on Questionnaire on Medical Care

Dr. Warren W. Furey, Illinois, presented the following resolution, which was referred to the Reference Committee on Legislation and Public Relations:

WHEREAS, The Board of Trustees of the American Medical Association may not presently have completely accurate information on the consensus of the American medical profession as to the most effective solution of the over-all problem of medical care; and

WHEREAS, Information coming from officers and councils of county and state medical societies to the American Medical Association may not always have incorporated the "grass roots" opinions of some of the members of these groups; and

WHEREAS, With the information which would be made available by a comprehensive questionnaire sent to all Fellows and members of the American Medical Association in order to learn in extenso their attitude relative to the various facets of medical care problems, the American Medical Association will be able to formulate a comprehensive medical care plan which will be more efficient, more effective and more preservative of individual initiative than the compulsory health insurance proposal before the Congress; now, therefore, be it

Resolved, That the House of Delegates instruct the Board of Trustees to have such a questionnaire prepared and sent to all Fellows and members of the American Medical Association, the individual questionnaires to be confidential and the questionnaire results to be categorized and ultimately made known to the Fellows and members of the American Medical Association.

Resolution on Veterans Administration

Dr. James C. Sargent, Wisconsin, presented the following resolution, which was referred to the Reference Committee on Emergency Medical Service.

WHEREAS, The American Medical Association has supported the professional medical program of the Veterans Administration and has noted with great satisfaction the high quality of medical care made available to the veterans of our country through the cooperation of the medical service of the Veterans Administration, the teaching hospitals, the university faculties and the medical consultants to the Director of the Department of Medicine and Surgery of the Veterans Administration; and

WHEREAS, A most fundamental principle of sound medical care dictates that the professional, domiciliary and rehabilitation programs must be coordinated under professional guidance if the best interest of the patient is to be served; and

WHEREAS, The present administration of the Veterans Administration medical facilities and services under the direct control of the Director of Medicine and Surgery has resulted in the highest type of veteran patient care yet obtained in this country; now, therefore, be it

Resolved, That it is the opinion of the House of Delegates that it is essential that complete responsibility and authority for the medical care and hospital services program of the Veterans Administration must be vested in the Chief Medical Director of that Administration.

Introduction and Address of Surgeon General Raymond W. Bliss of the U. S. Army

Dr. James C. Sargent, Wisconsin, introduced Surgeon General Raymond W. Bliss of the U. S. Army, who spoke as follows:

Dr. Sargent and Delegates: I am honored to be here again this year, to say just a word. I think the year past, as far as the Army is concerned, has been one of the utmost cooperation from your groups in the American Medical Association, particularly with the Council on National Emergency Medical Service, and the group in my office has worked constantly and continuously during the year with all of the bodies of the American Medical Association. I think it is beginning to show in our results that we are and you are a part of the same thing, that is, American medicine. I think we are back in the field of American medicine, and there we intend to stay. Thank you very much!

Introduction and Address of Surgeon General Clifford A. Swanson of the U. S. Navy

Dr. Sargent presented Surgeon General Clifford A. Swanson of the U. S. Navy, who spoke as follows:

Mr. Chairman, Dr. Sargent, Members of the House of Delegates and Guests: Military medicine in the early days was folk medicine. With the acceptance of Greek medicine by the Romans, organized medical departments were incorporated in the Empire armies. Personnel losses from disease were great, and when Hannibal crossed the Alps two hundred and eighteen years before Christ, with 112,000 troops, he had but 26,000 left when he arrived in Italy. In the Punic Wars, when Carthage was destroyed, 146 B. C., the city of 700,000 was reduced to a city of 50,000.

With the dissolution of the Roman Empire came a wave of military medicine, as well as a high order of medicine established by Hippocrates, by Galen and by Celcus. Surgery fell into the hands of the barbers and bath keepers, and venesection and cupping was the order of the day.

Medicine in the Middle Ages was dogmatic. Science was dormant and many fallacies regarding the practice of medicine persisted. The main medical-technical advances of the recent era may be summarized. New operative technics and methods of antisepsis were created which allowed surgeons to operate safely on internal organs. The microscope came into being and the x-ray. Drugs were discovered which acted as specifics in the treatment of disease, so that by the year 1900, Oliver Wendell Holmes, physician and poet, could no longer have said that "if all the *Materia Medica*s were sunk in the bottom of the ocean, it would be all the better for mankind and all the worse for the fishes."

The French failed to build a transisthmian canal because of the depredations of yellow fever. As many Frenchmen are said to have died of this fever as there are railroad ties on the Trans-Isthmian Railroad connecting the two oceans. America succeeded where the French failed, because of the work of Dr. Walter Reed and his colleagues in the arrest of yellow fever.

American medicine made great progress also between World War I and World War II because of the standards made and enforced by this great medical association. In World War I, 11 per cent of the wounded died. In World War II, less than 3 per cent of the wounded died, and it was the first world war in which we participated in which the mortality from wounds was greater than from disease. This record is indeed a high tribute to American medicine.

Although the war is over, we have found it necessary to maintain a very formidable military machine. Your American Army today is ten times larger than before World War II, and your Navy is five times larger than before World War II. We have our men on all the continents of this earth excepting one, and many of the islands throughout the world. We in the Navy have 25 hospitals in this country and 3 overseas, as well as 2 hospital ships in the oceans to carry out our medical duties. In the Navy today, we have 2,100 nurses, 2,900 doctors, 2,000 dentists, 800 medical administrators and 16,500 corpsmen.

Your Association, the American Medical Association, in consonance with other experts, has enabled us to procure the bare minimum of doctors to perform our medical mission in the implementation of the foreign policy of our country. I want to thank publicly Dr. Sensenich and Dr. Irons for their work in aiding us in our procurement problem.

We of the Medical Department have spearheaded unification, which you hear so much about. At the present time, in the Army and Navy and the Air Force, we have joint staffing of our hospitals; we have joint medical procurement; we are soon to have a single armed force medical bulletin; and we also have a committee formed on medical facilities, so in the case of another holocaust, we shall not be building hospitals side by side.

We also have a group that has looked into the mistakes of World War II, so that, if we get into another holocaust, these same mistakes, we hope, will not be repeated. We of the Navy and the Army are going to try to rectify the situation and then permit our reserves to be able to make their fifty

points a year. I want to commend this Association for the forward steps that it has taken toward establishing a military medicine section of this Association.

Now, I want to speak a few words on behalf of our sister services. They are in the order of 2,000 doctors short. Where should these young doctors come from?

We have already had in the Army and in the Navy and in the Air Force, 10,000 young doctors that have served two years, who have been educated in part or in whole at government expense. There are still in our country 8,000 young doctors who have been educated in whole or in part at government expense, who have not served a single day. There are also 7,000 young doctors who have received their education without having served. Now, if 10,000 of the former V-12 and ASTP's can serve, there is no reason why we should not get doctors from this group of 15,000 which I have just mentioned. They should serve, as many of you here in the House of Delegates served during the war, and if these young doctors serve, they will not only be better doctors, but, something infinitely more important, after a tour of two years in either the Army or the Navy or the Air Force, they will be better citizens.

I plead with you members of the House of Delegates to persuade these young doctors to perform a great duty, a duty as citizens of this country. We want a volunteer medical department in the Armed Forces, and I know that this great American Medical Association will help us to procure the needed medical men today.

World Medical Association

Dr. Henderson, Chairman, Board of Trustees, addressed the House as follows:

At the last interim session in St. Louis, there was a report made from the United States Committee of the World Medical Association, and that committee urged every member of the House of Delegates to become a member of the United States Committee.

I am sorry to say there are at least sixty members of the House of Delegates who are not members of the United States Committee of the World Medical Association. Gentlemen, this is a great cause and we are very anxious that you support it. I would say that there are quite a few new members of the House of Delegates who were not present at that time. If there are any of you who are willing to join the United States Committee for the World Medical Association, you will find application blanks at the booth in the exhibit hall. You may sign your blank there and pay your fee if you want to. The fee is not great. It is \$10. I might say it is \$10 up to whatever you want to give. It is all right if you want to give \$1,000. We have no objections. Thank you.

Report of Reference Committee on Industrial Health

Dr. William L. Estes, Chairman, presented the following report, which was adopted on motion of Dr. Estes, seconded by Dr. Mather Pfeifferberger, Illinois, and carried:

The meeting of your committee consisted largely of a conference with the able director of the Council on Industrial Health, Dr. Peterson, and its distinguished chairman, Dr. A. J. Lanza. Referred to our committee was a supplemental report of the Council implementing the eleventh plank of the American Medical Association's platform for the advancement of medicine and public health. The Council on Industrial Health represents an important bulwark in the Association's armamentarium. Its proposal of a constructive program, placing primary emphasis on preventive medicine and positive health promotion, together with all out efforts to increase safeguards against industrial hazard and the prevention of accidents occurring on the highway, in the home and on the farm, is highly to be commended. To offer the services of the Council to aid those interested in decreasing the mounting incidence of highway, home and farm casualties is an important gesture. Certainly the Annual Congress on Industrial Health sponsored by the Council serves to spearhead the extension of the usefulness and influence of industrial physicians and hygienists in developing patterns of community health and medical service.

The establishment at the national level of a permanent conference group with labor and management instead of irregular and informal contacts is to be highly desired. This will permit not only discussion of the extension of industrial medicine and hygiene, accident prevention, and health education of workers, but also will serve to clarify the status of physicians and medical organizations in relation to industrial health activities, as well as to provide another medium of understanding concerning the ideals of service and responsibility prompting these efforts.

It is surely to be anticipated that similar permanent conference groups at the state and community level will in due time follow.

Likewise may be underlined: (1) The Council's efforts to revitalize where indicated committees on industrial health in the principal industrial state and local medical societies to promote the most effective professional treatment; (2) The formation of a liaison committee with other professional groups, such as nurses, dentists, engineers and hygienists to establish better integration and cooperation with their efforts in the industrial field.

The suggestion that as industrial medicine expands so must facilities for professional training keep pace would seem of special and paramount importance. The development of an appropriate educational program and facilities for obtaining it at this time is imperatively needed. Consultation with the Council on Medical Education and Hospitals or other appropriate bureaus or councils of the American Medical Association, with the American College of Surgeons and its Committee on Trauma, and other interested groups would seem advisable in order to establish standard criteria for this program. Likewise, efforts in professional education should include ways and means to bring to the profession in general the important advances in industrial medicine.

The proposal to have as consulting committees to the Council on Industrial Health panels of experts on atmospheric pollution, toxic chemicals, hazardous physical agents and harmful biologic exposures set up by the Congress on Industrial Health seems highly desirable and is definitely approved, subject to the budgetary provisions of the Council.

Liaison with the Council on Medical Service for consideration of the employment phases of rehabilitation in industry and study of medical care plans industrial in origin have been important activities of the Council. We would certainly agree that as good medical standards and resources in industry improve they can be of great service in maintaining independence and self determination and in counteracting tendencies toward centralization and control.

The Council on Industrial Health is in able hands. We can be proud of its accomplishments.

Respectfully submitted,

WILLIAM L. ESTES, Chairman.
WYMAN D. BARRETT.
WARREN W. FUREY.
W. W. BAUM.
CARL A. GROTE.

Report of Reference Committee on Sections and Section Work

Dr. Edward L. Compere, Chairman, presented the following report, which on motion of Dr. Compere, seconded by Dr. Mather Pfeifferberger, Illinois, and carried was adopted.

The recommendation of the Council on Scientific Assembly for the establishment of a Section on Physical Medicine and Rehabilitation is supported by this committee. The proposed amendment to Division Two, Chapter VII, Section 1, which establishes this new section is also recommended for acceptance by the House of Delegates.

Respectfully submitted,

EDWARD L. COMPERE, Chairman.
CHARLES H. PHIFER.
JOHN M. PORTER.
CHARLES T. STONE.

Report of Reference Committee on Legislation and Public Relations

Dr. William Bates, Chairman, presented the following report:

1. Resolution on Compulsory Health Measures: Your Reference Committee on Legislation and Public Relations has studied the Resolution on Compulsory Health Measures and feels that the House of Delegates should be grateful for having this matter called to its attention. It is the understanding of this committee that the bill referred to in this resolution has already passed the United States Senate without committee hearings, but has not yet been considered by the House of Representatives.

Your committee recommends that the House of Delegates not only register and publicize its disapproval, but that it instruct the Board of Trustees to order all possible steps taken to prevent the enactment of this legislation.

2. Resolutions on Amendment to Constitution of United States: Your reference committee has studied the resolutions concerning the limitation of the Government of the United States' activities in engaging in any business, professional, commercial or industrial enterprises, in competition with its citizens, except as specified in the Constitution. The committee approves the resolution in spirit, but realizes the difficulties of its accomplishment. In spite of these facts, it recommends the adoption of these resolutions.

3. Resolution on Diabetes Detection Drive: Your reference committee has considered the resolution introduced for the Medical Society of the State of New York requesting the approval of the House of Delegates of the American Diabetes Association's Detection Drive and requesting the Board of Trustees of the American Medical Association to implement cooperation between the American Medical Association and the American Diabetes Association in furtherance of the Diabetes Detection Drive. It heard several proposals for this resolution and recommends its adoption.

4. Resolution on Social Security: Your reference committee has considered the resolution concerned with the extension of social security and suggests a change of wording in the resolution as presented, so that it shall read:

"Resolved, That the House of Delegates of the American Medical Association express its disapproval of the extension of so-called 'Social Security' to self-employed individuals, including physicians and surgeons."

Your committee agrees with distribution of this resolution as recommended, and therefore recommends the adoption of this resolution as amended.

5. Resolution on Establishment of Committee to Confer with Congress: Your reference committee has considered the Resolution on Establishment of Committee to Confer with Congress and recommends its approval with certain changes in its wording, which have the approval of its sponsors, to read: *Resolved*, That the Board of Trustees of the American Medical Association be empowered to create a special committee, to be composed of representatives of the Board of Trustees, representatives of the House of Delegates and other Fellows of the Association. This committee shall arrange a conference with members of Congress, with a view of developing legislation that would meet the objective of the American Medical Association program in its efforts to solve the problem of making medical care more readily accessible to the American people. This committee is to work in cooperation with other existing committees and to make its report from time to time to the Board of Trustees.

Your committee recommends the adoption of this resolution as amended.

6. Resolution on Free Choice of Physicians for Federal Employees: The resolution requesting the American Medical Association to seek amendment to the federal law on workmen's compensation, to the effect that all covered federal employees be granted free choice of physicians for injuries sustained in line of duty, was carefully considered. The committee approves this resolution and recommends its adoption.

7. Addresses of Whitaker and Baxter: Your reference committee has studied the addresses of Whitaker and Baxter and endorses the point of view presented.

Not having received a report from the Coordinating Committee, it was expected that, in addition to the addresses given, a more detailed list of accomplishments and plans would be presented. It is our understanding that such may be presented later at this session. Your committee believes that such a presentation is in order.

It is the feeling of your committee that a deliberate effort should be made on the part of the Coordinating Committee to see that the name of the American Medical Association is featured as the sponsor in the public relations program.

8. Resolution on Hospital and Medical Care of Veterans for Non-Service-Connected Disabilities: Your reference committee has carefully considered the history and content of the resolution pertaining to care of veterans for non-service-connected disabilities.

This resolution was approved by the House of Delegates of the Tennessee State Medical Association, and by the Tennessee Hospital Association and endorsed by the Advisory Committee for the Hill-Burton Bill.

There are many facets in this resolution, and many were so controversial that your committee heard eighteen witnesses in an hour and fifty-five minutes devoted to the discussion of this one resolution.

Your committee recommends that the first exception under 1 (b) be enlarged from "Disabilities covered by compensation laws" to "Compensation laws and public liability."

Your committee further recommends that in the next to last line, the present wording be deleted after "best efforts" and that there be added the words "working with allied groups to implement this resolution."

With these corrections, your committee recommends the adoption of this resolution.

9. Proposed Code of Ethics of World Medical Association: Your reference committee has considered the Proposed Code of Ethics of the World Medical Association presented by Dr. George Lull, requesting its endorsement by this House of Delegates. Endorsement by this House of Delegates as a member organization of the World Medical Association is necessary before this Code can be formally adopted.

Your committee recommends that the Code of Ethics be endorsed.

10. Resolution on Child Health Programs on the State and Local Level: Your reference committee has studied the resolution pertaining to Child Health Programs on the State and Local Level and recommends its adoption.

11. Resolutions on Confidential Nature of Birth Records: Your reference committee has studied the resolutions pertaining to the confidential nature of the birth certificate and is in full accord with the spirit of the resolutions and recommends their adoption.

Respectfully submitted,

WILLIAM BATES, Chairman.
F. J. L. BLASINGAME.
LEO G. CHRISTIAN.
WALTER G. PHIPPEN.
H. GORDON MACLEAN.

The first seven sections of the report of the reference committee were adopted on motions of Dr. Bates, duly seconded and carried.

Dr. Bates moved adoption of the report of the reference committee on the Resolution on Hospital and Medical Care of Veterans for Non-Service-Connected Disabilities and the motion was regularly seconded and lost by a standing vote of 59 for and 61 against, after discussion.

Sections 9, 10 and 11 of the report of the reference committee were adopted after discussion on motions of Dr. Bates, duly seconded and carried.

On motion of Dr. Bates, seconded by Dr. George W. Kosmak, New York, and carried, the report of the reference committee as amended was adopted as a whole.

Report of Reference Committee on Rules and Order of Business

Dr. A. F. R. Andresen, Chairman, presented the following report, which was adopted on motion of Dr. Andresen, seconded by Dr. Mather Pfeifferberger, Illinois, and carried:

Mr. Speaker and Members of the House: Your committee recommends that on completion of business this afternoon, the House recess until Thursday at 10 o'clock and that every effort be made to complete all other business of the House on Thursday morning, leaving the early afternoon, starting at 1:00 p. m., for election of officers.

Report of Reference Committee on Amendments to Constitution and By-Laws

Dr. William D. Stovall, Chairman, presented the following report, which was adopted section by section and as a whole and the Speaker called for a rising vote on the adoption of the amendments and declared that there had been a two-thirds vote, that the amendments had been adopted with the exception of the amendment to the Constitution, which must lie over until the next annual session:

1. Proposed Amendment to Article 3 of the Constitution of the American Medical Association: This proposed amendment is suggested on the basis that at present no constituent state association has any formal recognition that it is an integral part of the American Medical Association, and requests that there be added to Article 3 the following clause "and such constituent associations shall receive a charter from the American Medical Association." In view of the fact that the American Medical Association is a federation of state and territorial medical associations, your reference committee felt that the American Medical Association cannot give a charter to any constituent association. The reference committee disapproves this resolution, with the recommendation that the Oklahoma Council consider a more feasible means by which they may solve their problems. The resolution is not recommended.

2. Report of Council on Scientific Assembly Suggesting Increase in Its Membership: In a supplementary report at St. Louis in 1948 the Council on Scientific Assembly recommended a change in the number of members of the Council on Scientific Assembly from five to seven, suggesting that if this change is granted, when feasible, one of the additional members be a general practitioner or a Fellow who has intimate knowledge of the needs of general practitioners in relation to arranging the programs for the Scientific Assembly at the Annual Sessions and at the Interim Sessions.

This resolution was referred to the Reference Committee on Sections and Section Work which approved it and recommended that the indicated change in the By-Laws be presented at the next meeting of the House of Delegates (this meeting). Your reference committee recommends the approval of this resolution.

The By-Laws Division Three, Chapter 10, Section 4 (b) Standing Committees, will now read:

"The Council on Scientific Assembly shall consist of seven Member or Service Fellows, one of whom shall be a general practitioner elected by the House of Delegates on nomination by the Board of Trustees for terms of seven years, so arranged that at each annual session the term of one member expires, except that at the 1949 annual session, one member shall be elected for a term of five years, one for a term of six years and one for a term of seven years." Your reference committee recommends the acceptance of this amendment.

3. Report of the Council on Scientific Assembly recommending a change in the By-Laws to create a new section to be designated "Section on Physical Medicine and Rehabilitation." This amends Division Two, Chapter VIII, Section 1, which enumerates the Sections of the Association. No. 19, now "Miscellaneous Topics" is changed to "Physical Medicine and Rehabilitation" and no. 20 "Miscellaneous Topics" is added. This proposed change creates a new Section on Physical Medicine and Rehabilitation, numbering it Section 19, and transfers "Miscellaneous Topics" to no. 20. Your committee recommends this amendment.

4. Proposed Amendment to By-Laws, Division Three, Chapter XII, Section 6: This amendment proposes the addition of the Judicial Council to this subsection. In discussing this matter your reference committee found a discrepancy which also seemed

to need correction in that part referring to the Council on Scientific Assembly. The word "Council" does not now appear. At present the subsection reads as follows: "Keep minutes of the proceedings of the House of Delegates and of the meetings of the Scientific Assembly." Your Reference Committee recommends that it read as follows: "Keep the minutes of the proceedings of the House of Delegates and of the Judicial Council and of the Council on Scientific Assembly." Your committee recommends this change in the By-Laws.

5. Proposed Amendment to By-Laws, Division One, Chapter II: This is a proposed amendment to the By-Laws, Division One, Chapter II. It recommends striking out the words "one year" occurring in line 3 on page 10 of the Constitution and By-Laws and substituting the words "eight months." After some discussion and consultation with a delegate from the California Medical Association, your committee feels that instead of making the change for eight months it should be six months, and that portion of the By-Laws would then read "unless he has transferred his membership within six months after such change of practice, the Secretary shall remove his name from the roster of members." Your committee approves this proposed amendment as recommended by the delegate from California.

6. Proposed Amendment to Constitution, Article 11: The proposed amendment suggests the following in addition to the present first sentence: "Funds may be raised by an equal annual levy of dues or by an equal special assessment, or both, levied or assessed on each of the active members on recommendation by the Board of Trustees after approval by the House of Delegates" and the balance of the Article as at present.

Your committee feels that in view of the present assessment of \$25, this proposed amendment providing authority for unlimited dues or assessments be not recommended. Your committee disapproves of this resolution.

7. Proposed Amendment to Constitution and By-Laws concerning the Armed Forces: This provides for a change in the Constitution and By-Laws, giving the medical officers of the newly formed Medical Service of the United States Air Force the same privileges and responsibilities within the American Medical Association as their colleagues in other government services now have.

Article 6, Section 2 of the Constitution would be changed to insert after the word "the United States Navy" the words "the United States Air Force." That part of the section would then read "and of Delegates from the Medical Departments of the U. S. Army, the U. S. Navy, the U. S. Air Force, the U. S. Public Health Service and the Veterans Administration appointed by the Surgeon General or the Chief Medical Director," as the case may be of the respective services. Your committee recommends this change and further recommends that the change needed in the By-Laws, Division Three, Chapter IX, Section 1 (B) be presented at the next interim meeting of the House of Delegates for consideration at that time.

Respectfully submitted,

WILLIAM D. STOVALL, Chairman.
IVAN FAWCETT.
PAUL K. FRENCH.
WILLIAM A. HYLAND.
B. E. PICKETT SR.

The House recessed at 3:30 p. m. to meet Thursday, June 9, at 10 a. m.

Third Meeting—Thursday Morning, June 9

The House was called to order by the Speaker, Dr. F. F. Borzell, at 10 a. m.

Report of Reference Committee on Medical Education

Dr. B. R. Kirklin, Chairman, presented the following report, which on motions of Dr. Kirklin, duly seconded and carried, was adopted section by section and as a whole:

1. Report of the Council on Medical Education and Hospitals: Your Reference Committee on Medical Education met on Tuesday morning for a consideration of the material referred to

it. A rather large number of interested members appeared to present their views to the committee and the committee is truly grateful to these members for their advice and counsel.

Your committee wishes to express its appreciation of the great amount of work done by the Council on Medical Education and Hospitals, a work which is of enormous benefit to the medical profession of America. Your committee recommends the adoption of the report of the Council on Medical Education and Hospitals.

2. Resolutions on Medical Specialty Boards: It is the opinion of your committee that the various things requested in the body of these resolutions are, in fact, already in effect and your committee sees no need for the adoption of the resolutions and recommends that they be not adopted.

3. Resolution on the General Practitioner: Your committee was much impressed with the arguments set forth by the proponents of this resolution and is of the unanimous opinion that the general practitioner, who is in fact the very backbone of American medicine, should be assisted in every way possible to advance himself. Your committee is of the unanimous opinion that better training facilities should be arranged as promptly as may be found feasible and that the American Medical Association should most urgently insist that hospitals make freely available to qualified general practitioners all of their facilities for the care of the sick. Your committee believes that it is the opinion of this House of Delegates that the reason for the existence of hospitals is for the better care of the sick and for the promotion of the health of the American people. Your committee believes that it is the opinion of this House that these ends will be best served by the existence of a large number of well trained thoroughly qualified general practitioners able to admit their patients to the hospitals in order that they may give them the very best medical care that may be provided. To this end, your committee has rewritten the resolution introduced by Dr. DiNatale and submits it to the House of Delegates as a substitute resolution:

WHEREAS, For the best interests of his patients the general practitioner at this time deserves particular consideration; therefore be it

Resolved, That (1) graduate and postgraduate education for general practitioners should be made more widely available and (2) two year rotating internships especially designed for those who wish to train for general practice be set up as rapidly as may be possible.

Your committee recommends the adoption of this revised resolution.

4. Resolution on Training of Interns: It seemed to your reference committee that this resolution has its intent closely bound with the resolution which has just been considered and for the same reasons just stated, the committee views this resolution with favor. The resolution begins with the words "Whereas, most hospitals are unable to procure an adequate complement of interns." Your committee doubts that this is actually the case but believes that many hospitals are unable to procure a sufficient number of interns and your committee has therefore changed the word "most" to "many."

The intent of the resolution is to provide a committee of five members of the House of Delegates, two of whom shall be general practitioners, to study the whole internship problem and especially to study the advisability of recommending the inauguration of a two year rotating internship which shall include the main branches of medicine, surgery, obstetrics and gynecology. It is obvious that such an internship would be an excellent training for a young physician who meant to become a general practitioner. May the committee remark parenthetically that it hopes and trusts that there will be an increasing number of young men who entertain such entirely praiseworthy intentions.

The resolution closes with an intimation that the program set forth in the resolution shall be regarded as a prerequisite for licensure in the various states. It is the opinion of your reference committee that the House of Delegates should not attempt to regulate the standards of licensure in the various states since the licensing of physicians and other professional persons is a

police power of the state and not a matter to be governed by the opinion of the medical profession. Your committee has therefore eliminated the words "as a prerequisite for licensure in the various states." With these changes your reference committee recommends the adoption of the resolution.

5. Resolution on Hospital Standardization: The intent of this resolution is to amend the action previously taken by this House which stated that "the American Medical Association shall be the evaluating agent in the following fields: (1) Medical Education, (2) Hospital Standardization, (3) Intern Training and (4) Resident Training, and that no other medical society or organization as such should be represented in this work." After conference with members of the Council on Medical Education and Hospitals it became apparent to your reference committee that the difficulty lay in the use of the words "Hospital Standardization." Both the Council on Medical Education and Hospitals and your Reference Committee on Medical Education recognize the admirable work which has been done by the American College of Surgeons in the standardization of hospitals and the highly valued cooperation of the Association of American Medical Colleges, with both of which the Council has long cooperated and which cooperation it is most anxious to continue for the general benefit of medical education, hospital standards and the public welfare. Your committee does not believe that this House of Delegates wishes to interfere with that work which has in fact been a notable service to medicine. In order that there may be no misunderstanding, the Reference Committee on Medical Education now offers to the House of Delegates substitute resolutions which it believes will clarify the situation.

Resolved, That the American Medical Association highly commends the American College of Surgeons for its long-sustained efforts in the field of hospital standardization and endorses its continued activity in this important field; and be it further

Resolved, That the Secretary of the American Medical Association transmit a copy of this resolution to the Board of Regents of the American College of Surgeons.

6. Resolution on Inspection of Hospitals: The intent of this resolution is that the Council on Medical Education and Hospitals shall extend its inspection service to all hospitals. Your reference committee recognizes the desirability of this objective. It also recognizes the physical limitations of the Council on Medical Education and Hospitals and is rather doubtful that the Council would be actually able to inspect adequately all hospitals within the United States. However, because your reference committee believes that the intent is good and because it is not sure that the Council would be unable to carry out these duties, the committee recommends the adoption of this resolution.

Respectfully submitted,

B. R. KIRKLIN, Chairman.
WALTER P. ANDERTON.
LOWELL S. GOIN.
H. G. HAMER.
CHARLES L. SHAFER.

Report of Reference Committee on Amendments to Constitution and By-Laws

Dr. William D. Stovall, Chairman, presented the following report, which was adopted by a rising vote that was unanimous, and the Speaker declared the By-Laws so amended:

Amendment to By-Laws, Division Two, Chapter IV, Section 2A(2): This amendment would admit medical officers of the United States Air Force as Service Fellows of the American Medical Association. It adds the words "United States Air Force" following the words "the United States Navy." This section of the By-Laws will then read: "On approval of the Judicial Council commissioned medical officers of the United States Army, the United States Navy, the United States Air Force or the United States Public Health Service who have been nominated by the Surgeons General of the respective services and the permanent medical officers of the Veterans

Administration who have been nominated by the Chief Medical Director may become Service Fellows." The rest of the by-law is unchanged.

Your Committee recommends approval of this resolution.

Respectfully submitted,

WILLIAM D. STOVALL, Chairman.
IVAN FAWCETT.
PAUL K. FRENCH.
WILLIAM A. HYLAND.
B. E. PICKETT SR.

On motion of Dr. Stovall, seconded by Dr. H. B. Everett, Tennessee, and carried, the report of the reference committee was adopted as a whole.

Report of Reference Committee on Reports of Board of Trustees and Secretary

Dr. Thomas A. Foster, Chairman, presented the following report, which on motions of Dr. Foster, duly seconded, and carried was adopted section by section and as a whole:

REPORT OF BOARD OF TRUSTEES

1. Report of Board of Trustees as Printed in Handbook: Your reference committee has studied the report of the Board of Trustees as printed in the Handbook and the supplemental reports introduced at the current session. It has scrutinized the official report of the Treasurer and the Association's auditors as they appear in the Handbook, and notes with satisfaction the secure financial position of the Association. Your committee recommends adoption of the report as published in the Handbook.

2. Report of the Bureau of Medical Economic Research: Your reference committee commends the survey by Dr. Frank Dickinson of the Bureau of Medical Economic Research on the subject of revision of insurance examination fees, and the committee has learned that there is no national agency with which this question may be negotiated. Your reference committee recommends, therefore, that a copy of Dr. Dickinson's report be forwarded to the secretaries of each constituent association for study.

3. Report of Committee on Rural Health: Your reference committee wishes to commend the Committee on Rural Health for its work in the field of rural health, and recommends adoption of the report as printed in the Handbook.

4. Report of Committee on Liaison with Red Cross Blood Bank Program: Your reference committee has studied this report and wishes to commend the work of the blood bank committee and recommends at this time that the name be changed to the Committee on Blood Banks as requested by the chairman of the present committee and that the activities of the committee be continued.

5. Report of Committee on Nursing Problems: Your committee has studied this report, commends the members of this special committee for their work and is impressed with the accomplishments. Your reference committee recommends the adoption of the report as published in the Handbook.

6. Recommendation Regarding Advisory Board for Medical Specialties: Your reference committee has studied this report and the recommendation of the Council on Medical Education and Hospitals to the Board of Trustees, and recommends that the House concur with the wishes of the Council that the present relationship with the Advisory Board be continued.

7. Activities of Editor: Your Reference Committee on Reports of Board of Trustees and Secretary has considered the memorandum from the Board of Trustees on Activities of the Editor and recommends its adoption by the House of Delegates. The By-Laws provide that the functions of the Editor are a responsibility of the Board of Trustees. Your reference committee feels that this organization, together with the whole civilized world, owes Dr. Fishbein a debt of gratitude. His contributions to the advancement of medical science as Editor of THE JOURNAL have earned him international acclaim. THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION is an enduring monument to his genius and devotion.

8. Report of Committee on Hospitals and the Practice of Medicine: Your reference committee has spent considerable time studying the report of the Committee on Hospitals and the Practice of Medicine presented by Dr. Elmer Hess and his committee. This report has created widespread interest and many members of the Association appeared to discuss the report. As a result of this discussion changes were recommended and many of these changes were approved by your committee. The report does not appear in the Handbook, but a copy has been given to every member of the House. In order to expedite the consideration of this report, the delegates are requested to refer to their copies. Your committee felt that the recommendations of the special committee would be effective if the report could be condensed, and therefore suggests that the report, amended and revised as follows, be adopted:

The corporate practice of medicine is distinctly illegal in all of the states in the Union with some exceptions. There has been statutory legislation in several states permitting certain modifications in these general laws.

In order to support this statement the Principles of Medical Ethics of the American Medical Association are quoted as follows:

Chapter I, Section 3
Chapter III, Article V, Section 1
Chapter III, Article VI, Section 2
Chapter III, Article VI, Section 3
Chapter III, Article VI, Section 6

After consideration of these Principles, it must be concluded that the over-all policy of the American Medical Association shall be that it is illegal, with the exceptions noted, and unethical for any lay corporation to practice medicine and to furnish medical services for a professional fee which shall be so divided as to produce profit for a lay employer, either individual or institutional, including hospitals and medical schools.

The ethical principles governing all groups and clinics are exactly the same as those governing the individual.

In insurance programs, hospital service plans shall provide payment for hospital services only. Medical service plans should supply payment for all of the medical services, including pathologic, roentgenologic, anesthesiologic and physical therapeutic services. The licensed physician is the only person legally qualified at the present time to render any individual medical service.

This being so, then the medical profession should be dominant in the physician-hospital relationship in all circumstances, but since the physician and the hospital are interdependent, it is incumbent on both to be completely interested in all phases of their scientific and financial relationships. This means that the professional staff of the hospital has very definite responsibilities toward not only other members of the professional staff, whether active or courtesy, but also toward hospital management. The finances of an institution in which a physician does his professional work are definitely of importance to him and to the professional staff, and the proper consideration must be given to these finances if the hospital is to work efficiently and remain the workshop of the physician.

The recommendations of the staff are usually accepted by the management of the hospital through its boards of managers or trustees. It must also be remembered that to be approved for residencies in specialties by the American Medical Association and the American College of Surgeons, certain requirements are mandatory to the institution, namely, adequate pathologic and radiologic coverage. As a rule, the staff of a hospital elects an executive committee or works under an appointed executive committee to advise the lay officers of the institution on purely professional matters, and recommends who may or may not use the institution for their professional work. Unfortunately, in many instances, the financial matters of the lay hospital management have been no affair of the staff or of its professional executive committee. This is wrong and probably the cause of most of the differences of opinion. Every professional man on the appointed staff should have a voice in the professional management of the institution. The patholo-

gist, roentgenologist, anesthesiologist and physiatrist, as well as the other professional staff members, should have equal standing as active members of the staff, and the executive committee or physicians of the active staff should be empowered to recommend the physicians heading these departments in any hospital where they exist. That the finances of the hospital are of grave importance to the staff goes without saying. Without proper facilities the services rendered to the public are in jeopardy and these public services are the all-important function of both hospital and staff.

It is therefore the opinion of the committee that most controversies between management and the professional staff, either individually or collectively, should be settled on local levels in accordance with clearly established national policy. To implement the settlement of such controversies, the House of Delegates recommends to each of its constituent state and territorial societies that it appoint a committee on hospital and professional relations. This committee shall be available to receive complaints from any physician, hospital, medical organization or any other interested person or group with reference to professional or economic relations existing between doctors of medicine and hospitals or medical schools. On receipt of such complaint by such committee, the matter shall be investigated and acted on in such manner as that committee may decide and in accordance with regular and existing modes of procedure.

There can be no exploitation of the doctor or of the hospital if everyone concerned in both management and on the professional staff will work together to supply the greatest possible good quality medical and hospital services to the public.

Most of these matters could be settled at the hospital or county level. Therefore it is recommended that after all efforts at the local and state levels have been exhausted, the charges of unethical conduct by either members of the professional staff or by hospital management should be brought to the Judicial Council for examination. If the Judicial Council, working with similar committees of hospital agencies, cannot adjudicate the specific matter and finds ethical and legal compromise impossible, then suitable action should be taken against the physician or institution found guilty. The authority for this is found in the Constitution and By-Laws of the American Medical Association as follows: Division One, Chapter III, relating to Disciplinary Action, and Division Three, Chapter X, Section 4, relating to Standing Committees.

If a hospital or other lay group is found guilty and will not cooperate within ethical and legal limits, it is recommended that the Judicial Council shall order the withdrawal of the Association's approval of that institution.

This committee can find no better recommendations to establish principles governing proper relations between physicians and hospitals than those adopted by the Massachusetts Medical Society, which read as follows:

1. That the medical costs of hospital care be separated from the non-medical costs, as can be done by existing and accepted methods of cost accounting, and that they appear thus separated on the statement submitted to the patient.
2. That a basic principle in the establishment of charges should be that each department be self supporting. This principle should be so applied that neither the hospital nor the physician rendering the service shall exploit the patient or each other.
3. That fees for medical services which are collected by the hospital be established by joint action of a representative committee of the staff, to include the head of the department, and the administrator and the governing body of the hospital.
4. That the basis of financial arrangement between hospital and physician may be salary, commission, fees or such other method as will best meet the local situation, with due regard to the needs of the patient, the community, the hospital and the physician.

It is the opinion of your committee that acceptance and practice of these principles will effect the separation of hospital services and medical care rendered in hospitals, as well as the responsibility for the payment of medical services and nonmedical hospital services as defined above, including prepayment and

other insurance plans, and should become the basis of policy to be followed in all activities of the headquarters staff.

9. The American Medical Association Program: Your reference committee has received from the Board of Trustees a report entitled The American Medical Association Program. Your committee has studied this report, discussed it with many members of the Association, and wishes to compliment the Board of Trustees on the elaboration of the twelve points in the 12 point program for the advancement of medicine and public health, and recommends adoption of this report.

Respectfully submitted,

THOMAS A. FOSTER, Chairman.
WARREN L. ALLEE.
ALLEN H. BUNCE.
WILLIAM F. COSTELLO.
WILLIAM M. SKIPP.

Presentation and Address of Major General Malcolm C. Grow

Dr. Louis H. Bauer, member of the Board of Trustees, presented Major General Malcolm C. Grow, Surgeon General of the United States Air Force, who spoke as follows:

Dr. Bauer, Mr. Speaker, Members of the House of Delegates, Ladies and Gentlemen: It is a great honor to be permitted to appear before you this morning. I am going to be brief.

First of all, I want to thank you, the House of Delegates, for your splendid action on the report of the committee in adding the new Air Force Medical Service to the American Medical Association. I think I can speak for all of the men when I say that I think that was a very fine act.

We are new, just starting off, and we need lots of help to get this thing on its feet, but I think with patience and with cooperation from this great Association we will be able to have a very fine medical service in another few years.

Introduction and Address of Dr. Richard L. Meiling

Dr. James Paullin, Past President, presented Dr. Richard L. Meiling, Deputy Director of National Medical Services, who spoke as follows:

Dr. Paullin, Mr. Speaker, Members of the House of Delegates of the American Medical Association, Friends: Dr. Allen, the first Director of Medical Services of the Armed Forces of the United States, has asked me to express both his and my feeling to you about our desire and our intention of providing the soundest medical advice, counsel and direction at this high level of our Government. We have only one yardstick. We feel that our responsibility is to assure you and our fellow citizens of the United States that the medical services of the armed forces are prepared at all times to support the armed forces in the mission established by Congress, and to assure all that our national security is first, foremost and always safeguarded. It is indeed a pleasure to have appeared before you.

Report of Reference Committee on Miscellaneous Business

Dr. Mather Pfeifferberger, chairman, presented the following report, which was adopted on motion of Dr. Pfeifferberger, seconded by Dr. Walter E. Vest, West Virginia, and carried:

Resolution on Displaced Physicians: Your committee met with Dr. Peter P. Chase, president of the Rhode Island Medical Society and editor of the *Rhode Island Medical Journal*; Dr. Alex M. Burgess, recently returned from Munich where he gave a course of instruction to the displaced physicians, and Dr. Charles Farrell, delegate of the Rhode Island Medical Society, who spoke in behalf of the resolution.

Your committee has carefully considered this resolution and finds that it is very similar to one introduced previously to this House of Delegates due to the fact that it involves investigation as to whether the different state boards can cooperate and also to the fact that the immigration authorities must be consulted and also that someone must be responsible for these physicians in a financial way.

Your committee thinks it is a matter to be handled and passed on by our Board of Trustees. Therefore we recommend its reference to the Board of Trustees for disposition.

Respectfully submitted,

MATHER PFEIFFENBERGER, Chairman.
GEORGE BRAUNLICH.
WILLIAM R. BROOKSHER.
ANDREW A. EGGSTON.
HOYT B. WOOLLEY.

Report of Reference Committee on Legislation and Public Relations

The Speaker announced that any new business to be considered had to be in his hands by 9 a. m. of the final day of the session of the House and referred to a reference committee for determination as to whether or not it was an emergency matter. He added that a resolution had been presented to him and had been referred to the Reference Committee on Legislation and Public Relations. He called on Dr. William Bates, Chairman of the Reference Committee on Legislation and Public Relations to report on the matter and Dr. Bates asked if he could first report on a resolution held over from Tuesday and was directed to do so. Dr. Bates then reported as follows:

1. Resolution on Questionnaire on Medical Care: Your committee on Legislation and Public Relations has reviewed this resolution and after carefully considering it and realizing the enormity and cost of such a survey, recommends that the House of Delegates refer this resolution to the Board of Trustees for its consideration, and, if desirable in its opinion, for implementation.

2. Resolutions on Hill Bill and Taft Bill: Your Reference Committee on Legislation and Public Relations has reviewed these resolutions. In the first place, your committee approves of their being admitted for consideration at this late hour as an emergency, according to our rules and regulations, and, meeting in advance of the acceptance of the House to consider it, it was agreed by the committee that if the House of Delegates agreed to act on them, your committee is in favor of their adoption.

Respectfully submitted,

WILLIAM BATES, Chairman.
F. J. L. BLASINGAME.
LEO G. CHRISTIAN.
WALTER G. PHIPPEN.
H. GORDON MACLEAN.

On motion of Dr. Bates, seconded by Dr. Walter E. Vest, West Virginia, and carried, the report of the reference committee dealing with the Resolution on Questionnaire on Medical Care (section 1) was adopted.

The Speaker announced that the Pennsylvania delegation would present the resolutions on the Hill Bill and the Taft Bill under New Business.

Introduction and Address of Dr. A. Lawrence Abel

Dr. Louis A. Buie, Section on Gastro-Enterology and Pathology, presented Dr. A. Lawrence Abel, London, England, who addressed the House as follows:

Mr. Speaker, Members of the House of Delegates of the American Medical Association: May I first express to you my great appreciation of the great honor conferred on me by being invited to attend this meeting. Secondly, I want to say how deeply I realize the honor of being asked to say a few words to you.

I have been instructed to bring to you the friendly, fraternal and affectionate greetings of the Council of the British Medical Association, and also from the London Division, which, situated as it is, is the largest division of the British Medical Association and numbers over one thousand consultants and specialists, in addition to many family doctors.

Your Board of Trustees has graciously asked me to leave with them a full statement of the present state of socialized

medicine in England, which I made last week at the American Proctologic Association. Time does not permit me to do more than read a few paragraphs.

First of all, about the effect on the public, there is no doubt that there is a certain portion of the public which favors socialized medicine with the thoughtlessness and greed which characterizes the man or woman not astute enough to realize that because they are paying nothing at the time, they are actually not getting anything free. There are certain people who delight in thinking they are getting something for nothing, especially if it comes out of the government. This situation has to be seen to be believed. The most serious aspect, I believe, sir, from the public's angle, is that the material benefits which they get at exorbitant cost cloak the real loss of true medicine.

The public must realize, and must be made to realize, true medicine means early diagnosis and early and good treatment. What they had under the old system was good, and increasingly better, doctoring. I sincerely warned the people not to be fooled by a few so-called free material things to the exclusion of that intangible thing, good medical care.

One of the good points about our system is that the state has assumed responsibility for seeing that hospital beds are where they are needed and are properly equipped. But those of us who have had experience with bureaucracies know what a difference there is between promises and what actually comes about. Today it is more difficult for a patient to get into a hospital than ever before. In some places there are waiting lists of from twelve to eighteen months. Therefore, although I say that it is good for the state, to assume responsibility, this is true only if the promises are fulfilled.

On the other hand, for the state to have become the owner of all hospitals is unnecessary and wicked. There should be no state monopoly of hospital beds. Healthy competition is good for any business.

The specialist has gone on with his work in spite of a sense of grievance and frustration. He is now paid for his hospital work. It must, however, be realized that the specialist is now a paid servant of the hospital and no longer the voluntary partner, and, as we all know, a paid servant is soon made to feel it. Even now, after more than nine months of working, there is still no fixed rule with regard to the salary payable to either family doctor or specialist. The government has still not promised us the right to arbitrate, which we all feel should be a condition.

As an independent profession, the government listens to you, although it seldom takes your advice. No party that might come into power would dare recommend the termination of socialized medicine, and no party would dare to alter it very substantially.

The tragedy of the whole thing is that the doctors have been brought into the service by a form of blackmail. Many are in the service with ill will. With tact, careful negotiation and reasonable compromise, their help could have been obtained with good will, because the main principle of the profession was that we were out to help the government to establish the best possible health service for the nation.

We must realize the necessity for some form of insurance for medical service. But whatever you do here, I hope you will leave state insurance for those who need that type of insurance, and leave it to those who can afford to do so to provide it for themselves. But do not forget that it appears to be the principle of our present government not to trust anyone to spend his own money, and they therefore collect it and spend it for him.

In spite of what I have said about the present health service in Great Britain being here to stay, do not forget that the British have the reputation of losing all battles except the last. We have partly lost the first battle, but governments come and governments go, and I heard someone say in back of me here, "Thank God!" The spirit of medicine in the service of humanity goes on forever, so the last battle is not yet fought between our profession and bureaucracy.

America also has the reputation, after we have suffered for months or years, of beginning to take an interest, beginning to understand, developing new lines of thought and learning from our mistakes. Also, America comes to our aid before it is too late. This time it will not be with planes, guns, men and food, but perhaps with the moral example of a really sound health service for the nation, based on freedom for the patient and the doctor and not on the slavery of the bureaucrat. The building up of a proper type of medical service should come by evolution and not by revolution. The patient should have the right to contract outside of the service. With the service covering even 90 per cent of the population, you are safe and free, but when the contract covers 100 per cent, you are slaves.

One of Lincoln's most famous speeches began with the words, "A house divided against itself cannot stand." I believe that he would have continued, "This profession cannot endure half slave and half free." I think of Abraham Lincoln, and if he were here today, he might have used words something like those he used at Gettysburg, "It is for us to be here dedicated to the great task remaining before us, that we here highly resolve that this profession under God shall have a new birth of freedom, and that freedom of medical care and treatment of the people, by the people, for the people, shall not perish from the earth."

Report of Board of Trustees

Dr. Louis H. Bauer, Trustee, presented the following report, the first section of which was referred to the Reference Committee on Reports of Board of Trustees and Secretary and the second section was adopted, by unanimous consent, on motion of Dr. Gerald V. Caughlan, Iowa, seconded by Dr. Val H. Fuchs, Louisiana, and carried.

1. Resolution on Compulsory Health Measures: The Board of Trustees recommends clarification of the action of the House of Delegates on the Report of the Reference Committee on Legislation and Public Relations pertaining to Resolution on Compulsory Health Measures. The House has instructed the Board to oppose this bill without qualification. The Board recommends that this instruction be changed to support such sections of this bill as are in conformity with principle previously laid down by the House of Delegates.

2. Report of Coordinating Committee: The Coordinating Committee, immediately after organizing, decided to employ Whitaker and Baxter as campaign managers. They were employed not only because of their general reputation, but because they were familiar with our problem. They have established offices at 1 North La Salle Street, Chicago.

The committee then decided to organize a Committee of 53, representing each state and territorial medical association.

Whitaker and Baxter now report that over one thousand organizations are on record against compulsory health insurance. These organizations include:

- The American Federation of Women's Clubs
- The American Bar Association
- The American Farm Bureau
- The National Fraternal Congress of America, including over 200 Lodges
- Two of the Small Business Organizations
- The National Catholic Welfare Conference
- The National Conference of Catholic Charities
- The Catholic Hospital Association
- The American Protestant Hospital Association
- The American Legion,

and many others.

Twenty-five million pieces of literature have been mailed out. It is important that the states see to it that this literature actually reaches the people.

Two million five hundred thousand pieces of literature have been mailed direct from Whitaker and Baxter, and not to state associations.

For the information of our members, let it be known that there is no limit to the amount of material which will be mailed to any state association or individual so long as it can be used effectively. Besides state associations and individual physicians, all endorsing organizations receive the literature.

To give an example of a typical week in Whitaker and Baxter's office, the following represents the organizations contacted in that period of time:

12,000 Trade associations
2,700 Chambers of commerce
500 Prominent clubs with civic influence
120 Advertising clubs
1,500 Kiwanis clubs
4,500 Lion's clubs
2,300 Rotary clubs
1,300 Carnegie libraries
900 College libraries
8,000 Public libraries
14,000 School principals and superintendents
9,000 Y.M.C.A. city associations
200 Y.W.C.A. city associations
130,000 Dentists and druggists

After the notice about the poster "The Doctor" was sent out, 40,000 orders were received in five weeks, and the orders are now coming in at the rate of 1,000 a week. A wide distribution of this poster is essential.

One hundred and sixty-three thousand doctors are now on the mailing list. A letter goes to each doctor not less often than once in two months. It is intended that each doctor on the list will receive a limited supply of all literature hereafter published, with an order card so that he may order what he desires.

The voluntary medical care plans have been assisted by the preparation and distribution of literature.

In order to take the financial load off the states, Whitaker and Baxter will make original mailings direct to doctors of 50 copies of each pamphlet, except where every doctor has been supplied from his own state.

A letter has been sent to each member of Congress explaining the program of the American Medical Association and enclosing a blueprint of the campaign.

Seventy-six hundred interns are on the mailing list and receive the same literature as practicing physicians.

Whitaker and Baxter report that 500 drug stores in Oklahoma will use the picture "The Doctor" as their main window display during one week.

Monroe County, New York, reports that through the "Tell 20 Plan" 15,000 letters were sent to the President and Congress in one week.

One hospital in Denver, Colo., is getting from 150 to 160 signatures a day to a letter prepared by the hospital, to be sent by friends and relatives of patients in the hospital.

Whitaker and Baxter report that one third of the states are doing an excellent job in the campaign; one third are doing a fair job, and one third are doing a poor job. It is important that all states do an excellent job. The states not doing a good job are not always the poorly organized states. One state, with no full time office has turned in a tremendous record.

The Woman's Auxiliary has been of tremendous assistance in the campaign and great credit is due this organization. State and county associations should give their auxiliaries explicit directions and make use of them. They are not only willing but anxious to help.

With reference to the resolution introduced by the New York delegation and referred by the House to the Board of Trustees, the House will be interested to know that some of the actions desired have been anticipated.

Ten million envelop and stationery stickers have been printed. These stickers read as follows:

As Your Personal Physician

I Oppose Compulsory Health Insurance Because—

It would bring you inferior medical care at high cost—

Invade your medical privacy—Put both of us under political control.

If you agree, please write your U. S. Senators and Representatives.

For more information, ask me.

When these are reprinted, there is no objection to printing them in the form of the poster, but it should be remembered that reduction of the picture to the size of a stamp, plus the words "Keep Politics Out of This Picture," may make the picture too small to be decipherable.

Mats for newspapers have already been prepared and are available.

Literature for the drug stores has already been distributed. It has been offered to 55,256 stores. Through the state and county societies they should be offered the poster.

Literature has also been sent to 83,335 dentists.

The campaign is in full swing and will be kept there. A great deal has been accomplished, but more activity is necessary and will be carried on.

The Coordinating Committee at its last meeting passed unanimously a vote of full confidence in Whitaker and Baxter.

Respectfully submitted,

ELMER L. HENDERSON, Chairman.

WILLIAM BATES.

LOUIS H. BAUER.

JOHN W. CLINE.

GUNNAR GUNDERSEN.

EDWIN S. HAMILTON.

GEORGE F. LULL.

WALTER B. MARTIN.

R. B. ROBINS.

R. L. SENSENICH.

Report of Reference Committee on Insurance Plans and Medical Service

Dr. E. Vincent Askey, Chairman, presented the following report, which on motions of Dr. Askey, duly seconded and carried, was adopted section by section and as a whole as amended after discussion:

Your reference committee has had a number of resolutions presented to it as you all well know. It has listened to your advice and has attempted to bring to you its best judgment and opinion regarding the subjects involved.

1. Resolution on Blue Shield Coverage of American Medical Association Employees: Your reference committee has found that the plan employed for servicing the employees of the American Medical Association is one of several approved by the Illinois State Medical Society. While this plan is not a Blue Shield plan, it was recommended to the Board of Trustees by a committee of the employees after due consideration. There has been no evidence presented to your committee of any dissatisfaction among the employees affected. Your committee believes that in a choice between two approved plans the decision of the local parties involved should be upheld. It further believes that every sincere effort was made to carry out the directive of the House of Delegates. It therefore recommends that the House of Delegates hereby rescind its action of June 23, 1948, wherein it said: "Your committee recommends because of the above stated opinions that at the expiration of the present contract of hospital and medical health coverage, the American Medical Association, through its proper officials, make every sincere effort to procure this coverage for its employees through Blue Cross-Blue Shield local organization." Your committee understands that this coverage is and will be available by substituting for the words, "Blue Cross-Blue Shield local organization" the words "any approved voluntary health insurance plan."

2. Resolutions on Associated Medical Care Plans and National Enrolment Agency: Your committee recommends the approval of these resolutions as presented. It is the understanding of your reference committee that any insurance company that might be set up under this organization would come up in regular order and in the same manner as any other plan seeking approval of the Council on Medical Service.

3. Resolutions on Voluntary Health Insurance: Your reference committee believes that its recommendation regarding

the Resolutions on Associated Medical Care Plans and National Enrolment Agency, which was just presented to you, has disposed of these resolutions.

4. Supplementary Report of Council on Medical Service (a) Approve Complete and Absolute Separation of A. M. C. P. from A. M. A.: Your reference committee recommends that we approve complete and absolute separation of A. M. C. P. from the American Medical Association, and that we adopt the joint statement of the Board of Trustees and the Council on Medical Service as printed in the Handbook. Your committee approves this and recommends that you approve it.

4 (b). Approval of Tentative Principles Set Up to Guarantee Good Medical Service to Subscribers of Lay Sponsored Voluntary Health Plans: Your reference committee recognizes the forward step taken by the House of Delegates in its previous action asking for a set of principles relating to lay sponsored voluntary health plans. The twenty principles suggested by the Council on Medical Service are offered to the House of Delegates by the Council in response to that request. Your reference committee recommends that these points be forwarded by the House of Delegates to all state and county medical societies, which societies should use them as a guide in determining the eligibility of any such plans for approval by those state or county societies. These twenty points have been tentatively initiated by representatives of the Council on Medical Service and the Cooperative Health Federation of America. It should be recognized that local areas may find it necessary to make minor modifications without changing the fundamental intent involved. Your committee recommends that any lay sponsored plan desiring approval by a proper accrediting body of the American Medical Association shall come bearing the endorsement of the state or county medical association involved.

4 (c). Approval of Arrangements Made at the Suggestion of the Council with Whitaker and Baxter that the Council Develop the Positive Phases of the Educational Campaign, Principally the Nationwide Promotion of the Voluntary Health Campaign on All Fronts: Your committee agrees with this and recommends its approval.

4 (d). Approval of the Plan of Action of This Overall Campaign: Your committee gives its approval to this.

4 (e). Recommendations to Further the Effectiveness of the Council's Correlating Committees: Your committee finds that these committees have all been authorized previously. Your committee would suggest a change of name of the committee now called "Medical Care of Children" to "Maternal and Child Care."

4 (f). Increase in Staff Personnel of Council on Medical Service: In regard to the request for approval of and necessary increase in the Council's staff personnel, your committee approves the suggestion of the Council and recommends that it be referred to the Board of Trustees for its appropriate action and implementation.

5. Resolutions on Associated Medical Care Plans: Your reference committee believes that these resolutions were covered and disposed of by its report just presented in regard to the report of the Council on Medical Service and need no further action.

6. Resolution on Medical Care and Health Plans: Your reference committee believes that this resolution has been covered in its recommendations on the preceding resolutions; however, it recommends a substitute resolution which it presents to you: "Resolved, That the American Medical Association initiate through its Council on Medical Service a conference of representatives of various groups, medical and lay, for the purpose of considering the formation of a joint planning committee for the study and preparation of more comprehensive plans of medical care for the nation."

7. Resolutions on Health Plan for the United States: This could be accomplished by further study by our Council on Medical Service. Some of these suggested principles have

been approved and are already in force. Other subjects are yet under study and are not yet ready for decision. Your committee believes, therefore, that these resolutions should be referred to the Council on Medical Service for further study without prejudice.

Respectfully submitted,

E. VINCENT ASKEY, Chairman.
PAUL A. DAVIS.
JAMES Q. GRAVES.
WILLIAM H. HALLEY.
LOUIS M. ORR II.
HERBERT P. RAMSEY.

The House recessed at 12 noon on motion of Dr. Val H. Fuchs, Louisiana, seconded by Dr. Walter E. Vest, West Virginia, and carried.

Thursday Afternoon, June 9

The House of Delegates reconvened at 1:30 p. m., with Dr. F. F. Borzell, Speaker, presiding.

Minutes

On motion of Dr. Val H. Fuchs, Louisiana, seconded by Dr. Walter E. Vest, West Virginia, and carried, the House dispensed with the reading of the minutes.

Report of Reference Committee on Legislation and Public Relations

Resolutions on Hospital and Medical Care of Veterans for Non-Service-Connected Disabilities: On motion of Dr. Lloyd Noland, Alabama, seconded by Dr. Walter E. Vest, West Virginia, and carried after discussion, the House decided to reconsider the Resolutions on Hospital and Medical Care of Veterans for Non-Service-Connected Disabilities.

It was moved by Dr. Mather Pfeifferberger, Illinois, seconded by Dr. Walter E. Vest, West Virginia, and carried, that the House hear from Dr. H. H. Shoulders, Past President, on this matter.

Dr. Shoulders asked first to hear the report of the reference committee on this matter, which Dr. William Bates, Chairman, presented, recommending its adoption. Dr. Shoulders then addressed the House and was followed by Dr. Thomas K. Lewis, New Jersey, who moved that the resolution be amended so that 1. (a) reads "That the administrator of Veterans Affairs be authorized and directed to issue to or purchase for each veteran eligible to receive such benefits, a medical, surgical and hospital service insurance contract with benefit provisions sufficient to cover the costs of (1) necessary hospitalization in a civilian hospital that is approved for service to veterans by the Veterans Administration and/or is approved according to recognized medical standards, and (2) necessary medical and surgical services rendered in such hospitals on the basis of a fee schedule not less than the minimum applicable to," the rest of the resolution to be as introduced. The motion was seconded by Dr. H. B. Everett, Tennessee, and carried, after discussion during which a motion of Robertson Ward, California, to recommit to the Board of Trustees, seconded by several, was lost.

A motion to amend the last part of the resolutions under discussion was tabled, after discussion, on motion of Dr. Robert B. Wood, Tennessee, seconded by Dr. Allen H. Bunce, Georgia, and carried by a rising vote of 74 to 69.

Dr. Thomas K. Lewis, New Jersey, moved that the original motion as amended be referred to the Board of Trustees for further consideration, and the motion was seconded by Dr. Val H. Fuchs, Louisiana, and carried after discussion.

Resolutions on Hill Bill and Taft Bill

On motion of Dr. Lowell S. Goin, California, seconded by Dr. H. B. Everett, Tennessee, and carried, the resolutions mentioned in the report of the Reference Committee on Legislation and Public Relations submitted during the morning, were

committed to the Board of Trustees, with the request that it fix a day on which it will have hearings on the resolutions at which any interested person may appear to present his views.

Report of Reference Committee on Emergency Medical Service

Dr. Leland S. McKittrick, Chairman, presented the following report, which was adopted, section by section and as a whole, on motions of Dr. McKittrick, duly seconded and carried:

1. Resolution on Veterans Administration: Your reference committee has considered this resolution reviewing the high quality of medical care now being received by the veterans of this country under the Director of the Department of Medicine and Surgery of the Veterans Administration, and approves the following resolution:

Resolved, That it is the opinion of the House of Delegates that it is essential that complete responsibility and authority for the medical care and hospital services program of the Veterans Administration must be vested in the Chief Medical Director of that Administration.

Your committee noted with approval this expression of the high quality of medical care which our veterans have received since World War II, and of the mechanism which has made it possible. It recommends approval of the resolution cited above and requests that a copy of it be sent to the President of the United States and to the Administrator for Veterans Affairs.

2. Resolution on Medical Personnel Requirements of the Armed Forces, Resolution on Recruitment of Physicians Educated in Part or in Whole at Government Expense and Resolution on Need of Physicians for Armed Forces: In considering these proposals, your committee had the benefit of the able statements of delegates from the Armed Forces, the Veterans Administration and other interested individuals.

The first resolution would give power of action to the National Security Resources Board. This Board is fundamentally a planning agency and its conversion to an operational agency may not be in conformity with overall government organization.

The second resolution would advise the Secretary of Defense on action which he should take regarding recruitment of medical officers. The Secretary of Defense has a Medical Advisory Committee composed of eminent civilian physicians and dentists in being and actively functioning which is continuously considering the medical problems of the Armed Forces. It would appear, therefore, that the Medical Advisory Committee is now in a position to recommend appropriate measures to the Secretary of Defense and is prepared to carry out the purposes of this proposal from the Medical Society of New Jersey.

The third resolution recognizes the close coordination now existing between the Council on National Emergency Medical Service of the American Medical Association and the National Military Establishment and serves to formalize and extend that coordination.

The reference committee believes that this is a sound basis of procedure. It recommends the adoption of the following substitute resolutions which summarize present developments in the Medical Services of the Armed Forces, and embodies the principles expressed in the District of Columbia resolution:

WHEREAS, The Medical Departments of the Armed Forces are setting the pace in unification within the military establishment by continuous cooperation and coordination of the three medical services, as evidenced by

(1) The establishment of a Medical Services Division within the Office of the Secretary of Defense headed by a medical director; (2) The joint utilization by Army, Navy and Air Force of medical installations both in the United States and abroad by joint staffing and utilization in common of both civilian consultants and military specialists and by the cooperation of all components of medical services within the military establishment with civilian medical agencies in furthering their programs in the best public interest; and

WHEREAS, Constructive and definite measures have been and are now being taken by the Armed Forces to improve medical officer utilization and to reduce professional workloads, thereby reducing previously stated requirements; and

WHEREAS, Even with these measures present voluntary enrolment is proceeding at a rate threatening to leave the Armed Forces in serious need of physicians; therefore be it

Resolved, That if and when it becomes clear to the Council on National Emergency Medical Service that essential requirements of the Armed

Forces cannot be met in any other way it be authorized to develop a method of equitable selection from among V-12 and ASTP trained physicians and those deferred from military service to complete their medical education, and that the method proposed be submitted to the House of Delegates for its approval, except in an emergency when the Board of Trustees shall act on the proposal; and be it further

Resolved, That the mechanism approved be submitted to the federal government for its consideration.

Respectfully submitted,

LELAND S. MCKITTRICK, Chairman.
KARL S. J. HOHLEN.
GEORGE S. KLUMP.
ROLAND W. STAHR.
ROBERTSON WARD.

Report of Reference Committee on Reports of Board of Trustees and Secretary

Dr. Thomas A. Foster, Chairman, presented the following report, which was adopted on motion of Dr. Foster, seconded by Dr. H. B. Everett, Tennessee, and carried after discussion during which a substitute motion to adopt the recommendation of the Board of Trustees was lost:

Resolution on Compulsory Health Measures: After a review of the report and recommendation of the Reference Committee on Legislation and Public Relations regarding the Resolution from the Arkansas State Medical Society pertaining to the National School Health Service Act of 1949, your reference committee concurs in the report of the Reference Committee on Legislation and Public Relations as submitted and adopted by this House. Your committee believes that the Board of Trustees, in its opposition, should point out specifically the provisions of this bill which do not agree with our 12 point program.

Respectfully submitted,

THOMAS A. FOSTER, Chairman.
WARREN L. ALLEE.
ALLEN H. BUNCE.
WILLIAM F. COSTELLO.
WILLIAM M. SKIPP.

Resolution on Study of Operating Room Deaths from Section on Anesthesiology

Dr. Henry S. Ruth, Section on Anesthesiology, presented the following resolution, which on motion of Dr. Ruth, seconded by Dr. Allen H. Bunce, Georgia, and carried after discussion by Dr. William Bates, was adopted:

WHEREAS, At the present time machinery does not exist for the purpose of gathering information on operating room deaths; and

WHEREAS, The organization of Study Commissions to gather such statistics has been approved by the House of Delegates of this Association; and

WHEREAS, Several local study commissions have been organized that have developed forms for the recording of such information; and

WHEREAS, The Section on Anesthesiology has created a Committee on Operating Room Mortality which is anxious to obtain such data on a nation wide basis; and

WHEREAS, That committee is without funds to print and distribute forms for that purpose; now, therefore, be it

Resolved, That the House of Delegates recommend to the Board of Trustees the study of operating room deaths and that funds be provided to print and distribute forms for that purpose.

Resolution on Endorsing the International and Fourth American Congress on Obstetrics and Gynecology from Section on Obstetrics and Gynecology

Dr. J. P. Pratt, Section on Obstetrics and Gynecology, presented the following resolution, which was adopted on motion of Dr. Pratt, seconded by Dr. George W. Kosmak, New York, and carried:

The following resolution was adopted by the Section on Obstetrics and Gynecology on June 8, 1949, and is now presented to the House of Delegates for consideration:

WHEREAS, The American Committee on Maternal Welfare Inc., is sponsoring the International and Fourth American Congress on Obstetrics and Gynecology to be held in New York City, May 14 through May 19, 1950; and

WHEREAS, The Section on Obstetrics and Gynecology of the American Medical Association is one of the component organizations of the American Committee on Maternal Welfare, Inc.; and

WHEREAS, The members and officers of the Section on Obstetrics and Gynecology of the American Medical Association are in complete accord with the aims and purposes of the International and Fourth American Congress on Obstetrics and Gynecology; now, therefore, be it

Resolved, That the Section on Obstetrics and Gynecology of the American Medical Association endorses as a body the holding of this Congress on Obstetrics and Gynecology and urges its individual members to support it in every way possible, by becoming members of the American Committee on Maternal Welfare, Inc., by attending the meeting of the Congress, if possible, and by working individually for its success.

Roll Call and Motion Picture

The Secretary called the roll, a quorum being present, and a motion picture of the House in action was taken for inclusion in the motion picture of the American Medical Association.

ELECTION OF OFFICERS

Election of President-Elect

The Speaker called for nominations for President-Elect of the Association and Dr. J. B. Lukins, Kentucky, nominated Dr. Elmer L. Henderson, Louisville, Ky., for that office. The nomination was seconded by the delegates from Tennessee, West Virginia, Texas, Connecticut, Maine, New York, Pennsylvania, New Jersey, Missouri, Alabama, Ohio and many others.

Nominations were closed and the Secretary instructed to cast one ballot on motion of Dr. Walter E. Vest, West Virginia, seconded by Dr. H. B. Everett, Tennessee, and carried. The Secretary cast the ballot as directed and the Speaker announced that Dr. Elmer L. Henderson, Louisville, Ky., had been elected President-Elect of the American Medical Association. He requested the two delegates from Kentucky to find Dr. Henderson and present him to the House.

Election of Vice President

Dr. Thomas K. Lewis, New Jersey, nominated for Vice President Dr. James Francis Norton, Jersey City, N. J. The nomination was seconded by the delegates from New York, Tennessee, Texas, West Virginia and many others. Dr. George W. Kosmak, New York, moved that nominations be closed and the Secretary be instructed to cast the ballot for Dr. Norton as Vice President. The motion was seconded by Dr. Allen H. Bunce, Georgia, and carried. The Secretary did as directed and the Speaker announced that Dr. James Francis Norton had been elected Vice President for the ensuing year.

Election of Secretary

Dr. Robert E. Schluter, Missouri, nominated for Secretary Dr. George F. Lull, Chicago, and the nomination was seconded by delegates from Illinois, Tennessee, Kentucky and many others, after which on motion of Dr. H. B. Everett, Tennessee, seconded by Dr. Mather Pfeifferberger, Illinois, and carried, nominations were closed and the Speaker cast the ballot of the House for Dr. George F. Lull, Chicago, as Secretary of the American Medical Association for the ensuing year and announced that Dr. Lull was so elected.

Election of Treasurer

Dr. Louis H. Bauer, Trustee, nominated Dr. Josiah J. Moore, Chicago, to succeed himself as Treasurer of the American Medical Association and the nomination was seconded by Dr. Val H. Fuchs, Louisiana, and carried.

Election of Speaker of House of Delegates

Dr. James R. Reuling, Vice Speaker, assumed the Chair and called for nominations for Speaker of the House of Delegates.

Dr. William L. Estes Jr., Pennsylvania, nominated Dr. F. F. Borzell, Philadelphia, to succeed himself as Speaker of the House of Delegates. Nominations were closed and the Secretary instructed to cast the ballot of the House for Dr. Borzell, on motion of Dr. H. B. Everett, Tennessee, seconded by Dr. Walter E. Vest, West Virginia, and carried. The Secretary announced that the ballot had been cast and Dr. Reuling presented the Speaker, Dr. F. F. Borzell, who resumed the chair.

Election of Vice Speaker of House of Delegates

Dr. Walter P. Anderton, New York, nominated as his successor as Vice Speaker of the House of Delegates Dr. James R. Reuling, Bayside, N. Y.

The nomination was seconded by several and nominations were closed and the Secretary instructed to cast the ballot for Dr. James R. Reuling as Vice Speaker of the House on motion of Dr. Robert B. Wood, Tennessee, seconded by several and carried. The Secretary declared that the ballot had been cast and Dr. Reuling elected Vice Speaker of the House of Delegates of the American Medical Association for the ensuing year.

Election of Trustees

ELECTION OF TRUSTEE TO SUCCEED DR. LOUIS H. BAUER

Dr. Floyd S. Winslow, New York, nominated to succeed himself as Trustee, Dr. Louis H. Bauer, Hempstead, L. I., N. Y., and the nomination was seconded by several. On motion of Dr. Mather Pfeifferberger, Illinois, seconded by Dr. Walter E. Vest, West Virginia, and carried, the nominations were closed and the Secretary cast the ballot of the House for Dr. Louis H. Bauer for Trustee for five years to succeed himself, and the Speaker declared him so elected.

ELECTION OF TRUSTEE TO SUCCEED DR. ELMER L. HENDERSON

Dr. Robert B. Homan Jr., Texas, nominated as Trustee to succeed Dr. Elmer L. Henderson, Dr. F. J. L. Blasingame, Wharton, Texas, and the nomination was seconded from various parts of the House.

Nominations were closed and the Secretary instructed to cast the ballot of the House for Dr. F. J. L. Blasingame, Wharton, Texas, as a Trustee for five years to succeed Dr. Elmer L. Henderson, on motion of Dr. Mather Pfeifferberger, Illinois, seconded by Dr. James C. Sargent, Wisconsin, and carried. The Secretary cast the ballot and the Speaker declared Dr. Blasingame so elected.

Place of 1952 Annual Session

Dr. Warren W. Furey, Illinois, invited the House to meet in Chicago in 1952, and Dr. Louis H. Bauer, Trustee, announced that the Board of Trustees recommended that Chicago be selected as the place of the 1952 Annual Session. Dr. Bauer added that the Interim Session in 1949 will be held in Washington, D. C., the 1950 Interim Session in Denver and the 1951 Interim Session in Houston, Texas, if facilities are available at that time.

The Speaker announced that since there was no opposition, the House by acclamation accepts the invitation to meet in Chicago in Annual Session in 1952.

Election of Members of Judicial Council

ELECTION OF DR. E. R. CUNNIFFE

Dr. Ernest E. Irons, President, nominated Dr. Edward R. Cunniffe, New York, to succeed himself for a five year term. Dr. Robertson Ward, California, moved that the nomination of Dr. E. R. Cunniffe, New York, to succeed himself for five years be confirmed and the motion was seconded by Dr. George W. Kosmak, New York, and carried.

ELECTION OF DR. THOMAS P. MURDOCK

Dr. Irons nominated Dr. Thomas P. Murdock, Meriden, Conn., to fill the unexpired term of Dr. John H. O'Shea, Spokane, resigned, ending in 1953. The nomination was confirmed on motion of Dr. Walter E. Vest, West Virginia, seconded by several and carried.

Election of Member of Council on Medical Education and Hospitals

Dr. Louis H. Bauer, Trustee, announced that the term of Dr. Reginald Fitz, Boston, expires at this session and that much to the regret of the Board, Dr. Fitz has declined to have his name placed in nomination again. The Board, therefore, nominates Dr. Leland S. McKittrick, Boston, and Dr. Guy C. Caldwell, New Orleans, for a term of seven years. Dr. McKittrick regretted that his commitments would prevent him from accepting if elected and he requested his name be with-

drawn. The nomination of Dr. Guy C. Caldwell, New Orleans, as a member of the Council on Medical Education and Hospitals for a term of seven years was then accepted by acclamation.

Election of Members of Council on Scientific Assembly

Dr. Louis H. Bauer, Trustee, announced that the Board of Trustees, in accordance with the new By-Law increasing the membership of the Council on Scientific Assembly from five to seven, offered the following nominations: Dr. Charles H. Phifer, Chicago, to succeed himself for a term of five years; Dr. Carl A. Lincke, Carrollton, Ohio, for a term of six years, and Dr. Michael E. DeBakey, Houston, Texas, for a term of seven years.

These nominations were confirmed on motion of Dr. H. B. Everett, Tennessee, seconded by Dr. George W. Kosmak, New York, and carried.

Election of Members of Council on Medical Service

Dr. Louis H. Bauer, Trustee, announced that the names of three nominees must be submitted for each member whose term expires. The Board nominated to succeed Dr. Thomas A. McGoldrick: Dr. Thomas A. McGoldrick, Brooklyn; Dr. Deering G. Smith, Nashua, N. H., and Dr. William F. Costello, Dover, N. J.

To fill the vacancy caused by the expiration of the term of Dr. Elmer Hess, the Board nominated Dr. Elmer Hess, Erie, Pa.; Dr. A. A. Brindley, Toledo, Ohio, and Dr. H. G. Hamer, Indianapolis. The tellers distributed the ballots during which time Drs. Costello and Smith withdrew their names. It was then voted on motion of Dr. J. Stanley Kenney, New York, seconded by Dr. Walter E. Vest, West Virginia, and carried, that Dr. McGoldrick's nomination be confirmed by acclamation.

Election of Honorary Fellows

The Secretary announced that Lord Horder of London, England, had been nominated for Honorary Fellowship by the Section on Internal Medicine and Dr. A. Lawrence Abel of London, England, by the Section on Gastro-Enterology and Proctology.

Lord Horder and Dr. Abel, both in attendance at this session, were elected as Honorary Fellows by acclamation on motion of Dr. C. B. Conklin, District of Columbia, seconded by Dr. J. Stanley Kenney, New York, and carried.

Election of Associate Fellows

Dr. Lull presented the list of applications for Associate Fellowship, nominated by the respective constituent state medical associations and approved by the Council on Scientific Assembly:

CALIFORNIA

Name	City	Name	City
Edler, William	Pasadena	Pischel, Kaspar	San Francisco
Guggenheim, Louis K.	Los Angeles	Wilson, John W.	San Francisco
Speer, Grant G.	Los Angeles		

COLORADO

Gilbert, George B.	Colorado Springs
--------------------	------------------

CONNECTICUT

Cohane, Timothy F.	New Haven	Day, Fessenden L.	Bridgeport
--------------------	-----------	-------------------	------------

DISTRICT OF COLUMBIA

Baker, May Davis	Rutledge, Pa.	Morgan, William G.	Washington
Crosson, Henry J.	Washington		

FLORIDA

Hall, John E.	Miami
---------------	-------

GEORGIA

Moss, William L.	Athens
------------------	--------

ILLINOIS

Culbertson, O. J.	E. St. Louis	Rose, Wm. H.	Los Angeles, Calif.
Fuller, Eraln G.	Gardner	Voris, Henry M.	Jensen Beach, Fla.
Grubbe, Emil H.	Chicago		

INDIANA

Blosser, H. V.	Ft. Wayne	Greist, Henry W.	Monticello
Conner, Thomas E.	Freetown	Jobes, Norman E.	Indianapolis
Ditton, Irvin W.	Ft. Wayne	Lukemeyer, L. C.	Huntingburg
Garrett, John D.	Indianapolis	Nenneker, Henry	Evansville

Patten, Vernon C. Morristown
Sanders, Ira M. Greensburg
Stephens, R. C. Plymouth
Wales, Ernest DeW. Indianapolis

Wegner, W. Godfrey South Bend
Winsteadley, W. C. New Albany
Wood, Elmer U. Columbus

IOWA

Lott, R. H.	Carroll	Seidler, William A.	Jamaica
Peck, Raymond E.	Davenport	Sugg, Herbert R.	Clinton
Rogers, C. B.	Earlville		

LOUISIANA

Mouledous, A. D.	Slidell
------------------	---------

MAINE

Stinchfield, Walter S.	Skowhegan
------------------------	-----------

MARYLAND

Rowland, J. M. H.	Baltimore
-------------------	-----------

MASSACHUSETTS

Barney, J. D.	Boston	McLean, John A.	W. Somerville
Birnie, John M.	Springfield	Miles, George A.	Boston
Bonney, Chas. A. Jr.	New Bedford	Montague, Charles E.	Wakefield
Breed, Nathaniel P.	Lynn	Moore, George C.	Croydon, N. H.
Craft, Harry L.	Ashfield	Nevers, Harry H.	Lawrence
Cunningham, Thomas E.	Cambridge	O'Connell, Andrew E.	Worcester
Dalton, George F.	Springfield	Oliver, E. Lawrence.	Boston
Disbrow, Edward P.	Worcester	O'Neil, James W.	Springfield
Emerson, William R. P.	Boston	Paine, Alonzo K.	Hanover
Germain, Harry H.	Bellair, Fla.	Palfrey, Francis W.	Boston
Graham, J. Perry	Springfield	Parr, John	Methuen
Ham, William A.	Boston	Paul, Luther G.	Newton Center
Haggood, Lyman S.	Cambridge	Phelps, Olney D.	Worcester
Howard, Joseph F.	Lawrence	Sargent, George B.	Lawrence
Hutton, Willis A.	Springfield	Sawabini, Elias	Brookline
Hutchins, Henry T.	Boston	Sever, James W.	Boston
Jones, Charles D.	Malden	Sherman, Warren H.	Lowell
Kimpton, Arthur	Boston	Trainor, Joseph A.	Boston
Kirkpatrick, George H.	Lynn	Thompson, C. E. P.	Fairhaven
Lewis, Seth A.	Springfield	Tyzzar, Ernest E.	Wakefield
McAlpin, Kenneth R.	West Berne, N. Y.	Watkins, Royal P.	Worcester

MICHIGAN

Dempster, James H.	Detroit	Sage, Edward O.	Detroit
Kirton, J. R. W.	Calumet	Upson, W. O.	Oceanside, Calif.

MINNESOTA

Amberg, Samuel	Rochester	Loofbourrow, E. H.	Keewatin
Benn, F. G.	Iopkins	Lynch, M. J.	Minneapolis
Blake, James	Hopkins	Nelson, H. E.	Crookston
Burch, Frank E.	St. Paul	Oberg, Carl M.	Minneapolis
Daignault, Oscar	Benson	Petersen, John R.	Minneapolis
Fogarty, C. W.	St. Paul	Schmidt, P. A.	Monroe, Ore.
Henslin, A. E.	Pasadena, Calif.	Schneider, John P.	Minneapolis
Hynes, John E.	Minneapolis	Shaw, Albert W.	Virginia
Jacobs, John C.	Willmar	Solmer, A. E.	Mankato
Jones, A. W.	Red Wing	Wray, W. E.	Campbell
Lenont, C. B.	Virginia		

MISSOURI

Bohan, Peter T.	Kansas City	Kampschmidt, A. W.	Columbia
Burns, Jonathon E.		Lamar, Frederick C.	Kansas City
	Charles Town, W. Va.	Meisenbach, A. Edward	St. Louis
Carmichael, F. A.	Kansas City	Myers, W. A.	Kansas City
Cole, Paul F.	Springfield	Paul, Thomas M.	St. Joseph
Dyer, Clyde P.	Webster Groves	Quinn, Abram T.	St. Joseph
Harrison, A. M.	Kansas City	Talbott, Hudson	St. Louis
Harwell, J. Lee	Poplar Bluff	Townsend, James A.	Eureka
Hayward, John D.	St. Louis	Westrup, Arthur W.	Webster Groves
James, Joseph D.	Springfield		

NEW JERSEY

Areson, W. H.	Upper Montclair	Hughes, Frederic J.	Plainfield
Baird, Thompson M.	Point Pleasant	Lovett, Joseph C.	Camden
Carman, Fletcher F.	Montclair	Orton, George L.	Rahway
Cogan, Henry	Daytona Beach, Fla.	Ranson, Briscoe B. Jr.	East Orange
Emerson, Linn	Orange	Simkins, Raymond	Bridgeport
Foster, Herbert W.	Montclair	Teeter, Charles E.	Newark
Harman, W. J.	Trenton	Wade, S. F.	Millford, Pa.

NEW YORK

Abbott, Henry B.	Buffalo	Filsinger, F. W.	Buffalo
Atonna, Carmelo	New York	Fisher, George G.	Newhall, Calif.
Barber, Robert F.		Gillick, Edward E.	Niagara Falls
	Farmingdale, N. J.	Goodridge, Malcolm	New York
Bartlett, Robert L.	Rome	Gromann, John	Utica
Bauer, John L.	Bayport, L. I.	Grossman, Abraham	New York
Bellows, Charles M.	New York	Halsey, Robt. H.	New York
Blank, M. I.	New York	Hamilton, S. W.	Cedar Grove, N. J.
Connor, M. E.	Brooklyn	Hoffman, P. F.	White Plains
Doeschner, T. F.	Albany	Horr, Edward F.	Barneveld
Ehrlich, Simon D.		Ives, Robert F.	Brooklyn
	Hollywood Beach, Fla.	Jacobson, Arthur C.	Brooklyn

Jolls, Willard B.....Orchard Park
Lederer, Max Brooklyn
Lewis, Samuel Brooklyn
Lynch, J. M.....Pasadena, Calif.
McGowan, Andrew J..New Brighton
McQuillin, J. P.
Westhampton Beach, L. I.
Manning, Charles E.....Brooklyn
Meyer, Henry E. B...Garden City
Opie, Eugene L.....New York
Parsons, Alfred H...Great Neck, L. I.
Pearson, L. W.....Brooklyn
Piquet, Samuel D...Mattituck, L. I.
Quinn, William V.....Utica
Risch, Otto E. F.....Brooklyn
Rottenberg, Sol...Miami Beach, Fla.
Rucker, Augusta New York

NORTH CAROLINA

Lane, John L.....Rocky Mount

NORTH DAKOTA

Bodenstab, William H.....Bismarck
Campbell, R. D.....Grand Forks
Gerrish, W. A....Alhambra, Calif.
Macdonald, A. W.....Valley City

PENNSYLVANIA

Anspach, Brooke M.....Ardmore
Bouney, Charles W....Philadelphia
Feldstein, George J.....Pittsburgh
Gibby, Herbert B....Wilkes-Barre
Hinrichs, August G.....Pittston
Holtzhauser, G. J.....Phoenixville
Knowles, Mary Gilbert
San Francisco, Calif.
Kramer, Joseph G.....Macomb, Ill.
Leaf, M. V.....New York, N. Y.
McComb, Edwin C....New Castle
Old, Herbert Philadelphia
Price, Henry T....Lake Placid, Fla.
Shanor, Charles K.
Coconut Grove, Fla.
Stewart, Henry Gettysburg

RHODE ISLAND

Cooke, Charles O.....Providence
Kenney, Stephen A....Valley Falls
Tefft, B. F.....West Warwick
Turner, Charles S.....Providence
Wheaton, James L.....Pawtucket

TENNESSEE

Burdette, B. L.....Shelbyville
Clark, John C.....Memphis
Parker, Prentiss E....Johnson City

TEXAS

Sessums, John R.....San Angelo

UTAH

Pomeroy, Edward S...Salt Lake City
Rees, G. L.....Smithfield

VERMONT

Clark, Edward R.....Castleton

WEST VIRGINIA

Cooper, Everett R...Gallipolis, Ohio
Cunningham, Wylie H....Beckley
Gaynor, H. E.....Parkersburg
Martin, Harrington C...East Rainelle
Moore, Thomas W.....Huntington
Offner, John E.....Fairmont
Ogden, C. R.....Clarksburg
Peck, Joseph C.....Moundsville

WISCONSIN

Allen, William J.....Beloit
Baasen, J. M.....Mt. Calvary
Bolton, Ernest L.....Appleton
Brehm, Henry J.....Racine
Brooks, Everett H.....Appleton
Coffey, Charles J.....Milwaukee
Donohue, M. J.....Antigo
Fazen, L. E.....Racine
Folsom, Wm. H.....Fond du Lac
Friend, Leopold J.....Beloit
Gavin, S. E.....Fond du Lac
Hammond, F. W.....Manitowoc
Hipke, G. A.....Milwaukee
Leonard, Charles W...Fond du Lac
Marshall, V. F.....Appleton
Munn, W. A.....Janesville
Pope, Frank W.....Racine
Taylor, J. Gurney.....Milwaukee
Thomas, William O.....Clinton
Twobig, D. J.....Fond du Lac
Webb, Enoch P.....Beaver Dam

Election of Affiliate Fellows

PHYSICIAN FROM ADJACENT COUNTRY

The Secretary presented the nomination of Dr. John A. MacMillan, Montreal, Canada, for Affiliate Fellowship, the nomination having been approved by the Judicial Council. The official records of the Association show that the House elected Dr. MacMillan to Affiliate Fellowship at its session in Chicago in 1948.

On motion of Dr. C. B. Conklin, District of Columbia, seconded by Dr. Mather Pfeifferberger, Illinois, and carried, the following nominees for Affiliate Fellowship approved by the sections indicated were elected:

NOMINATED BY SECTION ON LARYNGOLOGY, OTOLOGY AND RHINOLOGY

Largeman, Howard C., Brooklyn.
Obst, Joseph J. Brooklyn.

NOMINATED BY SECTION ON EXPERIMENTAL MEDICINE AND THERAPEUTICS

Arnow, Leslie E., Glenolden, Pa.
Craver, Bradford N., Westfield, N. J.
Gardner, Weston D., Wauwatosa, Wis.
Schroeder, Henry A., St. Louis.
Woodbury, Robert A., Memphis, Tenn

NOMINATED BY SECTION ON PATHOLOGY AND PHYSIOLOGY

Houck, C. R., Memphis, Tenn.
Overman, Richard R., Memphis, Tenn.

NOMINATED BY SECTION ON NERVOUS AND MENTAL DISEASES

Whieldon, J. A., Pasadena, Calif.

NOMINATED BY SECTION ON PREVENTIVE AND INDUSTRIAL MEDICINE AND PUBLIC HEALTH

Condon, Frank J., Evanston, Ill.
Naegele, Charles F., Staten Island, N. Y.

Telegram from State of Texas

Dr. Louis H. Bauer, Trustee, read the following telegram just received:

House passed resolution against socialized medicine this morning with only one dissenting vote. Hope for Senate action today.

Presentation and Address of President-Elect Elmer L. Henderson

Mr. Speaker and Members of the House of Delegates, Ladies and Gentlemen: This has been a very difficult week for me for more reasons than one. At noon, I slipped away and went to my room to get some long needed sleep and I was awakened a few minutes ago to be told that you had chosen me as your President-Elect. It is needless to say that this was a great awakening. I feel very humble and somewhat emotional. I am indeed very grateful for the confidence that you have expressed in me, but, more than that, I am grateful for the confidence that you have expressed in the Board of Trustees and the leadership of this great organization, for I accept this honor not personally but as a tribute to the Board of Trustees and the leadership of this organization.

I am sure that every one of you in this room has heard us referred to as "The Nine Old Men." I want to deny that. They are neither old nor are they reactionary. They are an outstanding group of sincere men attempting to do your bidding, and that is what we have tried to do. I have never known a more sincere group, and it has been a great honor and a great pleasure to me to have been associated with them.

Today, American Medicine stands at the crossroads. We either go forward or we go backward. There is no standing still. If we are to endure as a free medical profession we must stand united and present a solid front. The people of the United States have the best medical service of any nation in the world. Yet there are those who would change that for political expediency as Bismarck did in 1884. Since that time, medical service has been on the downgrade in that country. Doctors of political medicine in that country became Nazis first and doctors second. Otherwise there could not have been the war crimes that we had during World War II.

In England, the profession was divided, and today they have complete socialization of medicine or whatever you want to call it.

There are some in our profession today who feel that we should compromise and accept compulsion or political medicine. This, I can never agree to.

The medical profession has been called the first line of defense against the socialistic state. On us falls the responsibility to protect free enterprise and the health of the American people. The American Medical Association for the past 102

years has stood for free enterprise and for the promotion of the health of this great nation. Only men in a free state could have made the great progress that has been made in the health of this country, and only as long as we can live in a free state can we progress.

Ladies and gentlemen, we have just begun to fight, and with the aid of Almighty God I pledge you a fight to the finish and to a successful finish.

Election of Member of Council on Medical Service

The Secretary announced the report of the Tellers and the result of the vote on a member of the Council on Medical Service to succeed Dr. Elmer Hess as follows: Dr. Elmer Hess 93; Dr. A. A. Brindley 10, and Dr. H. G. Hamer 19. The Speaker declared Dr. Hess, having received the majority of the votes cast, elected a member of the Council on Medical Service to succeed himself for a term of three years.

Expression of Appreciation

On motion of Dr. Robert E. Schlueter, Missouri, seconded by Dr. George W. Kosmak, New York, and carried, the Speaker extended the official recognition of the House as follows: I feel that the House should take recognition officially of the efficient and very delightful manner in which the General Chairman of the Local Committee on Arrangements, Dr. David B. Allman, of New Jersey, the Atlantic County Medical Society, and the Medical Society of New Jersey, the local governing body of New Jersey, the Convention Manager, Mr. Skean, and particularly the hotel management of the Traymore, have entertained the Association. The American Medical Association has been coming to Atlantic City almost every other year so there is a sort of feeling of coming back home, but that should not make us forget the responsibilities that the local organizations have in entertaining as hosts while we are here.

Dr. Thomas K. Lewis, New Jersey, remarked: Mr. Speaker and Members of the House: I have been requested by the Medical Society of New Jersey, in behalf of the Atlantic County Medical Society, the management of the Convention Bureau of Atlantic City, and particularly the management of the Traymore Hotel, to express their appreciation of your having been guests with us during this week and to assure you that any time you come here in the future, there will be an increasing effort to make the services more efficient. You will return again in 1951, and while it is still a little premature, you have an invitation which is a standing invitation to appear here again in 1953.

Presentation and Address of Vice President James Francis Norton

Dr. Thomas K. Lewis, New Jersey, presented the Vice President, Dr. James Francis Norton, who addressed the House as follows: Mr. Speaker, Members of the House of Delegates: Just one word to tell you that I am very conscious of the honor that came my way today and to tell you that I pledge myself unreservedly behind your President, Dr. Henderson, to do everything and anything that lies within my power to aid and abet his program and to see it to the fulfillment which I am sure it will attain under the leadership of his administration.

Announcements

Several announcements were made including that of Dr. John W. Cline, California, about the 1950 Annual Session in San Francisco.

Recognition of Work of Dr. Reginald Fitz

On motion of Dr. Mather Pfeifferberger, Illinois, seconded by Dr. C. B. Conklin, District of Columbia, and carried by a rising vote, the House officially recognized the work that Dr. Reginald Fitz has done for so many years on the Council on Medical Education and Hospitals.

On motion of Dr. Mather Pfeifferberger, Illinois, seconded by Dr. Walter E. Vest, West Virginia, and carried, the House adjourned sine die, at 4:00 p. m.

Registration at the Atlantic City Session

Registration by Days and Sections

	June 5-6	June 7	June 8	June 9	June 10	Total
Internal Medicine.....	1,291	514	496	368	58	2,727
Surgery, General and Abdominal.....	654	385	303	250	43	1,635
Obstetrics and Gynecology.....	255	190	154	135	28	762
Ophthalmology.....	124	72	147	100	31	474
Laryngology, Otology and Rhinology.....	117	72	103	101	11	404
Pediatrics.....	162	110	147	134	11	564
Experimental Medicine and Therapeutics.....	40	12	16	12	2	82
Pathology and Physiology.....	115	66	48	54	9	292
Nervous and Mental Diseases.....	69	53	84	74	32	312
Dermatology and Syphilology.....	75	59	14	68	12	228
Preventive and Industrial Medicine and Public Health.....	118	79	47	28	3	275
Urology.....	86	67	67	59	11	290
Orthopedic Surgery.....	79	60	82	68	10	299
Gastro-Enterology and Proctology.....	159	45	74	61	6	345
Radiology.....	255	101	91	65	18	530
Anesthesiology.....	60	60	61	58	23	262
General Practice of Medicine.....	615	362	299	226	63	1,565
Diseases of the Chest.....	309	22	27	26	..	384
Miscellaneous Topics						
Sessions on Physical Medicine.....	50	20	27	16	4	117
Session on Allergy.....	17	12	36	15	15	95
Two Sections or more.....	122	65	220	...	12	419
No Section.....	370	264	150	299	77	1,160
Total.....	5,142	2,690	2,693	2,217	479	13,221

Daily Registration by States

States	June 5	June 6	June 7	June 8	June 9	June 10	Total
Alabama.....	7	22	14	6	5	1	55
Arizona.....	8	16	4	4	1	..	33
Arkansas.....	7	7	3	2	1	1	21
California.....	73	122	81	33	22	8	339
Colorado.....	14	17	8	5	4	..	48
Connecticut.....	31	84	55	46	31	7	254
Delaware.....	7	14	22	32	31	5	111
District of Columbia.....	68	96	68	66	54	14	366
Florida.....	46	52	34	8	8	2	150
Georgia.....	21	26	26	20	6	..	99
Idaho.....	..	2	..	..	1	..	3
Illinois.....	130	186	117	42	28	7	510
Indiana.....	20	51	49	13	13	2	148
Iowa.....	13	32	26	9	3	..	83
Kansas.....	8	24	9	4	2	1	48
Kentucky.....	16	38	20	4	2	1	81
Louisiana.....	7	21	16	8	1	2	55
Maine.....	5	7	6	2	..	..	20
Maryland.....	40	86	109	88	107	15	451
Massachusetts.....	66	134	85	80	30	7	402
Michigan.....	70	82	65	25	8	7	257
Minnesota.....	24	30	27	18	5	..	113
Mississippi.....	3	7	7	4	..	1	22
Missouri.....	33	53	34	16	9	..	149
Montana.....	2	4	..	..	..	..	6
Nebraska.....	9	14	10	0	1	..	43
Nevada.....	..	4	1	..	1	..	6
New Hampshire.....	3	7	5	3	1	1	20
New Jersey.....	211	211	357	554	426	59	1,818
New Mexico.....	1	1	..	1	..	..	3
New York.....	425	500	450	504	480	111	2,470
North Carolina.....	21	33	27	22	13	1	117
North Dakota.....	4	5	2	..	..	..	11
Ohio.....	105	180	134	46	29	5	499
Oklahoma.....	16	12	13	4	1	..	46
Oregon.....	5	11	2	1	1	..	20
Pennsylvania.....	257	438	543	877	793	195	3,103
Rhode Island.....	13	19	18	6	2	..	58
South Carolina.....	3	16	7	3	3	..	32
South Dakota.....	1	4	1	1	..	..	7
Tennessee.....	24	28	25	11	10	1	99
Texas.....	48	62	29	27	8	1	175
Utah.....	4	11	10	2	1	..	28
Vermont.....	3	3	6	1	1	..	14
Virginia.....	14	76	49	24	18	3	184
Washington.....	5	12	12	4	..	..	33
West Virginia.....	24	40	16	9	5	2	96
Wisconsin.....	10	25	2	15	2	2	65
Wyoming.....	..	2	..	..	1	1	4
Alaska.....	1	1	..	..	..	..	2
Canada.....	33	40	25	8	8	..	114
Cuba.....	6	5	9	1	1	1	23
Hawaii.....	2	6	3	1	..	1	13
Panama.....	1	4	2	2	..	..	9
Philippine Islands.....	8	1	..	5	7	..	21
Puerto Rico.....	1	5	2	2	..	..	10
Foreign.....	55	92	45	15	33	14	254
Total.....	2,052	3,000	2,690	2,693	2,217	479	13,221

THE SCIENTIFIC EXHIBIT

The Fiftieth Anniversary of the founding of the Scientific Exhibit was observed at the Atlantic City Session with one of the most outstanding groups of exhibits in the history of the institution. The total number of exhibits was somewhat less than has been shown at an Atlantic City Session in previous years, but what was lacking in quantity was compensated for in quality. The care with which the exhibit material in the various booths was selected and presented, together with the patience and the perseverance of the numerous demonstrators, resulted in a most valuable contribution to graduate medical instruction.

A feature of the meeting was a group of exhibits, sponsored by the Board of Trustees, commemorating the Fiftieth Anniversary. A committee from the Indiana State Medical Association, of which Dr. Thurman B. Rice was chairman, presented an exhibit on Dr. Frank B. Wynn, founder of the Scientific Exhibit, and showed some of the original pathologic specimens from the meeting in 1899. Another committee, headed by Dr. Peter A. Herbut, Philadelphia; Dr. Frank W. Konzelmann, Atlantic City, and Dr. William P. Belk, Philadelphia, showed advances in pathology during fifty years, with practical applications of modern methods. Clinical lectures were given in conjunction with the exhibit in an adjacent lecture room.

The Special Exhibit on Fractures, which has been a feature of the Scientific Exhibit since 1926, stressed elementary points in treatment based on the pathologic aspects of each type of fracture. The large and attentive audiences at each of the six booths attested to the value of this kind of instruction for the general practitioner. The committee, consisting of Dr. Kellogg Speed, Chicago, chairman; Dr. Frederick A. Jostes, St. Louis, and Dr. Gordon M. Morrison, Boston, was assisted by more than fifty demonstrators. Dr. Wilson S. Rise, Atlantic City, served as local chairman of the committee. Special mention should be made of the excellent assistance rendered by the Atlantic City Hospital as well as the Presbyterian Hospital, Chicago.

Three exhibit symposiums were extremely popular. The exhibit symposium on diabetes included four carefully selected exhibits, with clinical lectures in a nearby lecture room, presented under a committee of which Dr. Howard F. Root, Boston, was chairman. The group received special commendation from the Committee on Awards.

The exhibit symposium on arthritis, under the direction of Dr. W. Paul Holbrook, Tucson, Arizona, included twelve exhibits. The group received special commendation.

The exhibit symposium on physical medicine and rehabilitation was sponsored by the Baruch Committee on Physical Medicine under a committee consisting of Dr. Frank H. Krusen, Rochester, Minn., chairman; Dr. Winfred Overholser, Washington, D. C., and Dr. Howard A. Rusk, New York. There were fifteen booths in the group which received special commendation. The exhibits on speech rehabilitation were very spectacular and attracted large audiences.

Other features included a group of nine exhibits by the United States Army and the United States Navy depicting the recent advances in medicine as applied to those two branches of the government. The group received special mention by the Committee on Awards.

Various other miscellaneous exhibits attracted studious audiences.

Motion pictures in two theaters adjoining the exhibit hall attracted audiences of 10,117 persons during the week. Thirty-four films were shown on definite schedules, each film being presented once each day.

The eighteen sections of the Scientific Assembly sponsored groups of exhibits dealing with the various branches of medicine.

The Section on Internal Medicine presented a group of twelve exhibits, one of which received a Certificate of Merit and one

an Honorable Mention. The section representative was Dr. Thomas C. Garrett, Sarasota, Fla.

The Section on Surgery, General and Abdominal, had eighteen exhibits. There were four awards, consisting of a Bronze Medal and three Certificates of Merit. Dr. Walter G. Maddock, Chicago, was the section representative.

The Section on Obstetrics and Gynecology presented a group of six exhibits. The section representative was Dr. Frederick H. Falls, Chicago.

The Section on Ophthalmology had eight exhibits, one of which received a Silver Medal and one a Certificate of Merit. The section exhibit committee consisted of Dr. Georgiana D. Theobald, Oak Park, Ill.; Dr. Edwin B. Dunphy, Boston, and Dr. Phillips Thygeson, San Jose, Calif.

The Section on Laryngology, Otology and Rhinology had a group of five exhibits, one of which received a Gold Medal. Dr. James B. Costen, St. Louis, was the section representative.

The Section on Pediatrics presented eight exhibits. Dr. Albert V. Stoesser, Minneapolis, was the section representative.

The Section on Experimental Medicine and Therapeutics presented a group of eleven exhibits. There were three awards, consisting of a Certificate of Merit, an Honorable Mention and a Special Mention. The section representative was Dr. Robert W. Wilkins, Boston.

The Section on Pathology and Physiology had eleven exhibits, with two awards, consisting of a Certificate of Merit and an Honorable Mention. Dr. Alvin G. Foord, Pasadena, Calif., was the section representative.

The Section on Nervous and Mental Diseases had six exhibits, one of which received an Honorable Mention. Dr. A. B. Baker, Minneapolis, was the section representative.

The Section on Dermatology and Syphilology presented a group of nine exhibits. Dr. Francis W. Lynch, St. Paul, was the section representative.

The Section on Preventive and Industrial Medicine and Public Health had a group of ten exhibits. There was one award, consisting of a Certificate of Merit. The section representative was Dr. Paul A. Davis, Akron, Ohio.

The Section on Urology presented a group of eight exhibits. The section exhibit committee consisted of Dr. John H. Morrissey, New York; Dr. Roger W. Barnes, Los Angeles; Dr. Earl Ewert, Cambridge, Mass., and Dr. John Dees, Durham, N. C.

The Section on Orthopedic Surgery had seven exhibits. Dr. Tom Outland, Elizabethtown, Pa., was the section representative.

The Section on Gastro-Enterology and Proctology presented a group of eight exhibits. The section representatives were Dr. Donovan C. Browne, New Orleans, and Dr. J. P. Nesselrod, Evanston, Ill. Special Mention was given to one of the exhibits.

The Section on Radiology presented a group of nine exhibits. There were two awards, consisting of a Gold Medal and a Silver Medal. Dr. S. W. Donaldson, Ann Arbor, Mich., was the section representative.

The Section on Anesthesiology had ten exhibits, one of which received a Certificate of Appreciation. Dr. Harold F. Bishop, Valhalla, N. Y., was the section representative.

The Section on General Practice of Medicine presented a group of nine exhibits. The section representative was Dr. M. B. Casebolt, Kansas City, Mo.

The Section on Diseases of the Chest had nine exhibits, one of which received a Bronze Medal. Dr. Edwin R. Levine, Chicago, was the section representative.

There were 365 applications for space for exhibits at the Atlantic City Session, of which 210 were accepted by the Committee on Scientific Exhibit.

REPORT OF THE COMMITTEE ON AWARDS

The Committee on Awards made the following report:

GROUP I

(Awards in Group I are made for exhibits of individual investigations, which are judged on the basis of originality and excellence of presentation.)

The GOLD MEDAL to Julius Lempert and Dorothy Wolff, Lempert Institute of Otolaryngology, New York, for the exhibit on Modern Temporal Bone Surgery.

The SILVER MEDAL to Wendell G. Scott, Sherwood Moore, Thomas Burford and Merl J. Carson, Washington University School of Medicine, St. Louis, for the exhibit on Angiography with the Rapidograph Utilizing 9-Inch Roll Film in Diagnosis of Congenital Heart Disease.

The BRONZE MEDAL to Orvar Swenson and Edward B. D. Neuhauser, Children's Medical Center, Boston, for the exhibit on New Concepts of Etiology and Treatment of Hirschsprung's Disease.

Certificates of Merit, Group I, are awarded to the following (alphabetically arranged):

J. Scott Butterworth, Charles A. Poindexter, Clarence E. Peterson, Charles Rehnke and Arnold L. Wagner, New York University-Bellevue Medical Center, Post-Graduate Medical School, New York, for the exhibit on Visual and Auditory Teaching Aids in Cardiology.

Clarence E. Gardner Jr. and Thomas Ray Broadbent, Duke Hospital, Durham, N. C., for the exhibit on Anomalies of Intestinal Rotation.

Sidney A. Gladstone, New York Polyclinic Hospital, New York, for the exhibit on Sponge Biopsy—A New Method in Cancer Diagnosis.

Arthur E. MacNeill, Alan Mather and William L. McLaughlin, Dartmouth Medical School, Hanover, N. H., for the exhibit on A Dialyzer of Great Adaptability.

In addition, the following exhibits are deemed worthy of Honorable Mention (alphabetically arranged):

That of Joseph M. Hill, Sol Haberman, Allen F. Reid and Kenneth P. Wittstruck, William Buchanan Blood Center, Baylor Hospital, Dallas, Texas, on Physical Chemical Studies on Rh Antibodies.

That of Joseph T. Roberts, University of Buffalo School of Medicine and Veterans Administration Hospital, Batavia, N. Y., on A New Blood Supply for Ischemic Hearts and the Role of Small Blood Vessels in the Heart and Nerves.

GROUP II

(Awards in Group II are made for exhibits which do not exemplify purely experimental studies but are judged on the basis of excellence of correlating facts and excellence of presentation.)

The GOLD MEDAL to C. A. Stevenson, R. D. Moreton and E. E. Seedorf, Scott and White Clinic, Temple, Texas, for the exhibit on The Roentgenologic Examination of the Colon—Special Reference to Obscure Carcinomas.

The SILVER MEDAL to A. L. Kornzweig, Home for Aged and Infirm Hebrews of New York City, New York, for the exhibit on Pathology of the Eye in Old Age.

The BRONZE MEDAL to J. R. McDonald, L. B. Woolner and A. H. Bulbulian, Mayo Clinic, Rochester, Minn., for the exhibit on Tumors of the Lung—A Pathologic Study of Surgical Lesions.

Certificates of Merit, Group II, are awarded to the following (alphabetically arranged):

John Fallon, James T. Brosnan, John Meyers and John J. Manning, Fallon Clinic, Worcester, Mass., for the exhibit on Endometriosis and the General Surgeon.

Peter C. Kronfeld, Roy O. Riser and John T. Parker, University of Illinois College of Medicine, Chicago, for the exhibit on Glaucomatous Excavations.

Joseph L. Posch, Wayne University College of Medicine and the Detroit Receiving Hospital, Detroit, for the exhibit on the Care of the Injured Hand.

O. A. Sander, Milwaukee, for the exhibit on Siderosis—Benign Pneumoconiosis Due to Iron Fumes and Dusts.

In addition, the following exhibits are deemed worthy of Honorable Mention (alphabetically arranged):

That of Virginia Kneeland Frantz, Sidney C. Werner and Edith H. Quimby, Presbyterian Hospital and Columbia University College of Physicians and Surgeons, New York, on Radioactive Iodine—Its Use in the Diagnosis and Treatment of Thyroid Disease.

That of Lewis J. Pollock, Benjamin Boshes, Herman Chor, Isidore Finkelman, Meyer Brown, Alex J. Arief, Joseph G. Kostrubula and Louis B. Newman, U. S. Veterans Administration Hospital, Hines, Ill., on Injuries to Spinal Cord and Cauda Equina.

CERTIFICATE OF APPRECIATION

A Certificate of Appreciation is awarded to C. R. Stephen and H. M. Slater, Children's Memorial Hospital, Montreal, Quebec, Canada, for their contribution on Hypobaric Pontocaine Spinal Analgesia for Children.

SPECIAL COMMENDATIONS

Special Commendation is given to the group of exhibits on diabetes, as well as the clinics and conferences on diabetes by members of the George F. Baker Clinic and the American Diabetes Association which are presented in conjunction with the exhibits under the chairmanship of Dr. Howard F. Root, Boston.

Special Commendation is given to the group of exhibits on arthritis which is presented in cooperation with the Arthritis and Rheumatism Foundation, New York.

Special Commendation is given to the group of exhibits on physical medicine and rehabilitation which is sponsored by the Baruch Committee on Physical Medicine under the chairmanship of Dr. Frank H. Krusen, Rochester, Minn. The Committee is impressed with the excellent demonstrations, especially those on speech rehabilitation.

SUBSIDIZED EXHIBITS

The Committee on Awards commends highly the Special Exhibits on Fractures and the Fiftieth Anniversary Exhibits, which include the Historical Exhibit and the Clinical Laboratory Exhibit, as well as the clinics and conferences on laboratory methods.

SPECIAL MENTION

Special Mention is made of the historical exhibits presented by Richard Kovacs, Samuel Swerdlik and G. F. Frederick, New York Polyclinic Medical School, New York, on From Amber to Radar—The Evolution of Electrotherapy and Light Therapy; and Curtice Rosser, Tom E. Smith and Lewis Waters, American Proctologic Society, Dallas, Texas, on Fifty Years of Proctology.

Special Mention is also made of the exhibits presented by the U. S. Army and the U. S. Navy depicting some of the recent advances in medicine.

COMMENTS

The sincere and hearty cooperation of the representatives of the eighteen sections of the Scientific Assembly is largely responsible for maintaining the Scientific Exhibit as a most important educational feature of the American Medical Association Convention.

The Committee is impressed with the excellence of the motion pictures presented in the theaters adjacent to the Scientific Exhibit.

The Committee on Awards wishes to express its deep appreciation to Dr. Thomas G. Hull, Director of the Scientific Exhibit, for his unflagging and continuous efforts for nineteen years in the development and success of the Scientific Exhibit.

Respectfully submitted,

ROGER I. LEE, Boston, Chairman.
L. H. GARLAND, San Francisco.
J. DUFFY HANCOCK, Louisville.
JOHN E. RAUSCHKOLB, Cleveland.
DERRICK VAIL, Chicago.

Hearings On Health Insurance

MAY 25, 1949

United States Senate, Subcommittee on Health of the
Committee on Labor and Public Welfare

SENATOR JAMES E. MURRAY, presiding

Present: SENATORS MURRAY, TAFT and DONNELL

Statement of Seymour E. Harris of Americans for Democratic Action

MR. HARRIS: I am appearing this morning on behalf of Americans for Democratic Action, an organization of progressives dedicated to the achievement of freedom and economic security through education and democratic political action.

I have been on the faculties of Princeton and Harvard Universities since 1920 and am now professor of economics at Harvard. I am the author of twenty-one books, the latest, "Saving American Capitalism." Related to the problems under discussion, I have written a book on the "Economics of Social Security" (1941—out of print); "How Shall We Pay for Education?" (1948); "The Market for College Graduates" (in press), and, in preparation, "The Economics of Medical Care." These are all relevant to the problem. For many years I have been responsible for the teaching of social security at Harvard. I am the editor of the *Review of Economics and Statistics*, and in the years 1945 to 1948 was a member of the Executive Committee of the American Economic Association. I was in charge of the ADA Domestic Platform at the National ADA Convention of 1949.

I shall discuss the reasons for increased interest in national health insurance, the costs, the relevance of restrictionism and pricing, and the capacity of the country inclusive of government to bear the burden.

I shall not deal with significant aspects of the problem on which I am not particularly qualified to speak; e.g., the effect of the program on incentives, on regimentation, on the relations of doctors and patients. For thirty years as a teacher, I have been subject to a kind of "regimentation," to which doctors are now being asked to submit. For in education there is government and university responsibility for pricing. It seems to me that the system has worked well, and even better than if our rewards were determined primarily by student interest and choice and purely market considerations.

I. THE PROBLEM

In recent years, the pressure for health insurance has greatly increased. First, this is an age when the people look increasingly to the government for security. Protection against illness is one manifestation of the desire for security. Second, the public is becoming increasingly aware of the application of the insurance principle; the costs of serious illness are reduced for the population as a whole if they can be apportioned over the whole population. ("An unlucky sixth of our people . . . pays in one year half the total sickness bills paid by everybody.")

Voluntary insurance makes an important contribution. In June 1947 the minimum medical cost for a family of four in thirty-four cities was \$132 in Mobile; the maximum, \$222 in Los Angeles (5 to 7 per cent of consumption outlays is the usual amount). Should we allow for the rise in prices since then, the minimum and maximum figures for a modest budget would be at least \$140 and \$240. Clearly, these expenditures would be an intolerable burden on the 12.8 per cent of the nation's families with gross cash income of \$1,000 or less, a severe burden on the 15.4 per cent with incomes of \$1,000 to \$2,000, and a serious burden for those (19.5 per cent) with incomes of \$2,000 to \$3,000. Yet these are the families that especially need medical care.

The aging of the population is a relevant consideration. In 1900 this country had but 3,000,000 or 4 per cent of the population aged 65 and over; in 1948, 11,000,000 or 7 to 8 per cent; by 1975, 18,000,000 or 11 per cent. I might say that by the year 2000 the figure will be 21,000,000 or 18 per cent. Medical expenditures are a substantial part of all outlays by the old. As the population ages, the need for medical services will rise greatly; and particularly for those with limited resources.

On the average, persons 65 years of age and over spend about four times as many days in disabling illness as the rest of the population. Therefore it is quite conceivable that within a reasonable period you will need 50 per cent more health facilities to take care of the old.

The inadequacy of medical service has put pressure on the Government to do something. This inadequacy arises in part

from the high level of employment in recent years, in part from the diversions of man power to the military, in part from the improved standard of living which is reflected in a desire for more and better medical standards, in part from the failure of medical facilities to expand adequately and in part from the uneconomical organization of medicine.

The development of programs abroad, the British program, the beginning of a Canadian program, the publicity given to the medical deficiencies of draftees—all of these have aroused public interest.

The new economics of the last twenty years has gradually percolated to those who mold policy. This theory puts emphasis on the importance of finding a "corrective" for the results of man's high productivity. More consumption or (and) more leisure is the manner of absorbing the gains of progress. In the last hundred and fifty years, we have raised our standard of living by eight to ten times and cut the hours of work from 60-70 to 40. More and more, as we have learned to produce farm and factory products with less and less labor, we have turned to the tertiary industries (distribution, transportation, education, medicine, etc.) as the outlets for our released energies. Unless we find employment for our released workers through increased expenditures for services, the country will have to acquiesce to large amounts of unemployment (or corresponding rise in leisure), or to spending largely for war, or to rising expenditures for recreation, religion, education, health, etc.

II. COSTS OF MEDICAL CARE

1. *Importance.*—Even at the bottom of the depression, the Committee on the Cost of Medical Care for the American People estimated that outlays of \$100 to \$200 would be required for a family of five. The average family of five earning \$1,500 could not afford an outlay of 7 to 13 per cent of their income even though the country could afford it. Hospitalized illness then cost \$150 per case on the average, and was a serious burden on the less than 10 per cent of the middle and lower income group thus affected in any one year.

The prevailing methods of purchasing medical care have unsatisfactory consequences. They lead to unwise and undirected expenditures, to unequal and unpredictable financial burdens for the individual and the family, to neglect of health and of illness, to inadequate expenditures for medical care, and often to inequitable remuneration of practitioners. There needs to be some plan whereby the unequal and sometimes crushing burden of medical expenses can be distributed.

In 1947, private disbursements on medical care and death expenses were \$7,400,000,000 or 3½ per cent of the national income, and 4½ per cent of all consumption expenditures. Outlays of Government were \$2,000,000,000 additional. Government outlays were largely for hospitals (\$1,400,000,000), community health protection (\$3,600,000), medical care of the needy, noninstitutional (\$150,000,000).

2. *Disappointing Outlays for Medical Care.*—In 1933, the public disbursed \$2,400,000,000 or 6 per cent of the national income on medical care; in 1947 the respective expenditures were \$7,400,000,000 or more than 3 per cent. Surely if the country could pay 6 per cent of its income for medical expenses in 1933 (4½ per cent in 1929), the country can afford more than 3 per cent in 1947-1948. In an advancing society, the country is supposed to spend an increasing percentage of its income on services. That we have failed to follow this pattern in medicine is explicable in part by the unavailability of facilities, in part by the unequal distribution of services, in part by the methods of finance. What is required is more help for the poor and an insurance program which covers everybody.

III. THE RELEVANCE OF RESTRICTIONISM

1. *The Need of More Services.*—Once the government subsidizes low income groups adequately and through insurance assures larger disbursements for medical care, then the pressure on medical facilities will rise. This will result in part because much needed medical care will now be demanded and in part because once the expenses are pooled, there is a tendency to be wasteful of use of medical facilities.

(a) The response of trained personnel is a slow process. It has been altogether too slow in the professional medical field. Vigorous legislation is required to increase the personnel. By the way, the response of all engaged in medical and health services (1929 to 1947) has been much more satisfactory than that of doctors. The total number engaged in industry rose by 27 per cent; the numbers engaged in medical and health services by 36 per cent; the rise of physicians and surgeons about 10 per cent. I might say that from 1933 to 1947 the figure was 5 per cent.

(b) It follows that any rise of outlays in the short run will merely increase the rewards of those already entrenched in the industry or profession (as has largely happened since 1932), unless vigorous measures are taken to improve the organization and make more effective use of trained personnel and physical facilities. For this reason, it would be wise to expand outlays slowly—perhaps \$1,000,000,000 to \$2,000,000,000 annually in the first five years; and then \$2,000,000,000 to \$4,000,000,000 in the next five years. Beyond five and ten years, we may expect large expansion of facilities and the possibility of much larger outlays.

(c) Much better use could be made of existing personnel and facilities, thus assuring a rise in services corresponding to the suggested increase in outlays. Furthermore, the training of subsidiary personnel could be accelerated much more quickly and with more immediate results than that of the doctor or dentist. The country would profit from better organization of medicine inclusive of up-grading of the work of technicians, thus conserving the doctors' or dentists' time for the work requiring high skills. Why should my dentist clean my teeth, or my doctor get information from me which a good stenographer could obtain.

(d) The American Medical Association figures on the rise in the cost of medical services quoted elsewhere in this statement are of some significance. The increase in unit costs of services of doctors of all kinds is 36 per cent; but since the average doctor receives at least 100 per cent more than from 1935 to 1939, this suggests that he does on the average 50 per cent more business.

SENATOR TAFT: Where does that figure come from?

MR. HARRIS: Senator Taft, that figure comes from the Survey of Current Business, the total expenditures on consumption, which are itemized by different kinds of medical expenditures. In July 1948, these figures were itemized and the increase is more than 100 per cent.

SENATOR TAFT: You mean paid to each doctor, to all doctors?

MR. HARRIS: Each doctor. We have a total figure and also the number of doctors.

SENATOR TAFT: That is taking the total sum and dividing it by the number of doctors?

MR. HARRIS: That is right. It might also suggest that he has 50 per cent more callers, more operations, etc., but is harassed sufficiently so that the quality per unit is less satisfactory than before the war. Then his charge is up by much more than 36 per cent for identical service. Incidentally, the increase in hospital charges by 112 per cent also points to an increase in charges by doctors of more than 36 per cent.

I have a few figures which I put together since having this paper mimeographed. I have taken figures from 1900 to 1960. The population from 1900 to 1960 will have increased by two thirds, the national income by ten times, the real income by five times, the number of old by four times, the number of doctors by one half. It seems to me that this country, in view of these figures and in view of the possibility of getting a better distribution of medical facilities, this country could easily afford and make good use of 400,000 doctors as against an estimated supply in 1960 of 210,000 or 220,000. The expansion of medical facilities has been disappointing.

2. *Past Growth Disappointing.*—It is, however, important to provide additional doctors, dentists and facilities. In the past the expansion of medical facilities has been disappointing. For about forty years the enrolment (around 20,000) and the output of graduates (about 5,000) in medical schools has remained roughly unchanged. Yet in this period the population has increased by more than two thirds, the money national income by ten times, and the national income in stable dollars by about five times. Indeed, the stabilization of enrolment has partly been a process of raising standards, but there are also signs of restrictionism, of protecting the interests of the present members of the trade union.

The response of doctors has been disappointing in relation to other professions also. In 1870, about 1 in every 6 college graduates became a physician; in 1946, the proportion was 1 to 186. From 1870 to 1940, the percentage of physicians to population remained unchanged at 0.13 per cent; of dentists the rise was from 0.02 to 0.06, and the proportion of engineers doubled from 1910 to 1940, whilst that of physicians declined from 0.16 to 0.13. From 1910 to 1940 the number of physicians rose by but 13 per cent although population increased by 43 per cent and real income per capita by 21 per cent. From 1933 to 1946, medical expenditures rose by 200 per cent, but the accompanying expansion of practitioners was less than 5 per cent.

It is no wonder that *Medical Economics* can report gross incomes of \$17,000 for physicians in a recent year (net incomes are substantially less), or that the National Bureau of Economic Research finds that independent medical practitioners earn from 80 to 180 per cent in excess of what can be explained by additional costs of training. In the years 1933 to 1946, the rise of outlays per physician was more than 150 per cent as compared with an increase in the cost of living of but 70 per cent. Teachers have encountered great difficulties in obtaining a rise in their incomes equal to that in prices. College professors average a rise since 1939 of about 25 to 30 per cent as compared with one of about 100 per cent for physicians. A failure to expand medical training with the growth of population and income has resulted in disproportionate gains for those fortunate enough to obtain licenses, in containing total outlays.

That means on the average the average doctor has improved his real standard of living from 1939 by something on the order of 25 or 30 per cent, while the average professor has reduced his by 25 or 30 per cent.

SENATOR MURRAY: How do you explain the failure to expand training of doctors during this period?

MR. HARRIS: There has been a serious shortage of medical schools, and I think in the past there was a great dependence on philanthropic resources.

SENATOR MURRAY: Has there been any effort on the part of the American Medical Association or other organizations to try to bring about an expansion of educational institutions for medical training?

MR. HARRIS: It has been disappointing to me. The American Medical Association is a well organized group, and they certainly make their influence felt in these matters. Perhaps I am somewhat ignorant of the situation, but I am unaware of any really significant effort made by the American Medical Association to get more medical schools and the corresponding amount of hospital training facilities for those medical schools.

SENATOR MURRAY: I remember what a great scarcity of doctors there was in the country when we were preparing to enter into the late war, and hearings were held here, and there was testimony to the effect that it was going to be a difficult thing to get the doctors necessary to take part in the war; yet nothing has been done since that time to try to bring about an expansion of training for the medical profession.

MR. HARRIS: I agree with that absolutely.

SENATOR TAFT: That is largely due to the great cost of teaching doctors, is it not?

MR. HARRIS: That is true.

SENATOR TAFT: Is not that the primary reason?

MR. HARRIS: It costs \$2,500, it is said by medical schools, to turn out a doctor, \$2,500 per year to train them. The student generally pays about \$500 on the average. That means you require a subsidy of \$2,000. That is not very serious in a way because the medical schools at the present time, as I understand it, pay out about \$50,000,000 a year for training, so that if you could double that amount, you could increase the total output per year by 5,000. I think in the long run that would give you an adequate supply of doctors.

SENATOR TAFT: Also you would increase the equipment and the buildings and possibly hospitals even to go with the new medical schools.

MR. HARRIS: That is right, Senator Taft, and I gather some provision in your own bill would help achieve that.

SENATOR TAFT: I am on the Board of Yale University, and the medical school is, of course, a constant drag on the general funds of the University. We have no endowment anything like sufficient to make this up. I think our tuition is higher than \$500. I think it is \$700, but that still makes around \$1,800 per year per student, and there is no great inducement to increase the facilities to get more students to lose more money.

MR. HARRIS: That is quite true, and the philanthropic money is not coming in the way it used to.

SENATOR MURRAY: Yet the polls show there is a greater and greater desire on the part of young people to enter the profession.

MR. HARRIS: Oh, yes. As a matter of fact, I understand from some surveys made in New York state by the state commissioner of education that there are about three times as many people willing and able to go to medical schools and college as can actually be admitted.

SENATOR MURRAY: This is a serious defect in our economic system, because as you point out, our economy is developing to

that state where more and more persons have to go into services and we are failing to provide opportunities along that line.

MR. HARRIS: Yes, sir.

SENATOR MURRAY: And this profession is the profession that should be expanded more than any other.

MR. HARRIS: Yes, sir, I agree with that.

SENATOR DONNELL: Professor, on page 7 of your statement you say: "It is no wonder that *Medical Economics* can report gross incomes of \$17,000 for physicians in a recent year (net incomes are substantially less)." Do you mean that is the reported average gross income of all doctors in the United States, \$17,000 per year?

MR. HARRIS: The arithmetic mean.

SENATOR DONNELL: Does that mean if you take all the doctors in the United States, every one of them, that the average gross income of all those is \$17,000?

MR. HARRIS: Yes, sir.

SENATOR DONNELL: What is the date of the issue of *Medical Economics*?

MR. HARRIS: I can send it to you.

SENATOR DONNELL: Do you remember how many of these doctors were over \$17,000 and how many were under?

MR. HARRIS: There was one who earned \$186,000. That was the peak pay.

SENATOR DONNELL: So those very large ones entered into the computation?

MR. HARRIS: Yes, sir.

SENATOR DONNELL: You do not mean to say that in the average community, we will say a town of 20,000 such as in my home state, for instance, that the doctors there on the average are making \$17,000 a year gross?

MR. HARRIS: I would say probably the doctors in the rural and small towns are making substantially less than \$17,000.

SENATOR MURRAY: In many places they do not make more than \$2,000 or \$3,000; is that right?

MR. HARRIS: I am sure of that, and it means in the big cities they frequently make much more.

SENATOR TAFT: Have you the figures on the relative number of doctors in the United States per person as compared to other countries?

MR. HARRIS: I have had those. On the whole, the United States has the largest number in relation to population of any important country. I think we average about 1 to 750 in the population. In the Scandinavian countries it is 1 to 2,000. In China it is much less.

SENATOR TAFT: If there is a lack of doctors in the United States, then there is a much worse lack of doctors in every other country in the world; is that correct?

MR. HARRIS: Yes, sir, I would agree.

3. *The Problem of Pricing.*—My object is not to belittle the important service contributed by the medical profession. They have worked hard, put in many more hours and carried a tremendous responsibility in the last fifteen years. According to figures released by the American Medical Association the charge for physicians' services (general, surgeon, specialist) was up by but 36 per cent in 1948 as compared with a rise in the consumers' price index of 71 per cent. This indeed shows restraint on the part of the medical profession. But undoubtedly physicians have had to reduce demand on their services by raising prices; and even these figures may understate the rise, for allowance must be made for increased collections. A disturbing element in the medical picture is the rise of hospital rates by 112 per cent from 1935-1939 to 1948. This is a rise beyond that of prices in general. It underlines a point that is important; namely, that physicians and dentists account for but one third of medical expenditures; and any reduction in costs and prices must extend to drugs (with the highest advertising costs in any industry), hospitals, etc.

The real issue is one of pricing and service. An improved method of financing will make it possible to employ more doctors and dentists. What is required is more business and lower fees per visit.

4. *The Market for Doctors and the Problem of Outlets for the Educated.*—At the present time the country has about 200,000 doctors. This country should be able to support 400,000 doctors at our income levels—in part through making more funds available and in part through a reduction of prices charged.

It is important that the country find an outlet for increased numbers of physicians, dentists and other trained medical personnel for another reason. By 1968 this country will have from

10,000,000 to 15,000,000 college graduates as compared with 3,000,000 in 1940 and 4,500,000 in 1948. We are heading toward a college graduate population of 30,000,000, 25 per cent of our adult population. An outlet must be found for these graduates commensurate with their abilities and training. Medicine offers one possible outlet. In 1940 medicine accounted for about 8 per cent and in 1947-1948, 7 per cent of the living college graduates. Should the proportion of doctors and dentists to living college graduates remain unchanged from 1940 to 1968, there would be from 1,200,000 to 1,600,000 doctors, dentists, etc. Obviously, the country could not support medical men and women in such large numbers. But it would do well to support as many as it can afford.

SENATOR TAFT: That suggests that the whole thesis is wrong. After all, we are educating more people in college on the theory that all our businessmen and everybody else ought to have a college education. There was a time when everybody went to college only if they were going into a profession, but the purpose of increasing college graduates is to have a college education for everybody, whether they are in the professions or not; so I do not see the relation between the number of college graduates and the number of doctors.

MR. HARRIS: You have a problem now which, of course, has been a great problem in Europe, the problem of the proletariat of the Ph.D. You turn out an intellectual who expects a certain kind of job. As a matter of fact, you have available in this country roughly 5,000,000 to 6,000,000 high class jobs which a college graduate would like to have. Half of those are in the professions and half are in business.

When you are confronted with 15,000,000 college graduates seeking 6,000,000 jobs they would like to have and who will be frustrated if they do not get these 6,000,000 jobs, then you are encountering a bad situation.

SENATOR TAFT: You had better not have so many people going to college. I thought the theory was that everybody should go to college, every mechanic and everybody else should have a college education. I do not see why they should be frustrated if they cannot get a certain kind of job.

MR. HARRIS: I have been teaching for thirty years, and my impression is from talking to these students that they go to college because they want a high class job.

SENATOR TAFT: Everybody in the country cannot have a high class job. You have got to have 60,000,000 people working, and they have to cover the whole field of all the jobs you have.

MR. HARRIS: Here is one solution. It is to find as many high class jobs as you can. Do not let the American Medical Association or anybody else restrict the number of jobs.

SENATOR TAFT: I agree as to the lack of restriction. Everybody who wants to go into it should go into it if he can qualify. I agree on that.

MR. HARRIS: The second solution is: Do not go in just to get jobs. It is the job of the government and the universities to tell students that this is the market situation and your chances are thus and so. That is, to get these jobs.

SENATOR MURRAY: I often run into a taxi driver who tells me he is a graduate of some university with a degree.

SENATOR TAFT: Do you find him frustrated?

SENATOR MURRAY: He is apparently satisfied with the situation.

MR. HARRIS: Senator Taft, you know there was a study made of the members of the House of Representatives of the Nazi party and their study showed conclusively that there was a disproportionate number of well educated members and a disproportionate number of intellectuals who had failed to receive the kind of job they would have liked to have had.

SENATOR MURRAY: I remember in the depression years a situation in Montana where the professional men were having a difficult time making a living, and they were complaining about it, and one of the miners out there said to this doctor or this lawyer, "Why don't you go and get a job?" He said, "What can I do? I haven't got any education."

MR. HARRIS: Well, Senator Taft, you know at Yale Dean Clark suggested restrictionist measures in the depression with regard to the law profession.

SENATOR TAFT: There are times when the average lawyer got a very low income indeed.

MR. HARRIS: That is true. Even today the applications accepted in New York Medical College are but one third of the total applying. We could easily support 2,000,000 in the medical and health area as compared with 1,000,000 today.

5. *The Prospects for More Doctors.*—Both in terms of the desire of potential doctors to enter the medical profession and

in terms of needs, there is a great unfilled demand for medical services. Thus in 1939-1940, 38.5 per cent of the males received medical care when ill; for disabling illness which confined to bed the proportion was only 70.3 per cent.

Under health insurance, it will be possible to obtain increased services by improved organization. Nevertheless, at the outset, it will be necessary to limit the services available. In the longer run, there will be an increase in the number of hospitals, medical students and doctors. Even if within five to ten years we could raise the annual output of physicians from 5,000 to 10,000, it would still require at least a generation before we had increased the number of physicians to 400,000. According to The Nation's Health, the country will have to take vigorous measures to raise the total of physicians by 1960 to 227,000—12,000 in excess of the numbers needed—and dentists to 95,000—5,000 in excess of expected numbers. It is clear that it will be at least forty years before we could have 400,000 physicians. Even the Ewing program will require a rise from \$15,000,000 for man power training in 1947 to \$127,000,000 in 1960.

IV. CAN WE AFFORD IT?

A national health insurance program involves for the most part a conversion of payments for medical services from private to public sources. In this sense they are not additional. They will involve, of course, a redistribution of services. To some extent, the Administration program also calls for additional outlay. That is besides the insurance program.

1. *Who Pays?* The financing of the program is likely to be largely by payroll taxes, and secondarily from general taxes, although I gather the Administration suggests \$4,200,000,000 to be payroll taxes and one third additional through general taxes. So far as the financing is by payroll taxes, the costs will be largely borne by the workers. It is the accepted theory of classic economics that a payroll tax, whether paid by workers or employers, is ultimately borne by the worker. His pay is determined by what he produces: he now receives part in wages and part in social security benefits. The workers will also bear some part of the general tax burden. Hence the financial burden on the general taxpayer should not rise greatly. Incidentally, the British Chancellor of the Exchequer, Sir Stafford Cripps, in introducing his last budget speech said that the taxpayer would have to pay for the additional costs of the social security program, and that a large part of the burden now rests on the recipients of the benefits.

2. *Relation to the Budget.*—Much is made of the fact that with a \$40,000,000,000 budget, with commitments to veterans, public debt payments, international aid and the military of \$30,000,000,000, the country cannot afford to expand its social services, however meritorious the programs are.

But this is not a decisive argument. First because it might be possible to finance worth while new expenditures by eliminating some present wasteful government expenditures. The President estimated total expenditures for social welfare, health, education and housing for fiscal year 1950 at but \$3,200,000,000, and the additions for 1950 under proposed legislation at only \$600,000,000, out of \$6,200,000,000 proposed under new legislation.

Second, the possibility of depression conditions underlines the need for this program. The current situation, and notably the decline in output, the rise of unemployment, the reduction of investment inclusive of inventories (little more than 1,000,000 auto batteries were released by manufacturers in two months, February and March 1949, for 40,000,000 cars), the failure of recovery in April, all suggest a recession in 1949—and one that might snowball unless strong measures are taken. The correct policy seems to me to be a reduction in excise taxes and a rise in expenditures. It is indeed true, as Senator Douglas says, that we must not deploy our reserves too early; but also we must not allow a break-through which might cause substantial damage. The danger of a small depression is that it easily snowballs into a larger one.

I mention this battery example just as an illustration of what businessmen are doing. It indicates a tendency to disinvest.

Third, it is well to emphasize that these are transfer expenditures. What one pays out another (generally the same person) receives. They largely mean using resources that would otherwise be used anyway. But to some extent they mean discouraging excessive savings and therefore stimulating total spending. When you are protected against the vicissitudes of illness, you save less.

Fourth, the charge on the national income is large but easily bearable. A tax bill of \$40,000,000,000 seems large, but only \$20,000,000,000 are direct taxes that are relevant for the net national income. In a period in which national income rose by

\$180,000,000,000, direct taxes rose by but \$20,000,000,000 and the debt charge by but \$4,500,000,000.

SENATOR MURRAY: What happens in that situation? Too large an amount of income being stored away?

MR. HARRIS: You mean in case you do not provide for health insurance? I think there is a tendency for people to save too much. In other words, if you are protected, if you agree to my general thesis that in a normal peacetime economy with the population not growing too rapidly, there is a danger of oversaving. Then the difficulty is that people are encouraged to save by virtue of the fact that they are afraid of illness.

If their illness is taken care of by the government, that will to some extent discourage excessive saving.

SENATOR DONNELL: You think it is dangerous to have saving beyond a certain amount?

MR. HARRIS: Yes, sir, it depends on the conditions. In the nineteenth century we needed saving badly. The British need it now. Our economy does not. We invested in business equipment and plant in the three years, 1946, 1947 and 1948 at such a rate that in ten years we could have had a completely new plant for business. You cannot go on investing at the rate which was in effect in 1946, 1947 and 1948, and that simply means you cannot go on saving at that rate.

SENATOR DONNELL: Do you not think it is a pretty good general policy for the individual to lay aside quite a substantial amount for a rainy day in the future?

MR. HARRIS: That is one of the great difficulties, and it is unfortunate. There is a conflict, in my opinion, between the interest of the individual—and I myself act in an antisocial way because I do save, but at the same time I do have bad dreams about the fact that I save because in saving I do something that is antisocial in the sense that we have too much savings.

SENATOR DONNELL: You think that although you save and try to lay up something for yourself for a rainy day, you are committing a social inequity and a social injustice by saving for yourself and your family?

MR. HARRIS: My view is it is antisocial for me to save too much.

SENATOR DONNELL: What is too much? I do not mean personally, but how would you decide how much is too much for a person to save?

MR. HARRIS: This is all a rough estimate, but I will put it this way: In 1948 this country was investing \$40,000,000,000. I say that is too much because we cannot maintain it, and it is bound to bring a depression.

I would say if the country were saving \$20,000,000,000 of it and I were doing my share, I would not be saving too much. If you make \$20,000,000,000 available for plant, you are reconciling your behavior with society. But if your behavior is such as to make the figure \$40,000,000,000, you are acting in an antisocial way.

SENATOR DONNELL: You should spend your income liberally?

MR. HARRIS: Yes, sir.

SENATOR MURRAY: What you are saying applies more to business and industry than to individuals, does it not? As I understand it, during the last ten years the corporations of this country have been earning so much that they have been able to set aside for their treasuries such enormous amounts that they do not have to go any more to the banks to borrow money to expand plant or enter into new fields.

MR. HARRIS: Yes, sir.

SENATOR MURRAY: You think that that tremendous saving and setting aside in industry is not a good thing?

MR. HARRIS: Well, you know, Senator Murray, the arguments, and I did testify on the profit hearings, and an argument was used a good deal that business needed profits and the only way to get capital was to get it through profits. I argued that that is not a valid argument, although it is perfectly true you have to have large profits to have adequate savings, but we have come to the point where profits were too high and savings were too high. In other words, with business spending all that money in these three years, they are getting to the point where they would not find any outlets for their savings.

SENATOR DONNELL: Professor, it is certainly a decided departure from all of the traditional ideas, that saving may be excessive as applied to the individual.

I mean to say with the exception of a miserly saving in the case of a man who never spends anything and lives in grime and dirt and disease in order to save money, there may be an

evil there, but I am talking about the normal saving that you as the head of a family would want to make for yourself and your children and your wife and to have something in your old age to provide against eventualities, I say it is a very striking change from the principles of a hundred and fifty years or more in this country to advocate that people better not adopt that policy of saving to the extent previously considered. Do you agree with that?

MR. HARRIS: I am afraid I do not. I agree it is shocking.

SENATOR DONNELL: It is a shock?

MR. HARRIS: Yes, sir, but I still maintain my position.

SENATOR DONNELL: I do not want to interrupt you except to make this clear. What I was trying to get at is: You do agree that the doctrine you are advocating here this morning is a shocking doctrine as compared with the previous conception in our country? Do you agree with that?

MR. HARRIS: I would not say it that way. It seems shocking when presented in that way, but one should not withhold a statement merely because it may shock people if the person who makes it thinks it is correct.

In its drain of resources, the government still accounts for one eighth of the total output just as it did in 1933. It is well to compare the \$40,000,000,000 of income in 1932 and the \$225,000,000,000 in 1948 and consider the important contributions of the rise of government spending.

From a long run viewpoint, it is imperative to increase the outlays on medicine. This is an important outlet for spending; and unless means are found to cut savings and increase spending, there are serious dangers of deficiency of demand, wasted resources and unemployment.

SENATOR DONNELL: I would like to have noted that the Professor says that unless means are found to cut savings and increase spending, there are serious dangers of deficiency of demand, wasted resources, and unemployment.

MR. HARRIS: Yes, sir.

SENATOR MURRAY: We could save ourselves into a depression very easily?

MR. HARRIS: Yes, sir.

SENATOR MURRAY: And that is beginning to appear at the present time?

MR. HARRIS: Yes, sir.

SENATOR DONNELL: You think that generally speaking the people in this country are too saving at this time?

MR. HARRIS: Yes, sir, I am inclined to think so. Senator Donnell, may I say this: We would have had a depression a long time ago had it not been for the war and the wartime expenditures. That is the spending that has kept us out of a depression.

That is one of the penalties you pay for being too rich, because as you become rich, you save. A man with a \$10,000 income saves more than a man with \$2,000 income. As I say, the only other alternative is large outlays for war. And should World War III come, we shall not be sorry for increased medical facilities.

Those who say we cannot afford these outlays should compare the British budget. Their taxes account for 40 per cent of their income, ours but 25 per cent; their defense expenditures 7½ per cent of their income, ours 6½ per cent; their social services require \$3,400,000,000 or 8½ per cent of their income (\$5,400,000,000 or 13½ per cent inclusive of food subsidies) and ours only \$7,000,000,000 or 4 per cent of our income. Yet the British per capita income is \$800, ours \$1,600. And despite these heavy charges, the British have made a truly remarkable recovery.

SENATOR DONNELL: Somewhat assisted by America in that recovery; is that right?

MR. HARRIS: Yes, sir, but still they have done a remarkable job if you consider the fact that they are producing more than they did in 1939, having lost the equivalent of two years' income as a result of war damage, and have virtually wiped out their deficit in the balance of payments, I think they have done a wonderful job.

V. COMMENTS ON PROPOSED LEGISLATION

The Senate has under consideration three bills: 1. The National Health and Insurance Bill (S. 1679; H.R. 4312, 4313) is a comprehensive health program. This is the Administration bill. 2. The Voluntary Health Bill (S. 1456) sponsored by Senator Hill and others. 3. The National Health Bill (S. 1581) sponsored by Senator Taft and, I believe, Senator Donnell, and others.

SENATOR DONNELL: Also Senator Smith.

MR. HARRIS: Yes. I compare these bills below.

1. *Comprehensiveness*.—The Administration bill (S. 1679) is much to be preferred on these grounds, for it not only offers wide coverage, but it also deals adequately with additional training facilities, rise of personnel, hospitals, aid to rural areas, preventive measures, public health and research. The Taft bill also makes some provision for improving health services, liberalizing the Hospital Survey and Construction Act, and increasing man power.

I read the Taft bill after I wrote this. I must say it does make important contributions, although my preference is for the Administration bill.

2. *Coverage and Costs*.—The Administration bill (S. 1679) provides coverage for about 85 per cent of the population, inclusive of the employed, self employed and their dependents, beneficiaries under old age insurance and provides aid for others short of resources through governmental participation. The Taft bill proposes help for the indigent.

It is not clear how many would be covered under the Taft bill, but an ultimate appropriation of \$300,000,000 is suggested. Inclusive of state participation, this might cover 10,000,000 to 12,000,000 persons. In 1947, there were 13 per cent (17,000,000) of the population with incomes less than \$1,000, and 31 per cent (44,000,000) with incomes of less than \$2,000. At the time the cost of a modest budget for a family of four was estimated at around \$3,300. It would be no exaggeration to assume that the costs of the Taft program for subsidies to the poor alone would be \$2,000,000,000. Of course, the appropriation is not anywhere near that large. (All those with incomes less than \$2,000 might receive help.) Actually in 1939 the American Medical Association estimated that families with incomes under \$3,000 could not afford a serious illness. This is the equivalent of \$5,000 today and, therefore, the American Medical Association estimate suggests help for 80 per cent of all families. The Hill program provides help for those who cannot afford to join voluntary agencies. Perhaps the costs would equal those of the Taft program. The Administration program would, however, according to an estimate of the Social Security Board reconsidered by Soule, cost little more than \$1,000,000,000 over current outlays for the services offered under the Administration bill. S. 1679 would have the advantage of making the resources available on an insurance principle to virtually the whole population. This would be especially important for the 80 per cent of the families with incomes of less than \$5,000.

3. *Who Should Benefit?*—The major issue between the Administration bill on the one hand and the Taft and Hill bills on the other is that of coverage and the insurance versus the charity principle. It has been a cornerstone of social security in this country that the beneficiaries contribute and receive benefits as a right. It is their fund that finances the benefits. It has also been a fundamental principle that coverage should be as complete as is administratively possible. The Administration is dealing with this problem in other parts of the Social Security Program. The Taft and Hill bills mark an important departure from social security as an insurance program, to social security as a handout. Indeed, the Taft and Hill proposals would concentrate their help on those who need it most, the indigent. But in so doing they deprive the vast part of the population of the benefits of a national health insurance.

SENATOR MURRAY: If that system were to be expanded and put into effect, do you not think it would gradually result in the expansion of that into a total program for the whole country?

MR. HARRIS: You mean the Taft bill?

SENATOR MURRAY: Yes, sir.

MR. HARRIS: Yes, sir. I think the tendency would be to extend help much further than the appropriation suggested on the bill would make possible.

SENATOR MURRAY: Yes.

MR. HARRIS: 4. *Control*.—These bills also raise some questions concerning control. The control should rest largely with the public, that is the consumers, not with the organized medical profession. No one has yet suggested that the teachers should control the educational system, and bankers are not supposed to control our monetary machine. Nor, for that matter, are the public utility people supposed to control their own rates. Indeed the medical profession should play an important part in all technical matters and even in general administration.

5. *In General*.—Even the Administration bill might be considered only a beginning. It will be a long time before the country has the medical personnel, hospitals and other facilities

that this country can afford. Total expenditures for medical care, both private and public, are today less than \$10,000,000,000, or about 4 per cent of the national income. We can certainly look forward, if we are spared a major war and experience good management, to a national income of \$300,000,000,000 by 1965. (That is a rate of growth less than normal.) With an income of \$300,000,000,000, this country could afford to spend at least 6 per cent of its income for medical care, and offer a large outlet for our surplus energies. But we shall spend wisely only if we train personnel vigorously, and improve our financing methods.

Summary.—1. The Administration bill is much to be preferred to the Taft and Hill bills. For it offers close to complete coverage, deals adequately with the crucial problem of expansion of facilities and personnel and proposes much needed organizational improvement. The control rests, moreover, with the public, not with those who sell the services. As in education where the control is not by the teachers, so in medicine the control should not be with the sellers of the services.

2. The crucial issue is whether we are to have systems under which the 80 per cent with incomes of less than \$5,000 are to be protected against the accidents of sickness by a contributory insurance plan or whether (as under the Taft and Hill bills) the money is to be spent on a charitable basis for the benefit of those who claim need. Our social security program rests on the self-respecting principle that those who contribute receive benefits as a right.

3. In the past, the training of doctors and dentists has been inadequate. The medical schools have been turning out about 5,000 graduates per year over a period during which our population almost doubled and our money national income rose by ten times and the income in goods by five times. In fact, as a result of the small increase in practitioners, the country spent a much smaller proportion of its income on medicine in 1948 than in 1929 or 1933.

SENATOR MURRAY: That is notwithstanding the fact that medical fees have been greatly increased?

MR. HARRIS: Yes, sir, they have.

SENATOR MURRAY: So that there is a lack of real medical care?

MR. HARRIS: Yes, sir. A further result is large windfall gains for those in this profession. Over a recent period of seventeen to eighteen years, the income of physicians was up about 150 per cent and the rise in numbers but 5 per cent. The charge per unit of services since 1935-1939 is up by about 35 per cent; and the amount of business has greatly expanded. It is imperative to increase the facilities and personnel and to improve organization. This the Administration proposes to do.

4. Both from the immediate and long run economic prospects, it is imperative that the public spend more on services, and especially worth while services. In this manner, the energies released by increased productivity will be absorbed. The alternatives are wastage in war or in unemployment. This country can afford to increase total expenditures on medicine and health by \$2,000,000,000—that is, from \$10,000,000,000 to \$12,000,000,000 in one to five years and from \$12,000,000,000 to \$14,000,000,000 in five to ten years.

5. It is also necessary to find outlets for the 10,000,000 to 15,000,000 college graduates we expect by 1968. Medicine and health now offers employment to 1,000,000; it might well increase the market for college graduates by 500,000 and thus make an important contribution toward solving one of the most important political and sociologic problems facing the country.

6. What we ask is more total income for medicine; better distribution of services; a diversion of expenditures and employment into this important service area. This is partly a medical problem and particularly one of organization; but it is also part of the great economic problem of finding ways to keep our *economic machine from collapsing because of its highly productive efficiency.*

SENATOR MURRAY: This program advocated by the Administration would result in a great increase in the income of the medical profession?

MR. HARRIS: Yes, sir, I am sure it would.

SENATOR MURRAY: And it would distribute the profession around the country to places where the people are not adequately served at the present time?

MR. HARRIS: Yes, sir.

SENATOR MURRAY: So you do not find in this bill anything designed to injure the medical profession?

MR. HARRIS: No, sir, I do not. I find it a little difficult to understand the opposition of the medical profession. I think in general—before I came over here I read the last series of

articles in the *Saturday Evening Post* on medical economics, and this gentleman on the whole does not like this program, but he does say the American Medical Association is to be criticized for having been altogether too inflexible on those matters in the past.

* * *

SENATOR DONNELL: You spoke of the authorship of twenty-one books, the latest being "Saving American Capitalism." Have you expressed yourself on the subject of socialism?

MR. HARRIS: Yes, sir, and I am against socialism. I would not write a book on "Saving American Capitalism" if I were for socialism.

SENATOR DONNELL: I understand that. And you have written this book, "Saving American Capitalism," in which you advocate doing certain things you think should be done for the preservation of the capitalistic system?

MR. HARRIS: Yes, sir.

SENATOR DONNELL: You speak of having in preparation a book entitled "Economics of Medical Care."

MR. HARRIS: Yes, sir.

SENATOR DONNELL: Have you been over to England personally?

MR. HARRIS: No, sir, I have not visited any foreign country on medicine.

SENATOR DONNELL: Have you studied the regulations issued by the British authorities in regard to the administration of the medical plan?

MR. HARRIS: I have done quite a bit of reading on the British episode.

SENATOR DONNELL: Do you remember a volume possibly 2½ to 3 inches thick, a bound volume, containing various regulations which are used in the carrying out of the British system of medical insurance?

MR. HARRIS: No, I have never seen that.

SENATOR DONNELL: You have never seen it?

MR. HARRIS: No, but I have been through an awful lot of stuff on *British medical insurance.*

SENATOR DONNELL: But you have never seen the official book of regulations issued in England?

MR. HARRIS: I will do that before I finish my book. I wish you would give me an exact reference.

SENATOR DONNELL: We can give it from the previously published hearings before this committee. In fact, we had the book here, and I would judge it weighed conservatively a pound and a half or maybe more than that in actual weight, and it is official, as I understand it.

MR. HARRIS: I still have not written my chapter on British medical insurance, but I will send you a copy of my book because I would like to convert you.

SENATOR DONNELL: I would be glad to have it.

SENATOR MURRAY: As I understand it, that book of regulations had reference to the Act that was in operation prior to the present Act that was put into effect in England just last year.

SENATOR DONNELL: I think that is certainly true, but I have no doubt they have regulations at this time. I cannot conceive that they have abandoned their regulations. I wanted to find out how familiar the professor is with the English system, and I take it you will agree that in order to have real familiarity, you would have to see the regulations under which it operates, would you not?

MR. HARRIS: Yes, sir, I would agree. May I make a further comment?

SENATOR DONNELL: Yes.

MR. HARRIS: I read some pamphlets the American Medical Association put out on British health insurance. Those articles were done by a former student of mine, a Ph.D. in economics. I vouch that I know much more about medical economics in Britain than these articles show. There are a great many people who know more about British medical economics than I do, but I would say I do know more than all but perhaps a very few in this country about that subject.

* * *

SENATOR DONNELL: Now, as I understand it, you think that \$12,000,000,000 to \$14,000,000,000 is a reasonable figure to anticipate to carry out those promises. Is that your opinion?

MR. HARRIS: No, sir.

SENATOR MURRAY: He did not say that.

SENATOR DONNELL: Let the witness answer that.

SENATOR MURRAY: You are trying to misrepresent his testimony.

SENATOR DONNELL: I certainly am not. I am asking him if he says that.

MR. HARRIS: I am not speaking for the Administration. I am not speaking for anybody except the Americans for Democratic Action. I am a college professor with views of my own. I have consulted the Americans for Democratic Action about my views. The Administration, as far as it appropriates money, et cetera, as the Administration representatives said, the amount involved at the present time is only \$1,000,000,000 or \$1,500,000,000 more of government money, and the rest is a substitution of payroll taxes as one means of financing this as against private expenditures.

SENATOR DONNELL: Let me ask you this. Have you made any estimate at all as to how much it is going to cost per year, regardless of where the money comes from, to carry out the promises contained in S. 1679 to the people of this country? Have you made any estimates?

MR. HARRIS: Why should I?

SENATOR DONNELL: Have you made any?

MR. HARRIS: I have made estimates of my own.

SENATOR DONNELL: What have you estimated would be necessary in order to carry out the promises made in S. 1679 by the year 1960?

MR. HARRIS: Why don't you go back to the estimates made by Mr. Ewing in the Nation's Health?

SENATOR DONNELL: Professor, you asked me why I don't do it. I want to get your ideas, not Mr. Ewing's.

MR. HARRIS: I am being more liberal with the government's money than the Administration is.

SENATOR DONNELL: I will admit you are pretty liberal, that is true, but what I am trying to get at is this: This is the last time I am going to ask you. Have you made any estimate at all as to how much is going to be necessary for the government to spend, regardless of where the money comes from, taxes, imposts, duties, whatever and wherever it comes from, in order to comply in the year 1960 with the promises in S. 1679? Have you or not?

MR. HARRIS: I would say this particular bill does not involve larger expenditures in the next few years than you have.

SENATOR DONNELL: Have you made an estimate?

MR. HARRIS: I have made my own estimate.

SENATOR DONNELL: What is it for 1960 for S. 1679?

MR. HARRIS: If you will let me explain it—

SENATOR DONNELL: Can you tell us how much would be required, in your opinion, for the United States Government to expend from all sources, taxes or whatever the source may be, in the year 1960 in order to comply with the promises made in S. 1679?

MR. HARRIS: My honest estimate is that in five years you need \$1,000,000,000 to \$2,000,000,000 more and five years after that \$1,000,000,000 to \$2,000,000,000 additional and \$1,000,000,000 to \$2,000,000,000 on burial expenditures, which is a very important matter.

Statement of Dr. Carl O. Flagstad, Minneapolis, on Behalf of The American Dental Association

DR. FLAGSTAD: My name is Dr. Carl O. Flagstad. I have been engaged in the private practice of dentistry in the City of Minneapolis, Minn., for thirty-eight years, during which period I also have been a professor in the School of Dentistry at the University of Minnesota, where I have served as chairman of the department of denture prosthesis for many years.

The dental profession believes it is the rightful guardian of the people's dental health and that the profession is best qualified by training and experience to judge the value of a dental health program for the United States.

The dental profession believes it would be derelict in its duty if it did not oppose health legislation which in its judgment is detrimental to the health and welfare of our people.

The American Dental Association believes this committee and the Congress of the United States will understand that the Association, in its opposition to the philosophy of compulsory health insurance, is motivated by the sincerest desire to protect the nation against a system which the Association believes will deteriorate the health services afforded to our people.

The proposed legislation is termed "National Health Insurance" but it is not actually insurance, because there is no sound actuarial basis to serve as the foundation of the program. nor

is there any relationship between the proposed benefits and the ratio of premiums to be collected. Actually, even the proponents of the bill cannot give a clear estimate of the amount of funds which the proposed appropriation would provide in relation to the probable costs of offering the various health services; nor do they present a convincing forecast as to the probable immediate demand for various types of services proposed to be paid for in relation to the probable cost of these services.

The proposed legislation will eventually, if enacted, develop into a system of state medicine, which means it will be absolutely controlled by the government and its administrators. A third party who is directly responsible to the government and only indirectly responsible to the patient is interposed between the patient and his dentist or physician.

Although a number of plans are proposed in the bill, which indicate that a practitioner could participate in the system on either a fee for service basis, under the panel system, or on a salary basis, nevertheless, considering the great size and population of our country and the necessary complexities of administration involved, it does not seem reasonable that any of these systems could be continued in effect very long. The fact that the bill provides for three different methods of payment to practitioners only serves to emphasize the increased administrative costs which would be incurred. In a relatively short time it would be necessary for the government to abandon alternative methods of payment and to insist on a salaried service and mass clinical service in health centers.

The bills are not specific: It is impossible to examine this bill carefully without being continually impressed with the fact that there is very little that is specific in the bill. Actually it amounts to little more than an appropriation coupled with a license to experiment along certain lines until such time as a firm base line can be determined. Yet, if this is to be insurance why is this necessary? Congress has on at least two occasions passed laws which were specific and definite insurance policies containing generally within themselves the benefits to which the policy holders were entitled. I refer, of course, to the War Risk Insurance Act and to the National Service Life Insurance Act.

It has been a principle of government in this country since the time of the founding fathers that ours is a government of laws, not of men, and that to accomplish that end all statutes must be definite and specific. For this reason the courts have frequently held that broad, general language might constitute a delegation of legislative authority which is reserved to the Congress alone. Yet under the pending bill nothing definite will be known until such time as administrative regulations are promulgated, revised, re-revised and possibly at some distant future date crystallized into such form that the Congress can adopt them as a statute. The American people are entitled to know at the time of enactment of a law its probable effect and its proposed cost. Neither of these can be ascertained under the pending bills.

The association believes that dental care should be available to all, regardless of income or geographic location, and that programs developed for dental care should be based on the prevention and control of dental diseases. It has recommended the following program as an immediate planned action to accomplish this objective: 1. The prevention of dental diseases through the application of preventive technics as soon as they are demonstrated to be scientifically valid; the support of intensified dental research with adequate funds, personnel and facilities. 2. The control of dental diseases by the expansion of community dental programs, integrated in the general health program to make dental care and dental health education available to every child. 3. The provision of additional facilities and uniform standards for dental care by making dental services available in hospitals and health centers for inpatients and outpatients. 4. The recruitment of an annual enrolment of dental students equal to the capacity of all dental schools to increase the number of qualified dentists. 5. The adoption of measures to make dental practice in smaller cities and rural areas more attractive and more rewarding in order to procure a better distribution of dentists. 6. The employment of dental hygienists as auxiliary aids to the dentist; the provision of additional courses for those who desire to qualify for positions in public health departments and schools.

Summary: The dental profession is opposed to the philosophy of compulsory health insurance legislation for the following reasons: 1. It is not good legislation for the government because: (a) it is too tremendous a task for the government to administer; (b) there is a misconception by the people of what the government can and will deliver in health services; (c) it will create an unwieldy government bureau; (d) it is an

uncertain financial burden for the government; (e) it is contrary to democracy in government, since it stifles private enterprise.

2. It is not good legislation for the people because: (a) it promises more than it can deliver; (b) it will cause deterioration of dental service and lower the level of health; (c) the necessary administrative procedures will delay treatment; (d) it will become a tax burden; (e) it will eventually require regimentation, which is not the American way of life.

3. It is not good legislation for the profession because: (a) it will destroy competition, inhibit ambition and industry; (b) it will result in mediocrity in the profession; (c) excessive paper work will reduce the number of chairside hours which a dentist may devote to his patients.

The profession needs ethical competition, the private relation to and direct responsibility for the health of the patient to attain its highest achievements.

Conclusion: The American Dental Association (and the dental profession) always have been and always will be interested in the health, and particularly the dental health and welfare of the American people. It will conscientiously scrutinize any programs offered which relate to its legitimate field of interest, and it will comment fairly and without prejudice or selfish motives on such programs.

The dental profession opposes the enactment of the National Health Insurance and Public Health Act because it is not good health legislation for the people of the United States of America.

**Statement of Dr. Louis H. Bauer, Hempstead, N. Y.,
on Behalf of the American Medical Association,
Accompanied by Dr. Roscoe Sensenich,
South Bend, Ind.**

DR. BAUER: My name is Dr. Louis H. Bauer. I am a physician and appear as a member of the Board of Trustees of the American Medical Association which had a membership as of May 1, 1949, of 142,882 physicians. My home is in Rockville Center, N. Y., and my office is in Hempstead, N. Y.

There is little disagreement as to the desirability of the widest possible distribution and availability of the best quality of medical care. The differences of opinion arise as to the best way to attain this objective. It is the belief of the medical profession generally that the primary responsibility for the health of individual citizens rests on the individual citizen and on his immediate family. Where the requirements of a particular situation exceed the ability of the individual or his family to meet them, the local community, by the American tradition, comes to his aid. Should the resources of the local community prove inadequate to deal with the volume of demand for assistance in the health field, the problem then becomes the responsibility of the state.

It is only when the state in its turn is unable to cope with these demands that there should be recourse to federal assistance. We believe that this procedure is in accordance with sound American tradition, with the intent of our political principles and with the maintenance of self reliance and independence of each of these levels of relationship, from the citizen to the national government.

It follows that the local community or the state should make provision for the supplying of medical care to those of its citizens who find themselves financially unable to procure needed services. It is customary to speak of such economic groups as the indigent or medically indigent. It is believed that a simple system can be set up by which those falling into these groups may seek the services of any reputable physician and that such physician may be recompensed from public funds in accordance with an established fee schedule.

Perhaps it would be necessary in order to prevent abuse that a welfare department or some other investigating agency of the political unit should certify to the propriety of covering the specific case under the provisions of the system. Such a system is not merely a theoretical proposal. It is already in practical operation and is proving generally satisfactory.

There may, of course, be other types of organization and wide diversity in detail in the methods adopted to meet the health problem at the local and state level. The point of importance is that the responsibility lies here and should be recognized and so far as possible met at the local and state level. Only when these political subdivisions have made full effort and fall short of accomplishment should recourse be had to federal assistance.

Under such circumstances it may become incumbent on the federal government to support the state effort. This support may take the form of supplying advice, experience, expert personnel on a loan basis, or financial aid. Before financial aid is granted, it should be established that the individual

state has made genuine efforts to solve its own problems, that its health program is soundly conceived and efficiently operated, and that only lack of funds as evidenced by the general economic condition of the state is the reason for the need of federal financial assistance. Nothing in the relations set forth, however, should imply that the federal government should assume the right to dictate a single system of medical care for all states, or to attempt to control the appointment of personnel in the state plans or otherwise to exercise improper interference. There should perhaps be a recognized percentage limit, as relative to the total cost of a state plan, beyond which federal financial aid could not be extended.

It will be seen that this conception of the relation of the federal government to the provision of medical care to the least favored economic groups is that of a stand-by support of the state programs. It would place primary responsibility and initiative on the state and local governmental divisions. It would prevent dominance of the local authorities from Washington. It would limit interference in state plans to the approval of their adequacy and efficiency. It would make the need for financial assistance and the amount of such assistance dependent on the economic status of each particular state.

From what I have said, it will be obvious that any plan for federal participation in the handling of the problems of medical care that lodges primary initiative and control in Washington, that contains uniform and compulsory features on a nationwide basis and that lays a direct federal tax on citizens generally to finance the program is unacceptable in principle. Such plans concentrate further power in the central government; they absorb in Washington functions much better retained at the local level, and they greatly enhance the overall cost of providing health services. Most important of all, they would lead to a widespread and serious deterioration of the quality of medical care.

The provision of medical services to the indigent is not all of the problem that faces us in the matter of general adequate medical care. There is a large group, above the level of medical indigents, who yet find the professional service cost of a serious illness a grave financial problem. These people need security against such calamities and it is the accepted idea that the insurance principle is the answer to the problem, but it should be voluntary insurance. There is no justifiable reason for assuming that these people are minors or incompetents and compelling them by federal law to participate in a nationwide system of prepayment for so-called health insurance. Leaving aside any questions as to the government's being able at this time to deliver the services promised and paid for under such a scheme, it constitutes an extreme example of compulsory paternalism, wrong in principle, impossible of practical operation and contrary to our established ways and habits of life and political principles.

This is not meant to imply that effort is not needed to stimulate the widespread development of voluntary prepayment plans for insurance against the professional costs of serious illness. Such plans already have an extensive existence and are spreading rapidly. They deserve the wholehearted support of all who are honestly interested in this problem. Such plans are actuarially sound, are well managed and are backed by a medical profession ready to accept some financial sacrifices, if necessary, for a large public good. There is no reason, after the experimental period has passed, why such plans should not be self supporting. The only question of governmental aid, either state or federal, might concern certain marginal financial groups and certain short initial developmental periods.

The Council on Medical Service of the Association, created by the House of Delegates in 1943, has conducted a continuing study of proposed programs pertaining to the economic, social or other similar aspects of medical care, has suggested improvements in such programs and has made available all information that it has been able to assemble. The Council has taken the initiative in assisting in the promotion of voluntary prepayment programs. The term "assisting" is used advisedly because much of the actual promotion must be done at the state and local levels, by the plans themselves, by the medical societies and by physicians.

I would like to leave with the committee a copy of a brochure prepared by the Council, revised as of 1948, which contains detailed information with respect to the various medical care voluntary programs that are in existence at the present time in some forty-three states. If, during the course of these hearings, members of the committee wish further testimony with respect to the plans themselves, the Association will be only too glad to make that information available. Suffice it to say here that approximately 57,000,000 people have hospitalization coverage and approximately 30,000,000 have surgical coverage, both as a result of voluntary action on their part.

The Association has now completed over one hundred years of organized existence. During these years it has developed an ever expanding program with a view to charting a safe and sure road toward the advancement of the nation's health. It has directed continuing study and experiment to improve methods of undergraduate education in medicine, the organization of opportunities for postgraduate study and the creation of facilities for the provision of the best medical care, including service to the indigent and those of low income.

The direction of these efforts throughout the whole field of study and the improvement of standards and methods have been characterized by close contact and cooperation with the health activities of governmental agencies, federal, state and local; educational and research institutions; voluntary groups, and philanthropic health agencies. It has observed closely the standards and methods of distribution of medical care of other nations and has had the benefit of the experience and advice of unselfish investigators trained in the direction of health activities throughout the world.

These broad considerations of the problem of the best possible health for all the people has led the Association to prepare a basic outline for continuing development and action. This is known as the Program of the American Medical Association for the Advancement of Medicine and Public Health. This program embraces twelve major points or planks, some of which have been advocated by the Association for many, many years. This program follows: [Dr. Baur presented the twelve point program.]

Is the health of the American people in such a low state as to necessitate revolutionary remedies, or proposed remedies, to be made available by the federal government as contemplated by the legislation pending before your committee? What actually is the record of our health progress under the system that prevails in the United States? [Dr. Bauer presented comparative statistical data.]

Much has been said about the alleged shortage of physicians. Those who contend that there is a shortage base their contention on the fact that the twelve states that have the largest number of physicians per hundred thousand population—one hundred and fifty physicians—represent the desirable norm and that all states should measure up to this norm. On the basis of this mechanistic formula, it is forecast that in 1960 there will be a shortage of some 42,000 physicians. It is predicted, by those who advance these contentions, that at the present rates of production of physicians there will be 212,000 active physicians by 1960 and to meet the standard percentage obtaining in the twelve best states, there will be needed by that year 254,000 physicians.

The formula that forms the basis of these estimates assumes that the same percentage of physicians per hundred thousand population is desirable and necessary in every state and leaves out of consideration that in the so-called twelve best states a large number of interns and residents in teaching centers may unduly increase the physician population. Even if 42,000 more physicians could be trained by 1960, and assuming that such an increase is necessary, there could be no assurance that the excess number of physicians would locate in states that do not measure up to the average physician population obtaining in the twelve best states. It is true that although the construction of hospital facilities and diagnostic clinics authorized by the Federal Hospital Survey and Construction Act may make the less remote areas attractive to more physicians, there are many more factors that influence the location of physicians than hospital and diagnostic facilities, such as schools and opportunities to maintain professional contacts so necessary in the practice of medicine.

Furthermore, since 1940 the population has increased 13 per cent and the number of physicians has increased 15 per cent, so the relative number of physicians to the population has increased rather than decreased. The number of physicians practicing in a given area does not necessarily represent the supply of medical care available. Where once the physician carried on alone, much of the routine work today is assumed by technical assistants, nurses and research workers. This situation automatically enables a physician to do a greater volume of practice and the conveniences of transportation enables him to cover a much wider territory.

It has been said, too, that 80 per cent of the American people are unable to afford all of the medical care they need. This statement by implication assumes that the only type of economic goods or services purchased by the American people is medical care and overlooks the fact that the purchase of medical care is a matter of free choice for the majority of the people.

The fact is that we live in a free society where the consumers are the dictators so far as the commodities that they choose to purchase and the commodities that they do not purchase are concerned. In the past, the decision of the consumers

has been to spend 96 per cent of their income for items other than medical care. They have decided that they can afford one and one-half times as much for alcoholic beverages as for medical care and another one and one-half times as much for recreation.

SENATOR MURRAY: You say that in the past the decision of the consumers has been to spend 96 per cent of their income for items other than medical care. Of course, many people have gotten into the habit of feeling that medical care is something that is not necessary and, therefore, they do not want to spend any money on it. If we could all be healthy and free from disease, we would not have to waste our money on medical care.

DR. BAUER: I think it is true, Senator, that people have not become used to budgeting for medical care as they budget for many other things.

SENATOR MURRAY: That is true, but a lot of people look on medical care as an unnecessary luxury that they should not be bothered with.

DR. BAUER: Yes, sir. They have decided that they can afford twice as much for tobacco as for the services of physicians. They have decided they can afford considerably more for personal care than for doctors' care. They have decided they can afford about as much for jewelry and repairs of watches and clocks as for physicians.

These were not the decisions of the medical profession or of any other group offering medical or allied services, but they were the decisions of 147,000,000 people. If we must be frank, the American people spent only 4 per cent of their income on medical care, not because they did not have more to spend, but because they preferred to spend 96 per cent for other purposes.

I shall not undertake to explore in detail the cost of a comprehensive system of medical care as contemplated by the pending legislation. I believe that it is anticipated that initially the system will be financed by payroll deductions plus appropriations from the general funds. Estimates by competent actuaries place the cost at from \$10,000,000,000 to \$15,000,000,000 annually. The assumption has been made that there is a financial barrier between a large part of the public and the medical service they need, but this barrier in the main relates to ability to pay for large and unexpected expenditures incurred for medical needs. This is a situation that is being overcome progressively by the rapid development of private health insurance plans. Although the provisions of these insurance policies vary greatly, in general they do permit the family to budget the major costs of medical care.

It is true that all types of medical care coverage are not available throughout the United States and that some are available only to members of employed groups, but progress is being made toward complete coverage. The cost of such coverage varies, of course, with the benefits made available. A family may, for instance, purchase a typical Blue Cross-Blue Shield membership which will pay the bulk of hospital and in-hospital medical bills for 20 cents a day, the price of a package of cigarettes or a bottle of beer a day.

In return for the money spent on medical care, the American people have received a truly phenomenal measure of health. During the 1940's the medical profession delivered an extraordinarily high quality and great quantity of medical care at an extremely low cost. While the cost of living index of the United States Bureau of Labor Statistics in 1948 was 171.2, the index of medical care prices was 141. In other words, the combined average prices charged by physicians, dentists and hospitals has not risen as fast as the cost of living.

It is abundantly clear that the cost of medical care has risen during the 1940's in terms of dollars, but the percentage of the consumer budget taken by medical care has not risen. Meanwhile life expectancy at birth and at every age has risen. This triumph of medical economics, steadily increasing life expectancy at the same percentage cost of the consumer budget, may well be the major contribution of medicine in the 1940's. The four years of life expectancy at birth gained in the last decade alone mean many millions of dollars earned and the chance of a good life for many more people than ever before.

Yet in the midst of all this health progress, it must be remembered that medical care can never be wholly adequate as long as pain comes too often and death too soon.

The American Medical Association can inform you that there are nine new medical schools within the last few years. There is the University of Alabama, which has been increased from a two to a four year school; the University of Utah, from two to four; the University of North Carolina, from two to four; and then new schools: the University of Washington, the University of California in Los Angeles and the Southwestern Medical School at Dallas, Texas, and there are others in the making.

SENATOR MURRAY: They have increased their course from a two year course to a four year course?

DR. BAUER: Yes, some of these schools at the time did not have the facilities for a four year course. They gave the first two years and then their students had to be transferred to another school. Now, they have been made four year schools, so not only will you have the enrolment of these schools, but the vacancies that would ordinarily be filled by these transfer students can now be filled by other schools in an original enrolment. We are getting more doctors all the time.

At present we are graduating between 5,500 and 6,000 a year. I think the average rate of death among the doctors is somewhere about 3,500 a year, and the doctors are increasing at a faster rate than the population is increasing.

I think it is a question of where are you going to set the limit on how many doctors you need.

SENATOR MURRAY: You do not think the problem of medical education is a serious problem?

DR. BAUER: No, sir, I think it is being taken care of. Of course, these new schools, you have not got the results from them yet because they have just been started, and it takes four years to start getting results, even longer than that, but the problem of producing more doctors, I think, is being taken care of satisfactorily because we are turning out more now than we ever have, with prospects of still more.

We have now, as was said this morning, one doctor for every 740 persons in the United States. Unfortunately, that is not true all over the country. It will vary from 1 to 450 in New York City to 1 to 1,500 or 1,800 in some of the rural areas; so the problem is how to get a better distribution of doctors; it is more that than it is how to get more doctors.

SENATOR MURRAY: The general impression in the country is that there is a great deficiency in the number of doctors, and it has been contended by some of those who criticize the Administration's program that if it was put into effect, there would not be enough doctors in the country to begin to carry it out and, therefore, that we should begin to greatly expand medical education and increase the number of doctors in the country.

As the population grows and our economy expands, it will become more necessary than ever to have more people engaged in the services, and the medical service is a place where a lot of people, a lot of the young people are looking to now to enter.

DR. BAUER: I do not mean to imply that we do not need more doctors, I think we do need more, but I say we are getting them steadily and we are going to have still more because there are still other schools in the process of establishment which will still further increase it.

Also you must remember that illness is diminishing; the actual morbidity rate in many diseases is fast disappearing; fewer people get sick, and the diseases which disabled them for a long period are now disabling them for a short period.

For example, typhoid; when I was an intern we had whole wards with typhoid patients. Now, when a typhoid case comes in the hospital, doctors flock in from miles around to see the case, because they have never seen one. Pneumonia used to incapacitate a man for two or three weeks. Now pneumonia has almost arrived at the status of a minor disease. The death rate is about 2 per cent now, and patients are disabled only a few days.

Illness is decreasing. During the war we had 50 per cent of our doctors in the military services and yet the health of the people went along pretty well.

SENATOR MURRAY: Is it not true that we are finding an expansion of the number of persons who are infected by some diseases and that the diseases are becoming more deadly? For instance, take tuberculosis. I noticed an article in the paper that there is a serious situation developing in regard to that disease.

DR. BAUER: In this country the tuberculosis death rate has been gradually declining. In certain European countries since the war it has been steadily mounting, but there the tuberculosis has reached the stage where people are even optimistic enough to believe tuberculosis can be wiped off the map as typhoid has been.

SENATOR MURRAY: That is true, but I read in the paper that tuberculosis cases they are getting recently are much more serious than the ones they had in the past.

DR. BAUER: Well, of course, the minute you eliminate any disease to a certain extent, when cases develop they are apt to be serious.

SENATOR MURRAY: That may be an indication that the disease is being taken care of.

DR. BAUER: Yes. You take in the South Pacific, for example, I remember years ago I was on an Army transport. They

would not let us land because we had a case of measles on board. Measles was considered a greater scourge than smallpox because the population was not used to it.

SENATOR DONNELL: Doctor, on page 4 of your statement you refer to the view that the plans which you mention, namely, the plan for federal participation, the plan that contains uniform features, et cetera, would lead to a widespread and serious deterioration of the quality of medical care. Do you think that opinion is generally shared by the members of the medical profession?

DR. BAUER: Yes, sir, I do. I think it has been more or less evidenced in other nations that you get a stereotyped type of medical care.

SENATOR DONNELL: Would you mind telling us why you get such a stereotyped type of medical care and what the fundamental reason is for the conclusion at which you arrive that these plans would lead to serious deterioration of the quality of medical care?

DR. BAUER: I think there is more than one reason. First of all, I think you eliminate the factor of competition entirely, because the poor doctor can do just as well as a good one. In fact, it has been stated many times that compulsory health insurance is a great leveler. It does not bring the poor doctor up to the level of the good one, but it drags the good one down to the level of the poor doctor.

At present, if a doctor is called by a patient, he knows he has to deliver the goods or else the patient will get somebody else, whereas, under a controlled system of any character, a doctor does not care very much because he gets paid whether he delivers good medical care or whether he does not.

That is not an incentive to the right type of man to go into medicine, and it results, I think, in a deterioration in the type of person who goes into medicine.

Then, doctors are overloaded with trivial complaints because of the system's being so-called free, and they go to the doctor for conditions which they ordinarily would not go to him for if they had to pay for it. Under the system, for example, the ordinary person has a casual headache, he will buy a bottle of aspirin. Under the other system he would not because by getting a prescription he would not have to pay for the aspirin. That is an illustration.

The doctors are apt to be overloaded with trivial complaints, so they do not have the time to devote to people who are really ill. We know what we have seen abroad, and I have been in many of the countries in Europe.

SENATOR DONNELL: You say you have been personally?

DR. BAUER: I have been in many of the countries of Europe, and the doctor has to see a great many patients in the course of a day to make a living or to get through his list, and he cannot devote the time to them which he should.

Of course, there is a lot of certificate work, certificate writing involved with these things. How this Administration bill would work out, I do not know, but I do not see how a great deal of paper work can be avoided. It seems to depend to a great deal on the system as to the amount of paper work, but if it is on a fee for service basis, there would be a tremendous amount of paper work.

SENATOR DONNELL: Have you seen the regulations in force in England as of a year or so ago?

DR. BAUER: I think the volume containing the laws is something like 1,300 pages and the volume the doctors were supposed to use every day was somewhere around 600 pages. That is from memory.

SENATOR DONNELL: What countries have you personally visited in Europe?

DR. BAUER: England, France, Switzerland, Spain, and before the war I was in Germany and in Italy.

SENATOR DONNELL: In which of those countries have you made observations with respect to the operation of health insurance plans of the type that you described?

DR. BAUER: In all of them to a certain extent, except Italy. I did not make any there.

SENATOR DONNELL: And your net conclusion is that there has been or has not been a deterioration in the quality of medical care in the countries in which you have visited?

DR. BAUER: I do not know that I could answer that question by saying there has been a deterioration because I was not familiar with what it was before they got it, but I can say that the level of medical care is distinctly lower than it is in the United States under our system.

SENATOR MURRAY: When did you visit England, Doctor?

DR. BAUER: I have been in England three times in the last year and a half.

SENATOR MURRAY: When was your last visit?

DR. BAUER: My last visit was last September. However, at that time I was there for such a short period I did not have an opportunity to make any personal investigation of the new health act.

SENATOR MURRAY: And the present health service program had just recently been put in effect?

DR. BAUER: Just two months previous.

SENATOR MURRAY: It would have been impossible for you to make—

DR. BAUER: —any personal observation on that, that is correct.

SENATOR DONNELL: But you did observe the operation of the health act immediately preceding the new act?

DR. BAUER: Yes, sir.

SENATOR DONNELL: The point has been made with respect to S. 1581 that inasmuch as it confines its grants-in-aid to the states for the purpose of aiding those who are in need of medical assistance and cannot provide it for themselves, at least in full, that a certain humiliation would attach to the recipients who would avail themselves of the service. What is your judgment in regard to that point?

DR. BAUER: I cannot see that myself. I have read a lot about the means test. It seems every one of us has to go through a means test. Every time you put in an income tax you are going through a means test. I cannot see anything very humiliating about it.

SENATOR MURRAY: I would like to see a law abandoning the income tax.

DR. BAUER: I would be in favor of it.

SENATOR MURRAY: We would not have so many headaches.

SENATOR DONNELL: Is it your judgment that S. 1581 is properly to be condemned on the theory that the administration of aid to persons who need it, as distinguished from those who do not, would be humiliating?

DR. BAUER: The so-called Taft bill?

SENATOR DONNELL: Yes, sir.

DR. BAUER: No, sir, I do not think it is to be condemned on that at all.

SENATOR MURRAY: Doctor, I would like to call your attention to some analysis of the twelve points that you have presented here.

DR. BAUER: Yes, sir.

SENATOR MURRAY: Dr. Channing Frothingham, Chairman of the Committee for the Nation's Health, a member of the American Medical Association, and twice President of the Massachusetts Medical Society, has this criticism to make. He says: [Senator Murray read a release issued by Dr. Frothingham.]

AFTERNOON SESSION

SENATOR PEPPER: The Committee will come to order.

Statement of Lowell S. Goin, M.D., President, California Physicians' Service, Los Angeles

DR. GOIN: I am Lowell S. Goin, M.D., of Los Angeles. I am a practicing physician and I happen to be President of California Physicians' Service; the voluntary health care plan of California. I might as well say at once that I am in complete opposition to this legislation, and I speak now of the so-called "Health Insurance Bill," S. 1679. I oppose it as a physician because I am persuaded that its enactment would result in great and continuing decrease in the quality of medical care available to our people. I oppose it as an American because I am persuaded that this type of legislation is one of the final steps on the road to State Socialism. In this opposition, I am confident that I am supported by the overwhelming majority of American physicians.

Specifically, my opposition is based upon five premises which I propose to state briefly, thereafter developing each one. 1. The assumption that the health of the American people is bad is a false assumption. 2. The assumption that the enactment of compulsory sickness tax legislation would be in the interest of the public health is totally unfounded. 3. Medical care is not the sole factor in the problem of health, and there are many other things that government could properly do which would benefit the health of the public far more than the proposed legislation. 4. The cost of such plans, rather lightly passed over by the

President and Social Security Administrator, are totally unpredictable and almost certain to be extremely high. 5. Voluntary health care plans, which are truly in the American tradition, are giving good medical and hospital care to our people, and must be allowed to develop unhampered by bureaucracy.

The health of the American people is bad, perhaps, but it isn't just because someone in the Social Security Administration says it is. Fortunately, it is a matter which may be investigated, and in which conclusions can be based on known facts rather than on emotional statements. The life expectancy at birth is steadily increasing, being now about 65 years for a male and 69 years for a female. It is materially less in Great Britain, and was still less in pre-war Germany. Both of these countries have long enjoyed the blessing of compulsory sickness insurance.

The death rate from diphtheria per hundred thousand of population, in the last year for which comparative figures were available, was 11.6 for Great Britain, 11.4 for Germany, but in the United States, with free enterprise system of medical care, it was less than 6.0. Why? Diphtheria is both preventable and curable; why didn't the government-operated medical systems produce a death rate lower than ours?

In the *Public Health Reports* for August 1946, the United States Public Health Service presents a table showing the death rate from tuberculosis in all countries. In the United States the rate was 47 per hundred thousand. In England and Wales it was 62. In France it was 137, and in Russia, 160. All of those except the United States have national medical care plans, but they seem to have been quite unable to equal the performance of the United States.

Some of the most lucid statements which are used to document our bad state of national health are found in Mr. Oscar Ewing's Report to the President entitled "The Nation's Health." Perhaps I may be permitted to digress for a moment, and to wonder what magical powers are inherent with civil servants of the Federal Security Agency, which makes them so omniscient in the problems of medical care, and why their opinions so greatly outweigh those of the 197,000 physicians of America whose entire lives have been spent in acquiring professional training to cope with these problems and in the actual coping with them. Mr. Ewing begins with a dramatic statement; a statement made to order for headlines—

SENATOR DONNELL: Doctor, according to my copy, it reads "breadlines."

DR. GOIN: Yes. It should be "headlines." Mr. Ewing begins with a dramatic statement; a statement made to order for headlines: "Every year 325,000 people die whom we have the knowledge and the skills to save." Of these, he says, 170,000 die of communicable disease, and that we should be able to save 120,000 of them. This last figure seems to have been chosen at random, and no documentation is offered. As is not uncommonly the case, the figures are not exactly accurate. In 1945, 177,000 persons actually did die of communicable disease, but in 1947 the figure had been reduced to 137,000. That the figure of 40,000 saved by our present system of medical care does not particularly bolster the case against that system is not mentioned. Perhaps this is purely coincidental. It is a fact that the death rate from communicable disease is the lowest in our entire history.

Mr. Ewing also says that we should be able to prevent 115,000 of the more than 600,000 annual deaths from cancer and heart disease. I am unable to ascertain the reason for the selection of the figure 115,000, and I suspect that it is a purely arbitrary selection. I don't know how many of the deaths were due to heart disease, but it is probably fair to assume that about two thirds were. Is the implication that these people died because of lack of medical care a fair one? Of course it isn't. Actually, both heart disease and cancer are diseases of the latter decades of life. People eventually die of something, and the more people who live into these decades, the more will die of these diseases. If medical care is the problem, it is curious that the six states with the lowest death rate from heart disease were in the deep South, and that seven of the nine states with the highest rate were in New England. New England has more physicians, more hospital beds, more research centers and more teaching institutions than the entire deep South. I repeat that it is most curious that the death rates should not fit the amount of medical care available.

Mr. Ewing complains of the shortage of physicians. One wonders why he believes that the enactment of a law bitterly opposed by physicians (physicians' sons are a substantial part of the annual crop of new physicians), and one which experience in other countries has shown to degrade physicians, could possibly increase the number of physicians. I predict confidently that the enactment of this legislation will decrease the number

of physicians produced annually and that it will very materially lower the quality of the young men who enter medicine.

Another ill to be cured by compulsory sickness tax legislation is the inequitable distribution of doctors. There seems to be a vague and hopeful feeling that some magic inherent in this so-called social legislation will persuade doctors to leave cities, where medical schools and libraries are located; where hospital and consultants can be found; and most of all, where a man can have the society of his peers, and go to remote hamlets where none of these things are available and where he can stagnate in intellectual loneliness. Doctors, like other people, locate themselves where they think they are most likely to succeed, and where they will be happiest.

Why anyone should believe that enactment of a law will change these elementals is something of a mystery, but one which would be solved promptly if a paternal government were to direct physicians in choosing their fields of activity. Any such intent is vigorously denied, of course, but the government of Great Britain has already assumed this right and has announced that more medical care in rural areas would be provided by paying a somewhat larger capitation fee in such areas and—note well—by forbidding doctors to locate in more populous zones.

The assumption that enactment of this legislation would be in the interest of the public health is unfounded. Fortunately for my argument (although unfortunately by other standards) we have a system of so-called compulsory health insurance in actual operation in the city of San Francisco. Set up by ordinance several years ago, it embraces more than 20,000 employees of the city and county of San Francisco. As a public duty, and as a noble experiment, the medical profession of San Francisco consented, almost to a man, to cooperate with the plan which is called "Health Service System."

I see no reason to believe that a like system on a national level would function much differently than this "pilot" plan, and this is how it really works; this is what we may reasonably expect to happen once the plan begins to operate nationally.

On May 28, 1947, Dr. A. S. Keenan, Medical Director of the "Health Service Plan," found it necessary to address himself to the physicians of San Francisco. He complains of over-use of the system, and urges great curtailment of the care given. I have a copy of this entire letter which I would be glad to file with the committee. The following are his words:

People in general have more knowledge now on medical subjects. . . . It has brought about many unnecessary visits to the doctor to get treatment for trivial things. Such minor ailments could be treated as well by their home remedies as by their doctor.

There, gentlemen, is a panel system in operation. The earliest, indeed the only early symptom of lung cancer is a trifling cough. Go home and take some cough medicine. The only early symptom of gastric cancer is a trifling indigestion. Take some soda. Next, the medical director complains of clinical laboratory and x-ray expense, and again I quote his words:

The people in general know little about the results that can be obtained from the help of laboratory tests or the x-ray examination. Please, doctor, turn such requests aside. . . . It would seem that any physician, after taking a short history of his patient's case and making a routine examination will find that he can make a diagnosis without leaning so much upon the laboratories and the x-ray departments.

Please note, gentlemen, that early recognition of brain tumors requires laboratory study of the cerebrospinal fluid, and that early diabetes is recognized by the amount of sugar in blood. After complaining that it cost too much to hospitalize these unfortunate people whose pay checks were subject to compulsory deduction for the service, he says:

"The members of the Health Service System, except in a few obscure cases, do not need any such extensive work." As is easily possible under the compulsory system, the director solves the problem neatly, thus: "Hereafter no patient, except in an emergency case, will be entitled to hospital benefits under Health Service System coverage until authorization has been given by the medical director."

There you have the panel system which our planners would like to institute; there you have medical care under compulsory health insurance.

Personal interviews with British physicians who have been so revolted by the system that they have actually fled to the United States to start all over again, and correspondence with others who wish that they could flee, indicates that this is a completely fair picture of so-called compulsory health insurance benefiting the health of the public.

If further evidence is needed, we might let Dr. Nathan Sinai furnish it. Remember that he is an able and ardent proponent

of compulsory sickness tax legislation. I quote from his book "The Way of Health Insurance," pages 157, 158—these are his words:

Contrary to all predictions, the most startling fact about the vital statistics of insurance companies is the steady and fairly rapid rate of increase in the number of days the average person is sick annually, and the continuously increasing duration of such sickness.

Various studies in the United States seem to show that the average recorded sickness per individual is from seven to nine days per year. It is nearly twice that amount among the insured population of Great Britain and Germany and has practically doubled in both countries since the installation of insurance. . . . It seems to be a safe conclusion that insurance has certainly not reduced the amount of sickness.

This surprises me, since I had naively assumed that the proponents believed that it would reduce the amount of sickness. Certainly, the words quoted comprise an excellent argument against this sort of medical care, although I doubt that Dr. Sinai meant them to be.

A sort of current custom is to use the terms "medical care" and "health" as if they were interchangeable—as though one were synonym of the other. As a matter of fact, medical care is only a small part of the health problem—not even the most important part. Health consists largely in not being sick; medical care consists largely in an attempt to cure or alleviate disease. Nearly all—perhaps all—of the health legislation which has been proposed from time to time has been written by social planners, seldom, if ever, in consultation with physicians. Consequently nearly all it contains is wishful thinking and not too much reality. Too much confidence is placed in preventive medicine, too much earnest belief that periodic health examinations will prevent disease, and all the legislation evidences a complete failure to understand that preventive medicine simply has not yet attained the goals wished for.

To cite a few of the problems: How shall heart disease (except that due to rheumatic fever) be prevented? What sort of health examination will be efficient in its control? How shall we prevent, or even recognize, early brain tumors? Shall everyone with a headache have encephalographic or ventriculographic studies? Shall we do gastrointestinal roentgen studies on everyone with indigestion, and, if so, where shall we obtain the skilled personnel? How are bone tumors prevented, and what periodic examination makes one aware of the pneumonia of next week?

Medical care is, and will for a long time continue to be, the care of the sick, and this, I repeat, is only a fraction of the health problem. Some other fractions to which government might well turn its attention are sanitation, hygiene, health education, adequate diet, good housing, adequate clothing, good working conditions and "patent medicine" control. And there are many others.

If government is sincerely interested in the health of the citizen, why should it not suppress "patent medicine" advertising? Why should it not regulate the cults and require that all who wish to practice the healing arts pass the same tests? Why should it not control radio publicity of nostrums, vitamins and the like? This current legislation is attacking only a small segment of the health problem, and even if it were to accomplish all that its proponents claim, it still would not solve our health problems.

* * *

Voluntary health plans will, if given the opportunity, do the job, and do it better than government-controlled plans can do. These plans, which already include a very large number of persons, are in accord with our traditional emphasis on personal responsibility, prudence, foresight and thrift. They have an American dignity which is lacking in the regimentation of compulsory health insurance. They can be and are more economically administered; they can and do give better medical care, and they will be and are supported by thousands of physicians who are bitterly and unalterably opposed to government-controlled medicine.

In California we have made a good start. Our California Physicians' Service offers medical care at modest costs. Nearly 800,000 of our people have availed themselves of it, and appear to be quite satisfied with it. The Farm Security Administration had a medical care program for the rural indigent. California Physicians' Service took it over and gave better medical care for less money and to the satisfaction of those giving and receiving the care.

California Physicians' Service has a contract with the State Grange providing medical care for nearly 100,000 farm people. These activities, which are duplicated in most of our states, are indications of how voluntary plans can meet the challenge, how they are meeting it, and how they will continue to do so with a steady and health growth if they are not crushed by the monster of bureaucratic control.

Now, Mr. Chairman, I have a supplemental statement which I would like to read in relation to the activities of the American Medical Association.

During recent weeks and months the American medical profession has been subjected to maliciously unfair abuse from certain advocates of compulsory health insurance, some of whom are office holders in the federal government. Through vicious innuendo, false implication and outright distortion of fact, deliberate attempts have been made to undermine public confidence in the nation's doctors, and to make it appear that the American Medical Association is engaged in devious, unethical tactics in its opposition to national compulsory health insurance.

Very few members of Congress have been a party to this attempted smear. However, you gentlemen probably have heard or read some of the false charges. I believe that you know in your hearts that American doctors, by their very nature and training, would not take part in the questionable activities which have been implied in this scurrilous propaganda. Nevertheless, we need to clear the record with respect to these trumped-up charges.

The American Medical Association—openly, frankly and honestly—is engaged in a National Education Campaign to give the people the facts about compulsory health insurance and the facts about voluntary health insurance. We frankly oppose the first and we enthusiastically favor the second. We hope and believe that the American people, given the facts, will agree with us.

In the best American tradition we are taking our case before the forum of public opinion. We are asking for a vote of confidence in the American medical profession and in the American medical system, the finest in the world. We are doing exactly what you gentlemen do at election time. We are using the same avenues of approach—the press, the radio, the speaking platform, pamphlets and leaflets, and all other accepted, ethical means of submitting our case to the people.

The Committee for the Nation's Health, the Physicians Forum and other groups favoring compulsory health insurance are conducting a constant propaganda in behalf of it. For ten years or more, the Federal Security Agency and other government agencies have been spending unauthorized tax funds to thump the drum for socialized medicine. Now, however, when the American Medical Association finally strikes back at the distorted propaganda of the socializers and government pay-rollers, we suddenly hear unfounded and intemperate charges that the American Medical Association is invading Washington with a high-powered lobby and a huge slush fund.

These charges are absolutely false, and those who have been making them know they are false. As you gentlemen undoubtedly know, the Washington Office of the American Medical Association is one of the smallest, most conservative legislative offices maintained by any of the national associations in the capital. It is staffed by men of unquestioned integrity, who are highly respected in Washington. Whitaker and Baxter, the public relations organization which is directing our National Education Campaign, has only one representative in Washington, and he is a press representative, not a legislative lobbyist.

The American Medical Association, in its National Education Campaign, is carrying its case directly to the American people in a grass roots crusade which we hope will reach every citizen in this country. By so doing, we doctors are simply exercising one of the greatest rights which Americans have as a free people—the right of petition as set forth in the United States Constitution. We are exercising that right not simply to protect the medical profession from degradation, but to protect the health of the nation.

The people have a right to know that government-controlled medicine means inferior medical care doled out according to bureaucratic regulations and rule books, ever increasing payroll taxes, invasion of privacy and freedom of action, and destruction of the voluntary health insurance plans which provide good medical care at a lower cost than government ever could provide it.

In the final analysis, the American people, through their representatives here in Congress, will decide this issue. The objective of the American Medical Association National Education Campaign is to get the facts to the people. We want them to make their opinions known to the United States Senators and Representatives. We believe you want it that way.

If that is lobbying, it is lobbying in the finest American tradition, and every doctor is proud of his part in the program.

There is nothing secret or devious about this campaign. It is an open and above board public campaign on a vital public issue. The plan of campaign explaining the program has been distributed by the thousands throughout the country—not only to doctors and medical societies but also to a wide variety of interested parties, including newspapermen and magazine writers.

A newspaper commentator referred to this as a secret plan of the American Medical Association. For your information, I am filing a copy of the plan of campaign with your Committee.

Nearly 14,000 copies of this have been distributed all over the United States. There is nothing in our program which is secret—and you may have copies of any material we are issuing simply by requesting it.

Yet, at least one radio commentator and one congressman, in recent public utterances, have quoted from these widely publicized materials, have attempted to give the impression that they were revealing "shocking" information from "secret" documents. Apparently depending on the same unreliable source for their information, both men referred to the fact that American doctors intended to present their case in newspapers and magazines, and that doctors were urged to write letters to any Senators or Representatives who were their personal patients. These alleged "revelations," gentlemen, are nothing short of ridiculous. Since when is it a crime to submit material to newspapers and magazines? And since when are doctors deprived of the ordinary right of any citizen to write to the men who represent them in Washington?

If there is any need for a Congressional investigation of lobbying, it is for an investigation of the government lobby which has forced the American medical profession to strike back in defense of its good name. The Harness Committee reported to the House of Representatives in 1947 that at least six agencies in the executive branch of the federal government were using government funds in an improper manner for propaganda activities supporting compulsory health insurance. The Federal Security Agency alone has become a tremendous propaganda agency for government medicine.

It seems very strange that when I appear anywhere to speak on this subject, some representative of the Federal Security Agency often shows up in the same town, speaking in favor of government medicine. Who pays for this? Has Congress authorized the use of federal funds for these propaganda lecture tours? Is the Federal Security Agency usurping the rights of Congress, the regularly established legislative branch of the government?

As mentioned a moment ago, government agencies lobbying for compulsory health insurance—some of them for ten years or more—have forced the American Medical Association to embark on its National Education Campaign. Although the great bulk of these campaign activities and expenditures do not constitute lobbying under the terms of the Federal Lobbying Act, Public Law 601 by the 79th Congress, in the opinion of our legal counsel, the campaign directors have registered according to the letter of that law. A report of expenditures for the first quarter of 1949 already has been filed, listing separately every item over \$10. We invite the closest possible scrutiny of all reports and records.

More than half of the time, effort and money in this campaign will be used in affirmative, positive action, designed to aid in the development of the voluntary prepaid health systems. American medicine is far more concerned with solving a problem than with simply defeating a bill for compulsory health insurance.

The ultimate, long range objective of this campaign is to make the American people more and more health insurance conscious. We want them to know that sound protection against the costs of illness is available under existing voluntary health insurance plans, at reasonable rates far below the inevitable high cost of a compulsory, tax-supported program.

We want the people to know that the many different hospital, surgical and medical insurance plans are working constantly to extend their benefits. Already there is a tremendous demand in this country for voluntary health insurance. The greater that demand can be made, the quicker this problem will be resolved. The great need in America is not for compulsion but for a general realization by the people that health protection is an essential item which should be given its proper priority in the family budget and which can be so budgeted without undue financial burden.

I think I am correct in saying that several members of this committee feel the same way. A number of you gentlemen have shown a definite interest in the great progress of voluntary health insurance, and you are sponsoring legislation embodying principles which we fervently support. We think you are on the right track to an American solution of this problem.

The American Medical Association National Education Campaign, by alerting the people to the wisdom and necessity of handling this problem themselves, is making a contribution toward the further improvement of our national health. We believe it also is performing a service of value to Congress, by making it unnecessary for you to levy new payroll taxes

and launch this nation into a dangerous experiment in government medicine. Such an adventure would impair or destroy not only the American medical system but also our national financial stability. There are other, more sensible ways to solve our problem in medical economics.

(To Be Continued)

Official Notes

DR. FLEMING ON AMA RADIO PROGRAM

Sir Alexander Fleming, of England, one of the pioneers in development of penicillin, will be the guest speaker on today's (July 2) program of the weekly AMA-NBC radio series. The dramatized show, which will be part of exercises marking dedication of a multimillion dollar Oklahoma Medical Research Foundation in Oklahoma City, will originate from Oklahoma City and can be heard on most stations of the NBC network from 2:30 to 3:00 o'clock Central Daylight Saving Time (3:30-4:00 Eastern DST, 1:30-2:00 Mountain DST, 12:30-1:00 Pacific DST). Dr. Fleming will speak at the close of the dramatized portion of the program.

NEW RADIO TRANSCRIPTION SERIES AVAILABLE

Now available from the Bureau of Health Education is the latest series of transcriptions for use on local radio stations. The series of 13 recordings deals with a subject of great current interest, antivivisection, and provides forceful arguments in favor of controlled animal experimentation.

Presented in dramatized form, with the scripts written by trained radio specialists, the platters have the following titles:

- | | |
|--------------------------------|----------------------------|
| 1. Your Life's Blood | 7. The Perfect Specimen |
| 2. The Sheep at Melun | 8. The Dog He Never Had |
| 3. The Invisible Enemy | 9. The Cow and the Bell |
| 4. The Cat and the Mouse | 10. A Blow to the Heart |
| 5. Almost Human | 11. The Lucky Accident |
| 6. The Gangster and the Rodent | 12. Two Mad Dogs |
| | 13. The Bright Red Miracle |

An innovation has been inclusion of brief statements by prominent personages in defense of laboratory studies in which various animals play such a significant part. Those who participated are:

- Dr. Louis Mann, Rabbi of Sinai Temple, Chicago.
Mr. Ned Dearborn, president of the National Safety Council, Chicago.
Mr. Morton Gould, composer and conductor.
Mr. Anton Rost, president, National Canine Research Foundation.
Mr. Harold Stassen, president of the University of Pennsylvania.
Dr. George D. Stoddard, president of the University of Illinois.
Dr. George D. Curtis, director of surgical research, Ohio State University.
Mrs. Frank J. Lausche, first lady of Ohio.

Dr. W. W. Bauer, Director of the Bureau of Health Education, who conceived and developed the series, also is a participant.

Important cooperation in the project was provided by the National Society for Medical Research.

As is the case with all such sets produced by the Bureau of Health Education, this series, titled "The Story Behind the Discovery," is available without charge to local medical societies. Requests directed to the Bureau will receive prompt attention. Societies in Florida, Louisiana, New Jersey, New Mexico, Oregon, Pennsylvania, Tennessee, Texas and Washington can obtain the platters direct from their state headquarters.

Coming Medical Meetings

- International Congress of Biochemistry, Cambridge, England, Aug. 19-25.
Lt. Col. Francis J. Griffin, 56 Victoria St., London, W.C.1, Organizer.
Montana State Medical Association, Butte, Aug. 1-4. Dr. Herbert T. Caraway, 115 N. 28th St., Billings, Secretary.
West Virginia State Medical Association, White Sulphur Springs, The Greenbrier, Aug. 4-6. Mr. Charles Lively, 1031 Quarrier St., Charleston, Executive Secretary.

Washington Letter

(From a Special Correspondent)

June 27, 1949.

Health Insurance Hearings

Compulsory health insurance continued to have its opponents and supporters as congressional sessions, now approaching their close, heard additional witnesses during the week ended June 25. Proponents appearing before the health subcommittee of the Senate, chairman, Senator James E. Murray (Democrat, Montana), included Dr. Bernard Meyer, of New York City, speaking for Physicians Forum; Joseph Anderson, executive secretary of American Association of Social Workers; Dr. Theodore Sanders, of New York City, representing National Consumers League, and Dr. Charles M. Thompson, representing National Dental Association (Negro). Opposition to the compulsory health insurance provision of the Thomas-Murray-Dingell bill (S. 1679) was expressed by Dr. George Baehr and Dr. Howard Craig, representing New York Academy of Medicine, and H. E. Slusher, American Farm Bureau Federation.

Concurrent hearings by the health subcommittee of the House Interstate Committee were devoted to taking of testimony on the feasibility of greater federal appropriations for medical research in arthritis, multiple sclerosis, cerebral palsy, epilepsy and leprosy. Among witnesses who recommended expansion of the government program were Drs. William G. Lennox of Boston, Arthur A. Morris and Robert Stolar, of Washington, Herman Kabat (filed statement) of Oakland, Calif., Winthrop M. Phelps (filed statement) of Baltimore, Tracy J. Putnam of Los Angeles and Currier McEwen, C. H. Traeger, H. Houston Merritt, Edward H. Hartung and Ralph H. Boots, all of New York City. The House health subcommittee, whose chairman is Rep. J. Percy Priest, has adjourned the hearings until June 29, when it will begin taking testimony on proposed enlargement of the federal hospital expansion program.

Chiropractors and Optometrists Protest Exclusion

Spokesmen for the country's organized chiropractors and optometrists went before the Murray subcommittee to demand that these practitioners be named, as prospective beneficiaries, in any broad health legislation which may be enacted by Congress. They were free in their denunciation of medicine as a profession which, they implied, is attempting to stifle their activities.

"The avowed purpose of medicine is to monopolize the health care field," said Joseph M. Babcock, vice president of American Optometric Association. "The optometrist and medical eye man are economic competitors."

John J. Nugent, appearing in behalf of National Chiropractic Association, said the Thomas-Murray-Dingell bill is misleading in its declaration that there shall be free choice of doctors, as long as chiropractors are not included among those practitioners eligible to give patient services under the proposed program.

"If the American Medical Association had written this bill (S. 1679) it could not have drawn more effectively or with greater finesse a measure to destroy the professions of chiropractic and osteopathy," the witness stated.

New York Physicians Take Opposite Sides

Drs. George Baehr and Howard Craig testified that the New York Academy of Medicine endorses, in principle, the Hill (S. 1456), Taft-Smith-Donnell (S. 1581), Humphrey (S. 1805) and the Flanders-Herter (S. 1970) national health bills. They advanced the opinion that passage of the Thomas-Murray-Dingell bill, because of its title VII on compulsory health insurance, "would result in most detrimental changes in medical practice and would harm the public." They added: "We are also convinced that the objectives which the proponents of this bill have in mind, and which we share, can be achieved more effectively by procedures which are more orderly, progressive and far less hazardous."

Voluntary prepayment plans "simply do not include all those who need protection and they never will," the Senate subcommittee was told by Dr. Theodore Sanders, who described himself as a physician practicing internal medicine. He rejected

the Hill and Taft bills but gave qualified approval to S. 1970 because it would require no means test and "it is designed to prevent medical domination of the voluntary health agencies." Dr. Bernard Meyer likewise disapproved of the Taft and Hill bills and denied claims that compulsory health insurance would result in impairment of the patient-doctor relationship.

Industrial Hygiene Advisory Committee Appointed

Appointment of a national advisory committee on industrial hygiene has been announced by the U. S. Public Health Service. Nine of its ten members have been named. The first meeting of the new group is expected to be held in September. Appointees are as follows: Dr. R. H. Hutcheson, Tennessee State Commissioner of Public Health; Dr. Harold A. Vonachen, medical director of Caterpillar Tractor Co.; Dr. Leo Price, director of Union Health Center, New York; Andrew Fletcher, president of St. Joseph Lead Co.; Vincent P. Ahearn, National Sand and Gravel Association; Nelson H. Cruikshank, American Federation of Labor; Harry Read, Congress of Industrial Organizations; Theodore F. Hatch, Industrial Hygiene Foundation, and Mrs. Margaret Lucal, American Association of Industrial Nurses.

Senator Thomas Sponsors United Medical Administration

A bill that would establish a United Medical Administration in the federal government to administer all federal hospitals—including military and naval—and perform other amalgamated functions was introduced June 7 by Senator Elbert D. Thomas of Utah. He filed S. 2008 at the request of his Democratic colleague, Senator John L. McClellan. The latter was a member of the Hoover Commission, which strongly recommended such a merger.

Incidentally, the address delivered in Atlantic City on June 5 by Senator McClellan before the National Conference of County Medical Society Officers is printed in the Congressional Record for June 8 (page A3732).

Department of Welfare Proposed by President

Establishment of a new Department of Welfare in the executive branch of government, its component units to include the U. S. Public Health Service, Food and Drug Administration and Children's Bureau, is proposed in Reorganization Plan no. 1, which President Truman sent to Congress on June 20 under authority of the new reorganization act. Unless the recommendation is vetoed by either branch of Congress, the Federal Security Agency will be reconstituted as the Department of Welfare, with Oscar R. Ewing—present head of FSA—virtually certain to become the first Secretary of Welfare.

Medical Legislation

STATE LEGISLATION

Alabama

Bills Enacted.—H. J. Res. 21 has become Governor's No. 10 of the Laws of 1949. It memorializes the Congress of the United States to actively support the purposes of the Toby bill providing for the setting up of a National Foundation for the Study of Multiple Sclerosis. H. 2 has become Governor's No. 28 of the Laws of 1949. It provides that every inhabitant of the state over the age of 21 years and of sound mind may, by an instrument in writing executed as a deed and filed for record in the office of the judge of the probate court of the county of his residence or of the county in which he is confined in a hospital, arrange for or prescribe for the disposition to be made after death of his body or any organ, member or part thereof, provided that the disposition of said body or parts thereof is made for the purpose of advancement of medical science or for the replacement of diseased or worn out parts of other human beings or for the rehabilitation of human parts or other organs.

California

Bills Enacted.—A. 770 has become Chapter 457 of the Laws of 1949. It provides that no person, association or corporation shall establish or keep for compensation or hire an establishment for the care, custody or treatment of the insane, alleged insane, mentally ill or other incompetent persons without first obtaining a license therefor from the Department of Mental Hygiene. A. 1270 has become chapter 500 of the Laws of 1949. It provides that no blind person shall be denied

admission into any college or school of chiropractic or denied the right to take any examination or obtain a diploma or denied admission into an examination for a state license to practice chiropractic on the ground that he is blind. A. 1287 has become chapter 233 of the Laws of 1949. It amends the business and professions code by eliminating the provisions for the issuance of a drugless practitioner's certificate. A. 3099 has become chapter 287 of the Laws of 1949. It provides that the required physical examination of school teachers shall include a roentgenogram of the lungs every three years and that the results of such examination must indicate that the applicant is free from active tuberculosis. S. 796 has become chapter 308 of the Laws of 1949. It amends the business and professions code by making it a misdemeanor for any person licensed under such code to conspire with any person not so licensed to violate any of the code provisions or to allow his license to be used by such person or to act as such person's agent or partner. S. 1162 has become chapter 311 of the Laws of 1949. It amends the Welfare and Institutions Code relating to the licensing of hospitals by exempting therefrom county hospitals except that the Department of Welfare and Institutions shall investigate, examine and make reports on such hospitals and such hospitals shall submit plans of any additions or alterations to the department before their adoption.

Connecticut

Bill Enacted.—S. 600 has become Public Act No. 88 of the Acts of 1949. It authorizes the medical examiner along with the coroner to order an autopsy and requires that such autopsy whether ordered by the coroner or the medical examiner shall be performed only by a certified pathologist.

Delaware

Bills Enacted.—H. Res. 42 was adopted May 12, 1949. It memorializes the Congress of the United States to refrain from imposing on the citizens of this nation any form of compulsory insurance or any system of medical care designed for national bureaucratic control. S. Res. 45 was adopted May 2, 1949. It memorializes the Congress of the United States to refrain from imposing on the citizens of this nation any form of compulsory insurance or any system of medical care designed for national bureaucratic control. S. 282 was approved June 8, 1949. It appropriates the sum of \$50,000 each year for the next two years for the detection of cancer, for research in cancer and for other purposes related to cancer prevention and control.

Florida

Bills Enacted.—S. 180 was approved May 16, 1949. It authorizes the Board of Examiners in the Basic Sciences to examine and license applicants desiring to practice medical technology which is defined as the science, art or technique of performing any laboratory tests or examination on or of the blood, blood serum, feces, urine, sputum, exudates, transudates, organ contents or any by-products thereof, from the human body, living or deceased, the results of which are used or interpreted by a practitioner of the healing arts in the practice of his profession. S. 329 was approved June 7, 1949. It provides for the creation of a school of medicine and nursing at the University of Florida campus at Gainesville. S. 413 was approved June 7, 1949. It amends the food and drug act by including amphetamine and penicillin within the list of drugs which must be labeled in a certain manner unless sold on the written prescription of a member of the medical, dental or veterinary profession.

Maine

Bill Enacted.—H. 1582 was approved April 26, 1949. It amends the chiropractic practice act by requiring applicants to be examined in the additional subjects of electrotherapy, hydrotherapy, dietetics and bacteriology.

Massachusetts

Bill Enacted.—S. 606 has become chapter 183 of the Laws of 1949. It provides that a statement of fact or opinion on a subject of science or art contained in a published treatise, periodical, book or pamphlet shall, in the discretion of the court, and if the court finds that it is relevant and that the writer of such statement is recognized in his profession or calling as an expert on the subject, be admissible in actions of contract or tort for malpractice, error or mistake against physicians, surgeons, dentists, optometrists, hospitals and sanatoriums, as evidence tending to prove said fact or as opinion evidence; provided that the party intending to offer as evidence any such statement shall, not less than three days before the trial of the action, give the adverse party notice of such intention, stating the name of the writer of the statement and the title of the treatise, periodical, book or pamphlet in which it is contained.

Ohio

Bills Enacted.—S. 134 was approved May 26, 1949. It provides for the establishment of a commission to study the problem created by temporary unemployment due to disability or sickness. S. 222 was approved June 8, 1949. It amends the narcotic act by including isonitrophenol, amideone, isomidone and keto-bemidone within the meaning of the words "narcotic drugs."

Wisconsin

Bill Enacted.—A. 215 has become chapter 130 of the Laws of 1949. It limits the practice of a chiropodist by providing that nothing contained in the act shall be construed to permit major surgical operations on the foot, or minor operations on the foot involving vascular diseases or diabetes except on the advice of one licensed under the medical practice act, or the treatment of conditions of the feet involving osteomyelitis, malignant diseases or syphilis, or the therapeutic use of roentgen rays and radium, or cutting operations involving the bones, ligaments, muscles, nerves or tendons of the feet.

GOVERNMENT SERVICES

ARMY

ADDITIONAL BENEFITS FOR MEDICAL OFFICERS

The Department of the Army announces that medical and dental officers will be given priority of consideration in assignment of quarters and their families will be allowed to accompany them on overseas tours of foreign duty. This policy recognizes the fact that medical and dental officers, as a result of the present shortage, are required to be on duty more hours per day than is normal, as well as to perform more than normally arduous duties. This policy is the latest step in a continuing campaign designed to relieve the shortage of medical and dental officers in the Army by making their military careers more attractive. Previous action in this direction includes: providing such officers with an extra \$100 per month in pay, giving them every opportunity to pursue their specialties, assigning rank on the basis of civilian accomplishment and emphasizing stability of their assignments by making only an essential minimum number of transfers of these officers.

REINSTATEMENT OF INTERN PROGRAM AT PERCY JONES HOSPITAL

In a recent issue of the *Bulletin of the U. S. Army Medical Department*, announcement is made of the reinstatement of the intern training program at Percy Jones General Hospital, Battle Creek, Mich. This program has been inactive for the past two years and accordingly was not included in the approved list published in the Internship and Residency Number of THE JOURNAL (May 14, 1949). The Surgeon General's Office has stated that the training to be offered will be of the same high caliber as that conducted in other approved army hospitals. Applicants interested in this internship should refer to the Educational Number of THE JOURNAL, to be published in September, for confirmation of its approved status.

Further announcement was made that the residency programs at Percy Jones General and at Madigan General hospitals are being temporarily inactivated, due primarily to a shortage of personnel. When residents become available for assignment to these hospitals, reinstatement of these programs to an approved status is contemplated.

MEDICAL INDEXING

The Consultant Committee on Medical Indexing, Office of the Surgeon General, held its fifth meeting May 1, at which Dr. Raymond L. Zwemer, executive secretary, National Research Council, gave an over-all picture of UNESCO in relation to the indexing problem. The Medical Indexing Committee adopted the following resolution to be transmitted to the UNESCO Interim Co-ordinating Committee: "Resolved that indexing is a matter of primary importance in the management of medical literature." In the afternoon, Ralph R. Shaw explained the principle of the Bush Rapid Selector. In a practical demonstration, selections were made from films running at the rate of 60,000 entries per minute.

The Surgeon General of the Army, at the invitation of UNESCO, sent Dr. Sanford V. Larkey as an observer to the meeting of the Interim Co-ordinating Committee on Medical and Biological Abstracting held in Paris, June 1-4. Dr. Henry R. Viets, Boston, is the observer for the American Medical Association on this Interim Co-ordinating Committee.

MONTHLY MEDICAL MEETING

At the Surgeon's General monthly medical meeting at Walter Reed Hospital, Washington, D. C., June 16, Dr. Brian Blades, of George Washington University Medical School, discussed arteriovenous fistulas of the lung, and Colonel James H. Forsee, of Fitzsimons General Hospital, Denver, "Estimation of Pulmonary Function in Thoracic Surgery."

VISITING PHYSICIANS FROM GERMANY AND AUSTRIA

The Office of the Military Government of the United States Zone in Germany sent seven German physicians to the United States in March of this year for three months of study and travel, including visits to outstanding public health and medical centers in this country.

Following are the German physicians who participated:

- Dr. Kurt Felix, professor of physiology and physiologic chemistry, University of Frankfurt.
- Dr. Rudolph Geissendoerfer, chief of the surgical clinic, University of Frankfurt.
- Dr. Wolfgang Luther, chief of the radiobiological department, University of Marburg.
- Dr. Walter von Baeyer, chief of the Neurological and Psychiatric Clinic of Nuremberg and professor at the University of Erlangen.
- Dr. Werner K. Wagner, professor of neurology and psychiatry, University of Munich.
- Dr. Herbert Wendel, research assistant at the Pharmacological Institute of Berlin.
- Wilhelm A. Wiskott, professor of pediatrics, University of Munich, and director of the Children's Hospital.

The Military Government of Austria made similar arrangements for the following Austrian physicians:

- Dr. Hermann Chiari, director of the Institute for Pathological Anatomy, University of Vienna.
- Dr. Otto Kauders, director of the Clinic for Psychiatry and Neurology, University of Vienna.
- Dr. Herbert Kraus, assistant to the director, First Surgical Clinic, University of Vienna.
- Dr. Leopold Arzt, chief, Clinic for Skin and Venereal Diseases, University of Vienna.
- Dr. Camillo Wiethe, professor in the University of Vienna and chief of the University Clinic for Ear, Nose and Throat Diseases.
- Dr. Otto Schumann, director of the Pharmacological Institute, University of Innsbruck.
- Dr. Erich Zdansky, Medical Radiology, University of Vienna, and head physician of the Central-Roentgeninstitute, General Hospital.
- Dr. Tassilo Antoin, professor of obstetrics and gynecology and director of the First Clinic for Obstetrics and Gynecology of Vienna.

ACCEPTED FOR COURSES IN CIVILIAN INSTITUTIONS

The following Medical Department officers have been accepted for courses in the civilian institutions indicated:

- | | | |
|----------------------------------|--|---------------------------|
| Col. E. L. Olson | Gill Memorial Eye, Ear and Throat Hospital, Roanoke, Va. | Otolaryngology |
| Col. Arnold A. Albright | University of Michigan, Ann Arbor, and; later, State University of Iowa, Iowa City | Ophthalmology |
| Col. Wilford F. Hall | Johns Hopkins University, Baltimore | Otorhinolaryngology |
| Col. Vernon J. Erkenbeck | Indiana University Medical Center, Indianapolis | Otorhinolaryngology |
| Lieut. Col. Byron G. McKibben | Indiana University Medical Center, Indianapolis | Otorhinolaryngology |
| Lieut. Col. Oscar P. Moffitt Jr. | Indiana University Medical Center, Indianapolis | Otorhinolaryngology |
| Lieut. Col. Lucio E. Gatto | Philadelphia Psychanalytic Institute, Philadelphia | Psychoanalysis |
| Capt. Si F. Moorehead | Columbia University College of Physicians and Surgeons, New York | Orthopedic surgery |
| Capt. Thomas R. Plowright | Fresno General Hospital, Fresno, Calif. | Pediatrics |
| First Lieut. Paul C. Olfelt | Minneapolis General Hospital, Minneapolis | Intern training |
| First Lieut. Jack W. Passmore | Sacred Heart Hospital, Spokane, Wash. | Intern training |
| First Lieut. Joel H. Richert | West Suburban Hospital Assn., Oak Park, Ill. | Intern training |
| First Lieut. Charles W. Hanford | St. Mary's Group Hospitals, St. Louis | Obstetrics and gynecology |
| First Lieut. Merlin H. Johnson | Iowa State Psychopathic Hospital, Iowa City | Psychiatry |
| First Lieut. Edward O. Bierman | Firmin Desloge Hospital, St. Louis | Ophthalmology |
| First Lieut. James C. Bell | Colorado General Hospital, Denver | Medicine |
| First Lieut. Albin J. Sowka | St. Mary of Nazareth Hospital, Chicago | General surgery |

NAVY

CERTIFIED BY BOARDS

The following additional Naval medical officers have recently been certified by American boards: American Board of Preventive Medicine and Public Health, Capt. Richard H. Fletcher and Capt. Thomas J. Carter; American Board of Dermatology and Syphilology, Capt. Charles D. Bell; American Board of Pathology, Commanders William W. Ayers and William O. Umiker and Lieut. Comdr. Carl M. McCandless.

DUTY UNDER INSTRUCTION

The following medical officers have been nominated for duty under instruction in the Navy's Postgraduate Training Program: Commanders Oscar T. McDonough Jr., Washington, Pa., to a residency in surgery at the Naval Hospital, Philadelphia; Nelse O. Olson, San Francisco, to a residency in ophthalmology at the Naval Hospital, Long Beach, Calif.; Edward P. Slosek of Nashua, N. H., to a fellowship in surgery at the Lahey Clinic, Boston; Phillips L. Claud of Portsmouth, Va., to instruction in radiology at the University of Pennsylvania Graduate School of Medicine, Philadelphia; Evan C. Stone Jr., of Minot, N. D., to a residency in surgery at the Naval Hospital, Chelsea, Mass. Lieutenant Commanders Robert F. Christoph, Des Moines, Iowa, to a fellowship in surgery at Northwestern University Medical School, Chicago; Watson B. Larkin, Denver, to a residency in otolaryngology at the Naval Hospital, NMMC, Bethesda, Md.; Earl C. Wolf, Naperville, Ill., to a residency in otolaryngology at the Naval Hospital, Philadelphia; Lieut. Vorris M. Reist, Oberlin, Kan., to a residency in obstetrics and gynecology at the Naval Hospital, Long Beach, Calif.; Lieutenants (jg) James M. Cole, Cuba, N. Y., to a residency in otolaryngology at the Naval Hospital, Philadelphia; Paul A. Jarand of Farina, Ill., for duty under instruction in aviation medicine at the School of Aviation Medicine and Research, NAS, Pensacola, Fla. Raymond J. Leffler, Sayre, Pa., to a residency in pathology, Naval Medical School, NMMC, Bethesda, Md.; Gerald A. Martin of Wilmore, Ky., for duty under instruction in internal medicine at the University of Maryland Hospital, Baltimore, Md.; Delmar W. Ruthig of Saginaw, Mich., for duty under instruction in preventive medicine at the Johns Hopkins University School of Hygiene and Public Health, Baltimore; Robert C. Trout, Columbus, Ohio, to a residency in surgery at the Naval Hospital, Philadelphia; James H. Watts of Ansley, Neb., for duty under instruction in otolaryngology at the University of Illinois College of Medicine, Chicago; Paul D. Doolan of Hamden, Conn., to a residency in internal medicine at Georgetown University Hospital, Washington, D. C.; Alfred K. Hawkes, Goulds, Fla., to a residency in otolaryngology at the Eye, Ear, Nose and Throat Hospital, New Orleans, and Frank Ostapowicz, West Nanticoke, Pa., to a residency in obstetrics and gynecology at the Naval Hospital, Philadelphia.

DEDICATE NEW RESEARCH
LABORATORIES

The new laboratories of Naval Medical Research Unit 4 at Great Lakes, Ill., were dedicated on June 13, at which time Rear Admiral Clifford A. Swanson, Surgeon General of the Navy, gave the principal address. This research unit, which was formerly at the Naval Hospital, Dublin, Ga., is one of several Naval research units located in the United States and other parts of the world. With the transfer of the Naval hospital at Dublin to the Veterans Administration, it was decided to relocate this research unit at Great Lakes, where there is a large Naval training center, thus making available unique opportunities for research on diseases of the respiratory tract. This unit is under the command of Lieut. Comdr. John R. Seal, M.C., and has already gained recognition for contributions on rheumatic fever.

FIRST ACTIVE DUTY

Lieutenants (junior grade) in the Medical Corps Reserve recently nominated for their first active duty as interns are as follows:

Eugene R. Baker	Memphis, Tenn.	Naval Hospital, Oakland, Calif.
William J. Collier	Albany, Mo.	Naval Hospital, NTC, Great Lakes, Ill.
"H" Frank Holman	Urbandale, Moberly, Mo.	Naval Air Technical Training Center, Memphis, Tenn.
Donald F. Robinson	Danville, Ill.	Naval Hospital, NTC, Great Lakes, Ill.
James M. Smith	Mason, Ohio	Naval Hospital, San Diego, Calif.

NEW REGULAR OFFICERS

The following medical officers on active reserve status have been appointed as lieutenants (jg) to the Regular Navy Medical Corps:

Robert K. Barton, Fountain City, Ind.; James M. Cole, Cuba, N. Y.; Keith M. Coverdale, Fort Wayne, Ind.; Edward L. Mahon Jr., Kerrville, Texas, and Frank Ostapowicz, West Nanticoke, Pa.

PERSONAL

Rear Admiral Clifford A. Swanson, Surgeon General of the Navy, was awarded an honorary Doctor of Laws degree by Northern Michigan College of Education at Marquette, Mich., on June 18. Admiral Swanson, who is a native of Marquette, joined the Navy in 1925, after receiving his M.D. degree from the University of Michigan.

Dr. Lemuel T. Moorman of Florence, S. C., has been nominated for appointment as lieutenant (jg) in the Medical Corps Reserve and on acceptance will be assigned to the Medical Center, Bethesda, Md., as an intern.

AIR FORCE

TEMPORARY POSITION FOR MEDICAL
OFFICER

A vacancy exists in the headquarters of the Brookley Air Force Base, Alabama, for a Medical Officer (P-5) at a salary of \$6,235.20 per annum. Applications will be received until the needs of the service are met. Appointees will be given a temporary appointment pending the establishment of registers for regular probational appointments by the Civil Service Commission. This is a temporary interim period appointment. Applicants must be not less than 18 or more than 62 years of age, except in cases of veterans. Among the duties are: the diagnosis and treatment in internal medical cases and venereal diseases, surgery including the reduction of simple fractures, hemorrhoidectomies, blood transfusions, appendectomies, hernia, diagnosis of tuberculosis, the emergency treatment in obstetric and pediatric cases and roentgenology. The appointee must be able to supervise some 15 enlisted men

assigned as ward attendants and other personnel assigned to the laboratory or the x-ray room. Applications should be submitted on standard form 57 to the employee utilization branch, Room 117, Building T-50, Brookley Air Force Base, Alabama. Application forms may be secured from that address or from any first or second class post office.

ESTABLISH AIR FORCE MEDICAL RESERVE

General Hoyt S. Vandenberg, Chief of Staff, U. S. Air Force, announces that applications are being received for commissions in the newly created Air Force Medical Reserve. Physicians, dentists, nurses and other medical personnel who served with the Army Air Forces during the war may make application through the Air Adjutant General, U. S. Air Force, Dayton, D. C.

PHYSICIANS SEPARATED FROM SERVICE

ARMY MEDICAL CORPS OFFICERS RECOMMENDED FOR/OR RELIEVED FROM ACTIVE DUTY

Alabama

Hood, Willis S.....Birmingham
Kahn, Lawrence I.....Gadsden
McLallen, Clyde D. Jr.....Birmingham
Majors, Webster B.....Birmingham
Mowry, Robert W.....Birmingham
Woodall, William M. Jr.....Birmingham

Arkansas

Applegate, Charles S. Jr.....Rogers
Clark, Charles G.....Arkadelphia
Irvin, Jack M.....Little Rock
Jernigan, George C. Jr.....Rector
Kersh, Noah Bruce.....Monticello
Moore, Raymond T.....Marshall
Wright, Harold B.....Little Rock

California

Cannon, John E.....Los Angeles
Crane, Jackson T.....Hayward
Curtis, George W.....Long Beach
Edwards, David J.....San Francisco
Gorman, Ralph D. Jr.....Piedmont
Gregory, Ronald C.....Los Angeles
Halpern, Richard M.....San Francisco
Hanshae, Truman R.....Fresno
Hermann, Albert J.....Pacific Grove
McLoone, Edward W.....West Los Angeles
Miller, Glenn W.....Loma Linda
Mills, Harold.....Los Angeles

Illinois

Baker, Lester.....Chicago
Blichert, Peter A.....Chicago
Brock, Robert P.....Chicago
Duncan, Robert J.....La Salle
Dwyer, John C. Jr.....Chicago
Falconer, David J.....Buffalo
Felts, James A.....Marion
Goldman, Leonard.....Chicago
Gonda, Thomas A.....Chicago
Halvorsen, Martin H.....Chicago
Hands, Alexander P.....Riverside
Hart, George M. Jr.....Elgin
Hirshfield, Hymen J.....Chicago
Interlandi, Joseph.....Chicago
Johnson, Robert E.....Chicago
Jones, Grant A.....La Salle
Loseff, Herbert S.....Chicago
McCallister, John W.....Chicago
Marzinelli, Ferdinand J.....Chicago
Neller, Norman I.....Cicero
Nelson, Carl A.....Danville
Pile, Wendell J.....College
Saslow, Ernest J.....Chicago
Shoch, Daid E.....Chicago
Shrifter, Norman.....Chicago
Stone, Richard W.....Chicago
Vinciguerra, Peter L.....Chicago
Weinfield, Edward E.....Chicago

Louisiana—Continued

Morrow, Robert L. Sr.....Plaquemine
Stewart, William H.....New Orleans
Weiss, Gerald N.....New Orleans

Maine

Blodgett, Frederic M.....Bucksport
Herrmann, Albert C.....Baltimore
Hoffman, Elmer.....Baltimore
McKusick, Victor A.....Guilford

Maryland

Bennet, Eben T.....Baltimore
Caylor, Claude C. Jr.....Silver Spring
Jones, Bobby L.....Glen Burnie
Park, Charles R.....Garrison

Massachusetts

Benton, Fred W.....Needham
Bordenca, Morris J.....Waltham
D'Ambrosio, Francis A.....Medford
Fremont-Smith, Paul.....Brookline
Gorfine, Morris.....Somerville
Greenfield, Theodore B.....Chelsea
Herman, Leon.....Brighton
Kunan, Richard E.....Holbrook
Lopatin, Edward.....Worcester
Morgan, Councilman.....Cambridge
Savak, Joseph E.....Newburyport
Shaw, Robert S.....Auburndale
Solomon, David H.....Boston

AIR FORCE MEDICAL SERVICE

The organization of a medical service within the Air Force has been announced, following directives issued by Secretary of Defense Louis Johnson. The new Air Force medical service, it is said, will provide better flexibility and control for Air Force medical services and requirements and will provide more efficient and equitable coordination under unification of control within the national military establishment. No duplication will exist under the new organization, since the Air Force previously had a medical service which, however, was under Army control.

The Air Force plans are designed to correct the major objections of professional persons to a career in the Armed Forces. An attractive career program will assure opportunity for medical and scientific advancement. Air Force physicians will have opportunities for advanced training in clinical medicine and

research in aviation medicine, and they will be given every possible opportunity to pursue their specialty. Professional facilities of General Hospitals and Laboratories, approved civilian institutions and Air Force facilities will be used to provide training tours. Medical officers will continue to receive the extra \$100 per month, and those who qualify for flying duties will receive additional hazard pay.

The officer personnel will consist of regular, reserve and national guard Air Force medical officers. A comprehensive plan for career development includes postgraduate training to provide the highest standard of medical care and insure the professional stature of individual officers.

Major General Malcolm C. Grow, Surgeon General of the Air Force, has been elevated to an organizational and functional position directly under the Chief of Staff of the Air Force.

PUBLIC HEALTH SERVICE

NEW ASSISTANT SURGEONS GENERAL

In ceremonies in Washington, June 7, three new Assistant Surgeons General were inducted into office by Surgeon General Leonard Scheele. They are: Otis L. Anderson, Vane M. Hoge and Lucile Petry. Dr. Hoge has been a member of the Regular Corps since 1928, and Dr. Anderson, since 1930. Miss Petry is the first woman in the 150 year history of the Public Health Service to hold the rank of Assistant Surgeon General. She is a native of Ohio, formerly was instructor at the Johns Hopkins Schools of Nursing and the Yale University School of Nursing and assistant director of the University School of Nursing.

Surgeon General Scheele also announced appointments to two newly created Public Health Service divisions: Dr. Estella Ford Warner, chief of the Division of States Grants, and Dr. Chapman, chief of the Division of Chronic Disease. Dr. Warner, who is the first woman ever to be commissioned in the Regular Corps, has been with the Public Health Service since 1931. Dr. Chapman, who has been with the Public Health Service since 1939, was former assistant chief of the Division of States Relations, and previously he served with the state health departments in New Jersey, Delaware and West Virginia, and with the Norfolk, Va., health department, of which he was commissioner.

ALL STATES NOW IN THE HOSPITAL CONSTRUCTION PROGRAM

The U. S. Public Health Service announces that the State Hospital Construction Program for Nevada has been received and approved; thus, all the states and territories are now included in the National Hospital Construction Program, whereby they become eligible for federal financial assistance to build hospitals and related health facilities. By June 1, 797 projects had been given at least initial approval by the Surgeon General; the total estimated cost for these buildings is \$483,403,883. The federal share of this cost is \$149,006,657. There are 387 of these projects actually now under construction.

SECOND WORLD HEALTH ASSEMBLY

Surgeon General Scheele has been named Chairman and Chief Delegate of the United States Delegation to the Second World Health Assembly, which will be held in Rome, June 13-July 2, 1949. Following is the list of the other United States Delegates to the Assembly:

Delegates

Edward S. Rogers, M.D., Dean, School of Public Health, University of California, Berkeley.

Mrs. Louise Wright, Chairman, Chicago Council on Foreign Relations.

Alternates

Howard B. Calderwood, Division of United Nations Economic and Social Affairs, Department of State.

H. van Zile Hyde, M.D., United States Representative on the Executive Board of the World Health Organization; Medical Director, U. S. Public Health Service, Federal Security Agency.

James R. Miller, M.D., Member, Board of Trustees, American Medical Association.

Congressional Advisers

The Honorable Allen J. Ellender, United States Senate.

The Honorable Joseph L. Pfeiffer, House of Representatives.

Advisers

R. W. Babione, Captain M.C., U.S.N., Bureau of Medicine and Surgery, Department of the Navy.

Katharine E. Faville, Dean and Professor of Nursing, College of Nursing, Wayne University, Detroit.

Robert Felix, M.D., Director, National Institute of Mental Health, U. S. Public Health Service, Federal Security Agency.

George M. Ingram, Acting Chief, International Administration Staff, Office of United Nations Affairs, Department of State.

David B. Lee, State Sanitary Engineer of Florida; President, Conference of State Sanitary Engineers.

Knud Stowman, Chief, Information and Research, Office of International Health Relations, U. S. Public Health Service, Federal Security Agency.

Mary Switzer, Assistant to the Administrator, Federal Security Agency.

Executive Secretary

William H. Dodderidge, Division of International Conferences, Department of State.

Assistant Executive Secretary

Anthony M. Tapogna.

Administrative Assistant

Elizabeth G. Prichard, Special Assistant to the Surgeon General of the U. S. Public Health Service, Federal Security Agency.

Documents Officer

Ellen M. Duggan, Division of International Conferences, Department of State.

VETERANS ADMINISTRATION

TRAINING DISABLED VETERANS

The Veterans Administration announces that during the past six years more than 94,000 disabled World War II veterans have been fully trained under Public Law 16 to earn a living. These veterans have been rehabilitated after completing their class room, on the job or on the farm training; of this number, 24,800 completed work in colleges and universities, 18,000 graduated from schools below college level, 50,800 finished their job training courses and 870 finished institutional on farm training. Public Law 16 was enacted by Congress in 1943 to restore veterans to employability lost because of a disability incurred in or aggravated by service in the armed forces between Sept. 16, 1940 and July 26, 1947. On May 1 there were 218,957 veterans in training under this law, about half of them in schools and colleges.

RESIDENCIES AVAILABLE

Three residencies in anesthesia are available beginning July 1 in the Veterans Administration Hospital at Richmond, Va.

Several residencies in neuropsychiatry will be available in the near future in the Veterans Administration Hospital, North Little Rock, Ark. Information may be obtained from the Director of Professional Education in the hospital.

PERSONAL

Dr. Major W. Gasper has been named manager of the Veterans Hospital at Wilmington, Del. He is a veteran with four years' service in the recent war and a graduate of the University of Michigan Medical School and formerly was in private practice.

PHYSICIANS SEPARATED FROM SERVICE

ARMY MEDICAL CORPS OFFICERS RECOMMENDED FOR/OR RELIEVED FROM ACTIVE DUTY

Alabama

Hood, Willis S.....Birmingham
Kahn, Lawrence I.....Gadsden
McLallen, Clyde D. Jr.....Birmingham
Majors, Webster B.....Birmingham
Mowry, Robert W.....Birmingham
Woodall, William M. Jr.....Birmingham

Arkansas

Applegate, Charles S. Jr.....Rogers
Clark, Charles G.....Arkadelphia
Irvin, Jack M.....Little Rock
Jernigan, George C. Jr.....Rector
Kersh, Noah Bruce.....Monticello
Moore, Raymond T.....Marshall
Wright, Harold B.....Little Rock

California

Cannon, John E.....Los Angeles
Crane, Jackson T.....Hayward
Curtis, George W.....Long Beach
Edwards, David J.....San Francisco
Gorman, Ralph D. Jr.....Piedmont
Gregory, Ronald C.....Los Angeles
Halpern, Richard M.....San Francisco
Haushae, Truman R.....Fresno
Hermann, Albert J.....Pacific Grove
McLoone, Edward W.....West Los Angeles
Miller, Glenn W.....Loma Linda
Mills, Harold.....Los Angeles
Palmer, Robert F.....San Francisco
Payne, Donald I.....Lakeport
Schneider, Charles L.....Glendale
Shelton, Robert N.....Glendora
Skeels, Robert F.....Los Angeles
Smith, Henry A. Jr.....Los Angeles
Smith, Milton H.....San Francisco
Stone, Robert N.....Oakland
Travis, Paul E.....Los Angeles
Wagner, John D.....Pasadena
Wolf, Louis M.....Needles

Colorado

Levine, Edward H.....Denver
Maxwell, Ned G.....Denver

Connecticut

Hughes, George S.....Sarien
Scheer, Edward H.....Kensington
Simburg, Earl J.....New Haven
Spelman, Joseph W.....New Haven
Spire, Lyman "J".....Stanford

Delaware

Milnor, William R. Jr.....Wilmington

District of Columbia

Davis, William J. G.....Washington
Dorsey, William R.....Washington
Franzoni, Joseph D.....Washington
Greer, Dan B.....Washington
Hunt, Robert C.....Washington
Sarao, Ernest A.....Washington

Florida

Harrison, Everett M.....Dunedin
Jones, Gerald W.....Orlando
Lear, Walter J.....Miami Beach
Warfield, Charles I.....Miami Beach
Wolkowsky, Melvin.....Miami Beach

Georgia

Glover, Nathaniel B.....Newman
Goss, C. C.....Richland
Hurst, John W.....Augusta
Morris, Albert L.....Atlanta
Reisman, Edward D.....Atlanta
Rice, Robert S.....Atlanta
Rogers, Edward A. Jr.....Pelham
Stapleton, James W.....Stapleton

Idaho

Collins, John P.....Blackfoot
Rosenheim, Gustav E.....Boise

Illinois

Baker, Lester.....Chicago
Blichert, Peter A.....Chicago
Brock, Robert P.....Chicago
Duncan, Robert J.....La Salle
Dwyer, John C. Jr.....Chicago
Falconer, David J.....Buffalo
Felts, James A.....Marion
Goldman, Leonard.....Chicago
Gonda, Thomas A.....Chicago
Halvorsen, Martin H.....Chicago
Hands, Alexander P.....Riverside
Hart, George M. Jr.....Elgin
Hirshfield, Hymen J.....Chicago
Interlandi, Joseph.....Chicago
Johnson, Robert E.....Chicago
Jones, Grant A.....La Salle
Loseff, Herbert S.....Chicago
McCallister, John W.....Chicago
Marzinelli, Ferdinand J.....Chicago
Neller, Norman I.....Cicero
Nelson, Carl A.....Danville
Pile, Wendell J.....College
Saslow, Ernest J.....Chicago
Shoch, Daid E.....Chicago
Shrifter, Norman.....Chicago
Stone, Richard W.....Chicago
Vinciguerra, Peter L.....Chicago
Weinfeld, Edward E.....Chicago

Indiana

Blessinger, Louis H.....Huntingburg
Green, Carl L.....Vincennes
Green, Morris.....Indianapolis
Henderson, Francis G.....Monon
Hughes, Richard R.....Indianapolis
Jackson, John F.....Fort Wayne
Johnston, Richard M.....Fort Wayne
Jope, Clifford H.....Indianapolis
Kellam, Leewyn R.....Culver
Miller, Frank H.....Rushville
Morford, Guy.....Kokomo
Moriarty, John R.....Indianapolis
Morrow, Andrew G.....Indianapolis
Murray, Ernest C.....Indianapolis
Paine, George E.....Elkhart
Popplewell, Arvine G.....Indianapolis
Ringenberg, Jordan C.....Woodburn
Westfall, John B.....Lebanon

Iowa

Baird, William A.....Des Moines
Harwood, Arthur M.....Hedrick
Jongewaard, Robert E.....Jefferson
Newland, Don O.....Belle Plaine
Nielsen, Arnold T.....Des Moines
Quinn, Thomas J. Jr.....Davenport

Kansas

Harris, Norvan D.....Bird City
Morris, Merle D.....Topeka
Nicolay, Kenneth S.....Abilene
Nininger, Eugene V.....McPherson
Shonyo, Elwyn S.....Bushton

Kentucky

Bertram, Herbert M. Jr.....Vanceburg
Clark, Daniel E.....Frankfort
Corder, Vernon W.....Louisville
Davis, William A.....Pikeville
Gordon, Armond T.....Louisville
Hagan, William H.....Louisville
Hayes, Oscar J.....Berea
Hawn, William F.....Barbourville
Lambert, Charles R.....Ashland
Merchant, George B. Jr.....Louisville
Williams, James P. Jr.....Crutchfield
Witten, Raleigh E.....Paintsville

Louisiana

Gladney, William P.....Homer
Harmon, Derwin K.....Church Point
Henderson, Jesse L.....New Orleans

Louisiana—Continued

Morrow, Robert L. Sr.....Plaquemine
Stewart, William H.....New Orleans
Weiss, Gerald N.....New Orleans

Maine

Blodgett, Frederic M.....Bucksport
Herrmann, Albert C.....Baltimore
Hoffman, Elmer.....Baltimore
McKusick, Victor A.....Guilford

Maryland

Bennet, Eben T.....Baltimore
Caylor, Claude C. Jr.....Silver Spring
Jones, Bobby L.....Glen Burnie
Park, Charles R.....Garrison

Massachusetts

Benton, Fred W.....Needham
Bordenca, Morris J.....Waltham
D'Ambrosio, Francis A.....Medford
Fremont-Smith, Paul.....Brookline
Gorfine, Morris.....Somerville
Greenfield, Theodore B.....Chelsea
Herman, Leon.....Brighton
Kunan, Richard E.....Holbrook
Lopatin, Edward.....Worcester
Morgan, Councilman.....Cambridge
Savak, Joseph E.....Newburyport
Shaw, Robert S.....Auburndale
Solomon, David H.....Boston
Sorrel, Sydney M.....Somerville

Michigan

Fink, Jack P.....Detroit
Gostine, Edmond J.....Detroit
Gregory, Louis J.....Petersburg
Hildebrand, John E.....Detroit
Juzek, Robert H.....Ann Arbor
Leader, Samuel A.....Battle Creek
Newcomer, Delbert V.....Kalamazoo
Straith, Richard E.....Detroit

Minnesota

Berge, Harry L.....Minneapolis
Gholz, Anthony C.....Minneapolis
Kelly, William D.....St. Paul
McDonald, Roger K.....Minneapolis
Phillips, Frederick E.....Eveleth
Rukavina, John G.....Hibbing
Runwuist, John M.....Duluth
Stowens, Daniel.....St. Paul

Mississippi

Godman, Harold E.....Oxford
Graves, Sidney O. Jr.....Laurel
Johnson, Howard C.....Corinth
Jones, James C. Jr.....Gulfport
Riemann, Ernest T. Jr.....Gulfport

Missouri

Andrew, William F.....Richmond
Bussmann, Donald W.....St. Louis
Crawford, Oral B. Jr.....Columbia
Jacobs, Morton.....Kansas City
Muckerman, Richard I.....St. Louis
Norman, Ruskin C.....Ava
Price, William P.....St. Louis

Montana

Coleman, Daniel H.....Butte

Nebraska

Camp, Ray J.....Aurora
Gauchat, August C.....Auburn
Greene, Daniel E.....Omaha
Jones, Aubrey H.....Lincoln
Keast, Robert W.....Omaha
Truhlsen, Stanley M.....Herman
Walter, Floyd J.....Chambers

New Jersey

Bruno, Michael S.....Patterson
Elwell, Robert W.....Camden

PHYSICIANS SEPARATED FROM SERVICE

New Jersey—Continued

Gladstone, Albert L.....Paramus
Goldstein, Herbert H.....Newark
Hallinger, Leonard N.....Irvington
Jackson, Richard S.....Elizabeth
Kilbourne, Edwin D.....Ridgewood
Marsh, Raymond R.....Leonia
Martin, William J.....Freehold
Moore, Duncan L. Jr.....Jersey City
Van Meter, Ralph H.....Salem
Weiss, William I.....Newark

New York

Barnett, William J.....Schenectady
Beegel, Paul M.....Roosevelt
Beyers, Milton R.....Babylon
Blumenthal, Mortimer J.....Brooklyn
Bradley, James L.....Lyons
Bronos, George.....Bronx
Caccese, Anthony.....Brooklyn
Clever, Robert S.....Brewster
Dorrance, William R.....Albany
Giges, Gerald.....New York
Glenn, Jules.....Woodside
Glick, Harold.....Bronx
Gutner, Leonard B.....Yonkers
Gutstein, William H.....Bronx
Hayeslip, David W.....Albany
Hoffman, Sidney.....Brooklyn
Isaacson, Norman H.....Brooklyn
James, Wilbert L.....Rochester
Kalmanson, George M.....Elmhurst, L. I.
Kaufman, Edwin H.....Brooklyn
Kessler, Walter R.....New York
King, David G.....Brooklyn
Lowenthal, Martin.....Brooklyn
Mazzeo, Albert A.....Newburgh
Mernit, Arthur H.....New York
Moore, Thomas J.....Bronxvil
Nevin, Marshall I.....Brooklyn
Patrick, Albert L.....Brooklyn
Pecora, Joseph S.....Rochester
Pratt, Arnold.....Geneva
Reiss, Richard A.....New York
Riley, Edgar A.....New York
Rogers, Paul W.....Brooklyn
Rose, Frank S.....Middletown
Rosenthal, Donald J.....New York
Rowley, Carleton D.....Walton
Schopp, Robert C.....Tonawanda
Scow, Robert O.....New York
Silberstein, Frederick H.....Brooklyn
Stelter, John H. Jr.....Woodhaven
Stevens, Harold G.....Binghamton
Stunkard, Albert J.....New York
Swartout, Roy III.....Buffalo
Tiffany, William J. Jr. West Brentwood
Vignos, Paul J. Jr.....New York
Wiseman, Richard D.....Syracuse
Zitrin, Arthur.....Brooklyn

North Carolina

Alderman, Edward H.....Four Oaks
Brown, William T. Jr.....Hamlet
Dickson, Laurie C. Jr.....Charlotte
Little, Filas J. Jr.....Concord
Milford, Morgan T.....Charlotte
Newsome, Henry C. Jr. Winston Salem
Riddle, Harry D.....Gastonia
Singletary, William V.....Durham
Thompson, Frederick A. Jr.....Lenoir

North Dakota

Geiser, Peter M.....New England

Ohio

Arduino, Lino J.....Dayton
Burkhart, William E.....Columbus
Camp, Harry W. Jr.....Warren
Davison, Robert A.....Columbus
Denison, Adam B. Jr.....Shaker Heights
Glasgow, Robert E.....Akron
Goldsmith, Richard E.....Cincinnati

Ohio—Continued

Hartung, Walter H. Jr.....Toledo
Hein, Ned B.....Toledo
Hoffman, Ernest Jr.....Findlay
Hugenberg, William C.....Norwood
Hugo, George J.....Norwalk
Larsen, William G.....Lima
Murphy, Roland V.....Toledo
Pollock, Sterling G.....Canton
Roesemann, Richard C.....Elyria
Schneider, Lawrence J.....Cincinnati
Scott, Ralph C.....Bethel
Slosser, Paul J.....Cleveland
Smith, Ivan G.....Columbus
Sommer, Robert R.....Grove City
Stiff, Philip C.....Toledo
Wildblood, Harry M.....E. Liverpool

Oklahoma

Grigsby, Orville L.....Spiro
Lewis, Ceylon S. Jr.....Muskogee
Matthews, Virgil D. Jr.....Muskogee
Ungerman, Milford S.....Tulsa
Waterbury, Cecil R.....Apache

Oregon

Ferrin, Allan L.....Cottage Grove
Higgins, John R.....Baker
Hirschler, Arthur E. Jr.....Baker
Maris, Robert W.....Portland

Pennsylvania

Beckert, Rudolph H.....Philadelphia
Ciaiola, Louis F.....Titusville
Conti, Alfred R.....Pittsburgh
Fulton, John F.....Pittsburgh
Glenn, John W.....Ford City
Gosfield, Edward Jr.....Philadelphia
Graham, Thomas F.....Yeadon
Gregg, Lester O.....Pittsburgh
Griffin, John A.....Philadelphia
Hayman, Harry B.....Yeadon
Horn, Harold R. Jr.....Jenkintown
Iobst, Charles W.....Emmaus
Levinsky, Walter J.....Meadville
Mather, Robert W.....Latrobe
May, Virgil R. Jr.....Sayre
Miller, Howard S.....Scranton
Moore, Richard D.....West Chester
Nayfield, Chester L.....Mt. Carmel
Puma, Samuel J.....Pittston
Ritter, Dale W.....Jersey Shore
Russell, Robert M.....Burgettstown

Rhode Island

Holden, Donald H.....Pascoag

South Carolina

Alexander, William M.....Seneca
Allen, Albert S.....Columbia
Davis, Wirt L. Jr.....Darlington
Gramling, Zachariah W.....Orangeburg
Hanna, Charles B.....Enoree
Hester, Lawrence L. Jr.....Mount Carmel
Irwin, Charles W. Jr.....Columbia
Massengill, Paul R.....Greenwood

South Dakota

Hermanson, John M.....Dell Rapids

Tennessee

Baird, Joseph J.....LaFollette
Bellott, Arthur L. Jr.....Memphis
Brown, Lorne E.....Memphis
Hall, John R.....Johnson City
Hoffman, Walter K. Jr.....Memphis
Jones, George P. Jr.....Memphis
Jordon, Robert G. Jr.....Brownsville
Miller, Harold R.....Memphis
Moore, Fontaine B. Jr.....Columbia
Nash, Thomas P. III.....Memphis
Nichols, Howard J.....Nashville
Weatherly, Jack.....Memphis

Texas

Becker, Ted E.....Kaufman
Bryson, John B.....Houston
Cohen, Irvin M.....Houston
Ferguson, Maurice L.....Waco
Glass, Walter W. Jr.....Port Arthur
Green, Adam D.....Weatherford
Greer, Roy B.....Lamarque
Hamilton, Hinton H. Jr.....Abilene
Hart, Wayne L.....Temple
Herrmann, Cornelius L.....San Antonio
Holt, Joseph G. Jr.....Stephenville
Hood, Francis T. N. Jr.....Plano
Hunt, Thomas E. Jr.....Paris
James, Powhatan W. Jr.....Houston
Josephs, Zelig M.....Marshall
Leblanc, Charles E.....Port Arthur
Montgomery, Philip O.....Dallas
Morgan, Ray M. Jr.....Brownwood
Moore, Thomas O. Jr.....Houston
Nau, Cornelius H.....San Antonio
Nichols, Thomas K.....Atlanta
Reiter, Charles Jr.....Kerrville
Robinson, William T.....Big Spring
Sellman, Willard C.....Dallas
Sleeper, Harold G. Jr.....Waco
Terrill, Robert J.....Dallas
Youngberg, Stephen A.....Elsa

Utah

Cox, George T.....Salt Lake City
Harmon, Hallard B.....Salt Lake City
Harmston, Gordon J.....Logan
Hulme, Harold B.....Manti
Nielson, Paul E.....Salt Lake City

Vermont

Cannon, Martin J.....Rutland
Judd, James M.....Randolph Center
Karren, Victor L.....Burlington
Rousseau, David G.....Grand Isle

Virginia

Cury, Dahar.....Norton
Gaddis, Don A.....Arlington
Kroutil, Ludwig C.....Alexandria
McCarrick, James P.....Louisiana
Talley, Daniel D. III.....Richmond
White, Stanley W.....Odd
Whittle, Joseph P.....Petersburg
Zearfoss, John E. Jr.....Alexandria

Washington

deRoeth, Andrew.....Spokane
Holst, William D.....Seattle
Miller, Zane E.....Vashon
Pierce, George E.....LaCrosse
Queen, Dan M.....Spokane
Rogers, Richard A.....Seattle
Skinner, Henry H. Jr.....Yakima

West Virginia

Lee, Charles V.....Elizabeth
Starling, John C.....Charleston

Wisconsin

Dockery, Joseph N.....So. Milwaukee
Holly, Roy G.....Waupaca
Nadeau, Emile G. Jr.....Green Bay
Sachs, Kurt.....Milwaukee
Teitgen, Ralph E.....Milwaukee
Vig, Edward N.....Viroqua
Weffer, Joseph F.....Madison

Wyoming

Newman, John R.....Kemmerer

Hawaii

Choy, Duke C.....Honolulu
Min, Thomas S.....Honolulu

Medical News

(Physicians will confer a favor by sending for this department items of news of general interest: such as relate to society activities, new hospitals, education and public health. Programs should be received at least two weeks before the date of meeting.)

ARIZONA

State Association Appoints Executive Secretary.—Mr. Carl A. Peachy, formerly of Toledo, Ohio, has been employed as executive secretary of the Arizona Medical Association. Mr. Peachy was associated with the Academy of Medicine of Toledo and Lucas County.

CALIFORNIA

Positions in Psychiatry Open.—The California State Personnel Board has scheduled a nationwide civil service examination to select candidates for positions for chief psychiatrist, correctional institution. The psychiatric duties are concerned principally with examinations of inmates and individual and group therapy. The final date for filing applications is August 6. The examination date is August 27 and the salary range is \$644 to \$782. Applications may be obtained from the State Personnel Board in Sacramento, San Francisco or Los Angeles.

Stanford Remodels Radiology Department.—Installation of six new major pieces of x-ray equipment and complete remodeling of the department of radiology in the Stanford University Hospital and Medical School in San Francisco has been announced, at a total cost exceeding \$100,000. New dark rooms, drying rooms, filing space, consultation room, a class room, and film interpretation rooms are included in the remodeling work, which has also provided two new waiting rooms. The diagnostic division of the radiology department now handles more than 1,600 patients a month. Dr. Henry S. Kaplan, professor of radiology and director of the department, has also established an experimental radiology laboratory in the Ruth Lucie Stern Research Building on Clay Street, opposite the hospital. Experimental cancer research, supported by funds from the National Cancer Institute, is being carried on by members of the radiology staff in this laboratory.

CONNECTICUT

Personal.—The University of Chicago at convocation exercises in June awarded Dr. Ross G. Harrison, Sterling professor of biology at Yale University, New Haven, the Doctor of Science degree for "his ingenious experimental methods and brilliant analysis which have signally advanced knowledge of the nervous system."

Research on Biology of Syphilis.—The New Britain General Hospital will receive a grant of \$22,302 from the National Institute of Health for the continuation of its program in research and basic study of the biology of syphilis. The program is under the direction of Paul D. Rosahn, pathologist in charge of the laboratories of the hospital. This is the fifth successive grant received for this research work, and the total amount of grants is about \$150,000.

ILLINOIS

State Medical Election.—The Illinois State Medical Society, at its recent annual meeting in Chicago, installed Dr. Walter D. Stevenson, Quincy, as president, selected Dr. Harry M. Hedge, Chicago, as president-elect and reelected Dr. Harold M. Camp, Monmouth, secretary-treasurer.

Chicago

Professor Day to Retire.—Dr. Alexander A. Day, professor of bacteriology and chairman of the department, Northwestern University Medical School, will retire August 31. A member of the faculty for 37 years, he was given a citation by the University Senate at commencement June 13. Farewell parties for him and Mrs. Day were given in June by Alpha Chapter of Phi Rho Sigma medical fraternity and by members of the bacteriology department faculty.

Personals.—Dr. Ulysses Grant Dailey, Chicago, delivered the annual Cassasa Memorial Lecture at Harlem Hospital, New York, April 13 on "Problems in Gastrointestinal Surgery."—Dr. Max Thorek has been made an officer of the *Légion d'Honneur* in appreciation from the French Government for "continuous services in the cause of amity between the United States and France."—Dr. Louis B. Newman has been appointed a member of the Medical Advisory and Consultant Board of

the Armour Research Foundation of Illinois Institute of Technology. This board is to select problems for research in the medical field and to advise an engineering staff on their medical aspects. Dr. Newman, who is chief of the physical medicine and rehabilitation service at the Veterans Administration Hospital, Hines, Ill., also has a degree in mechanical engineering.—Dr. Arthur C. Bachmeyer, assistant dean of the Biological Sciences Division, University of Chicago, received an honorary Doctor of Science degree from the University of Nebraska College of Medicine in Omaha May 28. Dr. Bachmeyer received his M.D. degree from the University of Cincinnati College of Medicine, 1911.

KANSAS

State Medical Election.—The Kansas Medical Society at its recent annual meeting installed Dr. Haddon Peck, St. Francis, as president and chose Drs. Franklin R. Croson, Clay Center, president-elect; Dale D. Vermillion, Goodland, secretary, and John L. Lattimore, Topeka, treasurer.

Dr. Hassig Honored.—Dr. John F. Hassig, Kansas City, was honored at a dinner attended by more than 100 of his colleagues at St. Margaret's Hospital May 19, the fifty-first anniversary of his first official visit to the hospital as a senior in medical school when he filled the place of interns called to duty in the Spanish-American War. Dr. Hassig has served as chief of the St. Margaret's Hospital staff; he was also secretary of the Kansas Medical Association for many years and president in 1935.

KENTUCKY

Retiring Dean Honored.—A testimonial dinner was given by the alumni of the University of Louisville School of Medicine for the retiring dean, Dr. John W. Moore, June 14 in Louisville. The new dean, Dr. J. Murray Kinsman, was introduced at the meeting. Members of the faculty and employees who had served for twenty-five years or longer were presented plaques.

Psychiatric Unit Dedicated.—Dedication ceremonies for the new psychiatric treatment and postgraduate training unit of Norton Memorial Infirmary, Louisville, were held June 14. Dr. Leo H. Bartemeier, Detroit, secretary of the American Psychiatric Association made the principal address. He stated that Louisville was the first city to build such a unit to a private general hospital with funds contributed by citizens. He credited Dr. S. Spafford Ackerly, chief of psychiatric services at the infirmary and chairman of the department of psychiatry and mental hygiene at the University of Louisville School of Medicine, with the advancement of the interest shown in this type of work since his arrival in Louisville seventeen years ago.

MARYLAND

Board of Medical Examiners.—The Board of Medical Examiners of Maryland on June 7 elected the following officers for one year beginning June: Drs. E. Paul Knotts, Denton, president; Edward M. Hanrahan, Baltimore, vice president, and Lewis P. Gundry, Relay, secretary.

Appoint Professor of Medical History.—Richard H. Shryock, Ph.D., professor of American history and since 1938 lecturer in medical history at the University of Pennsylvania, Philadelphia, has been appointed director of the Institute of the History of Medicine and William H. Welch professor of the history of medicine at the Johns Hopkins University School of Medicine, Baltimore. The new director will assume his duties in September. The Hopkins Institute of the History of Medicine was founded by Dr. William H. Welch in 1926. Dr. Welch, the first director, was followed by Dr. Henry Sigerist. Dr. Shryock became interested in medical history while serving with the Medical Corps during World War I. Returning to the University of Pennsylvania after the war, he continued training for the degree of Doctor of Philosophy.

MASSACHUSETTS

Society Elections.—At a meeting of the Massachusetts Trudeau Society June 9 Dr. Henry D. Chadwick, Waltham, became president and Dr. Edward J. Welch, Brookline, secretary-treasurer.

New Farnsworth Medical Building.—The six story Farnsworth Surgical Building of the New England Medical Center was opened May 26 in Boston. The hospital is round inside to provide outside rooms for all patients and has subterranean surgeries made possible by modern lighting. The operating suite, with six operating rooms, opens off a circular corridor. Two of the large rooms are equipped with galleries for observers above the "one way" glass. With early ambulation in mind, lounging rooms for patients have been provided for each floor.

The hospital will be available to New England physicians working through the Bingham Associates, organized in 1931 to provide better medical care for persons in small towns and rural communities. The plan of providing graduate training for doctors in up country New England, consultation in their own hospitals and diagnostic facilities in Boston while the doctor keeps his patient dates back to 1931. William Bingham II, a Cleveland millionaire, organized the Bingham Associates. It gave Boston Dispensary \$50,000 in 1931 to equip and operate a ward of 20 beds for diagnosis of conditions of patients sent in from up country. A full report was returned with the patient to his doctor for treatment. In 1933 Mr. Bingham built the Pratt Diagnostic Hospital. The new Farnsworth Building opens into Pratt hospital. The New England Medical Center is made up of the two hospitals, the Ziskind Laboratories, Boston Dispensary, Floating Hospital and the new Tufts College Medical School to be opened this fall.

MINNESOTA

Dr. Bell to Retire.—Dr. Elexious T. Bell, professor of pathology at the University of Minnesota Medical School, Minneapolis, retired June 15. He has served the university since 1910, teaching first anatomy and since 1911 pathology. He was appointed head of the department in 1921. An advisory committee has recommended the establishment of a fund of \$100,000 to create and maintain for teaching and research a Museum of Pathology in the medical school, which will bear his name. Dr. James S. McCartney Jr. is chairman of the E. T. Bell Fund Committee.

NEBRASKA

State Health Director Resigns.—Dr. Wallace S. Petty, state health director since March 1946, has resigned effective August 1. He has been associated with the department since 1942.

Medical Press Radio Conference.—The first Medical-Press-Radio Conference sponsored by the Nebraska State Medical Association was held in Omaha June 17. More than 160 newspapermen and doctors attended the all day meeting, which was designed to provide an opportunity to present mutual problems and work out a plan of cooperation. Dr. Joseph D. McCarthy, Omaha, president of the state medical association, and Dr. Harold S. Morgan, Lincoln, chairman of the association's public relations committee, played an active part in planning the meeting. The morning program was devoted to presentation of points of view by representatives of each group, and roundtable discussions were held during the afternoon. At the luncheon Mr. Alexis McKinney, managing editor, *The Denver Post*, spoke on "Obligations of the Press, Radio and Medical Profession."

NEW YORK

Personals.—Dr. Thomas R. Noonan, Rochester, N. Y., has been appointed to the staff of the Medical Division of the Upjohn Company. Dr. W. Kendrick Hare has been appointed director of the Statler Research Laboratories at Children's Hospital, Buffalo, and associate professor of pediatrics in the University of Buffalo Medical School. Dr. Hare comes from Cornell University Medical College, New York, where he has been a research associate in pediatrics since 1947.

Select Sites for Medical Centers.—The trustees of the new State University on June 16 recommended that the university locate its metropolitan medical center in Brooklyn and its up state medical center in Syracuse. The trustees adopted a resolution, subject to approval by the Board of Regents, authorizing the executive officers of the State University to enter into agreements for incorporating into the university the Long Island College of Medicine, Brooklyn, and the Syracuse University College of Medicine. The state plans to take over the colleges of medicine prior to next September and to operate them as integral parts of medical centers at that time. More than half of the \$10,000,000 appropriated by the 1949 legislature for the State University will probably be spent on the medical centers. When the State University takes over the colleges, it is expected that most of the faculty members will be retained and the faculties enlarged.

New York City

Research on Infant Blindness.—The Dunlevy Milbank Foundation had established a five year research program at Presbyterian Hospital by an initial grant of \$46,000 for the first two years to "inaugurate and carry forward a search for the cause and prevention of blindness in infants, particularly those born prematurely." The grant is to be known as a "Grant for Research in the Cause and Prevention of Retrolental

Fibroplasia." The research on this project will be carried on under the direction of Dr. John H. Dunnington, director of the ophthalmologic service at the Institute of Ophthalmology, a unit of the Columbia Presbyterian Medical Center. Dr. Algernon B. Reese, attending ophthalmologist and pathologist, will be directly in charge of the project.

Dr. Most in Charge of New Tropical Disease Clinic.—The Department of Health has expanded its tropical disease diagnostic service by opening its second clinic and laboratory in the Lower East Side Health Center, 341 East 25th Street, on June 15. Private physicians, clinics or hospitals may refer patients to the new clinic for consultation, diagnosis or treatment, and laboratory specimens may be submitted for diagnosis. Patients at the clinic will be seen by appointment only. Dr. Harry Most, director, postgraduate course in tropical medicine, New York University-Bellevue Medical Center Postgraduate Medical School, is in charge of the new laboratory and clinic. Dr. Most also serves as consultant in tropical medicine to the Surgeon General, United States Army, to the Veterans Administration and to other government agencies. He is a member of the subcommittee on tropical medicine of the National Research Council.

OKLAHOMA

Award 50 Year Pins.—Three pioneer Oklahoma practitioners were honored for their contributions in medicine in Oklahoma at special ceremonies awarding the Oklahoma State Medical Association 50 year club pin. They are Drs. Ralph W. Holbrook, Perkins, and Clarence S. Petty and Dan F. Gray of Guthrie.

Establish Grievance Committee.—The Oklahoma State Medical Association at its annual meeting in May established a Grievance Committee as a step toward better public relations for the profession in Oklahoma. The committee will provide for the people of the state an agency to consider individual complaints on medical services rendered by members of the association. Complaints will be considered from three points of view: (1) the amount of service rendered, (2) the responsibility assumed and (3) the patient's ability to pay. Membership in the committee will be composed of the five immediate past presidents still living. Members of the present committee are Drs. Clarence E. Northcutt, Ponca City; Paul B. Champlin, Enid; Louis C. Kuyrkendall, McAlester; Charles R. Rountree, Oklahoma City, and James Stevenson, Tulsa.

TENNESSEE

Dr. Packer Appointed Department Head.—Dr. Henry Packer, associate professor since 1938 in the department of preventive medicine and public health at the University of Tennessee College of Medicine, has been appointed professor and head of the department effective July 1, succeeding Dr. Frank L. Roberts, who became assistant dean July 1. Dr. Packer is a graduate of McGill University Faculty of Medicine, Montreal, 1933, received his doctorate in public health at the Yale University School of Public Health, New Haven, Conn., and has been a county health officer.

WEST VIRGINIA

License Revoked.—The Public Health Council at a meeting held in Charleston May 12 revoked Dr. Richard Bent Engle's license, no. 6196, to practice medicine in West Virginia because of the doctor's conviction on a felony charge. Dr. Engle was formerly located at Longacre, Glen White and Beckley.

Society News.—Mr. Thomas A. Deveny Jr. of Charleston has accepted appointment as executive secretary of the West Virginia Tuberculosis and Health Association, succeeding Mr. Edwin A. Wells, who resigned January 15 to accept appointment as executive secretary of the Maine Public Health Association at Augusta.

Demonstration Project in Human Relations.—The latest demonstration project of the state department of health, a course in human relations in the McDowell County schools, carried on cooperatively with the state department of education, was completed in May. Beginning in January 1949, more than 100 class rooms in the fifth to ninth grades in McDowell County were assigned the services of a trained consultant in mental hygiene for public schools. Two lessons were given each week. The object of this course is to teach children how to get along with themselves and others, meet unexpected changes, assume responsibility, make decisions and "face up" to their fears. Four thousand, six hundred and two pupils participated. McDowell County is used to give the program a trial before it is attempted in other counties. The program will be broadened in 1950 to include most of the 165 classrooms in the county.

WISCONSIN

Poliomyelitis Refresher Courses.—The University of Wisconsin Medical School, Madison, assisted by the Wisconsin State Board of Health will conduct short polio refresher courses for physicians and nurses August 1-4. The course for physicians will include the diagnosis and treatment of poliomyelitis, and the course for nurses will include the care and treatment of patients with poliomyelitis. Matriculation fee and expenses incident to attending the course will be defrayed by the National Foundation for Infantile Paralysis.

GENERAL

Wins Trudeau Medal.—Dr. Howard W. Bosworth, director of Barlow Sanatorium, Los Angeles, was presented the Trudeau Medal for outstanding work in tuberculosis research, treatment and prevention at the recent annual meeting of the National Tuberculosis Association in Detroit.

Dr. Coates Receives Awards.—The gold medal of the DeRoaldes Award of the American Laryngological Association was presented to Dr. George M. Coates, Philadelphia, in New York, May 16. The first of these awards was presented to Dr. Chevalier Jackson in 1928. There have been but six awards in 21 years. The Award of Merit, a gold medal, was given to Dr. Coates by the American Otological Society in New York on May 18. This was the first time this award has been conferred.

Gift to Promote Cultural Aspects of Medicine.—Mrs. Josiah C. Trent, Durham, N. C., is instituting an annual gift of 250 one year subscriptions to the *Journal of the History of Medicine and Allied Sciences* to be allocated to medical schools in the United States and Canada. Recipients are to be selected by the faculty from among those in the graduating class who have shown an interest in the cultural aspects of medicine. The late Dr. Trent was founder of the *Journal of the History of Medicine and Allied Sciences*, which recently came under the sponsorship of the Yale University School of Medicine, New Haven, Conn.

Bibliography on Cancer.—*The Index to Current Periodical Literature on Neoplastic Diseases and List of Current Books* is being published by the American Cancer Society, 47 Beaver Street, New York 4, beginning with the July-September, 1948 number. It has heretofore been published by the Louisiana Division of the American Cancer Society, which will continue to prepare the bibliography. The national office of the society requested the officials of the Louisiana Division to permit the transfer of financial responsibility for publication of this periodical to the national office, since it was felt that the service was of general value and wide interest.

Pan American Congress of Pediatrics.—The second Pan American Congress of Pediatrics will be held in Mexico, D. F., November 2-5. Subjects under discussion at the plenary sessions on succeeding days include Acute Diarrheas in Infancy and Hemolytic Syndromes of the Newborn; Congenital Malformations of the Heart and BCG Vaccination in America; Pediatric Surgery, and Virus Diseases in Pediatrics and Child Neuropsychiatry and Pediatrics in the Field of Social Security. Further information may be secured by writing Dr. Ismael Martinez Sotomayor, Social Secretary of the Organizing Committee, Hospital Infantil, México, D. F.

Plague Infection in the United States.—Under dates of April 28 and 29 and May 3, plague infection was reported proved in specimens of tissue and ectoparasites from rodents collected in Arizona, New Mexico, Texas and Washington as follows: In Arizona, Coconino County, in a pool of fleas from meadow mice; in New Mexico, Guadalupe, Socorro and Lincoln counties, in fleas taken from wood rats and white-footed mice; in Texas, Cochran County, fleas from grasshopper mice, one prairie dog and wood rats, and in Dawson County, fleas from wood rats. Infection in Washington was found in Grant County in fleas from meadow and white-footed mice.

Tuberculosis Association Grants for Research.—Grants to 22 investigators have been approved by the National Tuberculosis Association for investigations on the epidemiology and treatment of tuberculosis, studies of laboratory technics used in diagnosis and fundamental laboratory research. Grants became effective April 1. Of the 22 grants, four are new this year; others will permit the continuation of long term studies. The research program of the association is financed from Christmas Seal funds allocated to the association by its 3,000 affiliated associations and by special contributions from a number of affiliates. The association is continuing its policy of making grants to qualified investigators in universities and medical centers who have well equipped laboratories at their disposal.

Special Society Elections.—At the annual meeting of the American College of Chest Physicians in Atlantic City June 2-5, the following officers were elected: Dr. Joseph C. Placak, Cleveland, president; Dr. Louis Mark, Columbus, Ohio, president-elect, and Dr. Minas Joannides, Chicago, treasurer.—The American College of Radiology at its annual meeting in Atlantic City in June elected Dr. Arthur W. Erskine, Cedar Rapids, Iowa, as president; Dr. William R. Brooksher, Fort Smith, Ark., vice president, and Dr. Warren W. Furey, Chicago, treasurer.—The Southeastern Surgical Congress at its meeting late in May installed Dr. Robert J. Wilkinson, Huntington, W. Va., as president and chose Drs. Carl C. Howard, Glasgow, Ky. as president-elect and Benjamin T. Beasley, Atlanta, Ga., secretary-treasurer. Maryland and the District of Columbia were officially admitted to the congress, making 12 states and the District of Columbia in the organization.—The Medical Library Association meeting in Galveston, Texas, in April chose the following officers: Dr. Sanford V. Larkey, Baltimore, president; Miss Helen Hlavnac, New York, secretary, and Miss Edith Dernehl, Milwaukee, treasurer. The next annual meeting of the association will be held in Boston in June 1950.

Rocky Mountain Medical Conference.—This conference, a project of five Rocky Mountain states, will be held in Butte, Mont., August 2-4, with headquarters at the New Finlen Hotel. The annual session of the Montana State Medical Association will be held in conjunction with the conference. The following physicians will address the conference:

Cyrus C. Sturgis, Ann Arbor, Mich., The Etiology and Treatment of Hypertension.

Harold G. Wolff, New York, Life Situations, Emotions and Bodily Disease.

Henry L. Barnett, New York, Current Concepts Regarding the Nature and Treatment of Nephritis and the Nephrotic Syndrome in Children.

J. Englebert Dunphy, Boston, Treatment of Bleeding Gastric or Duodenal Ulcer.

Robert A. Kehoe, Cincinnati, Medical Control of Occupational Lead Absorption.

John R. Morse, Philadelphia, Correction of Long Bone Deformities by Osteotomy-Osteoclasis.

Harvey B. Matthews, Brooklyn, N. Y., Pelvic Tumors, Their Influence on Pregnancy, Labor and the Puerperium.

Charles L. Martin, Dallas, Texas, Treatment of Sterility with Hysterosalpingography.

L. Fernald Foster, Bay City, Mich., Newer Responsibilities of Organized Medicine.

Dr. Foster will also speak at the banquet Wednesday evening on "Public Relations Begin in the Doctor's Office." Roundtable luncheons will be held each noon. This conference is held on alternate years by the state medical associations of Colorado, Wyoming, Utah, New Mexico and Montana. It has no officers and does not engage in medical politics.

CORRECTION

Annual Congress on Medical Education.—In the abstract of the address by Dr. Albert B. Sabin presented before the Annual Congress on Medical Education and Licensure in February 1949 which appeared in *THE JOURNAL*, May 21, pages 352-353, the last paragraph should have read: "Although medical education in the United States is, in my prejudiced opinion, superior to that in any other country, I believe that there are some things we can learn from the Scandinavians, just as they are looking to us for improvement in their own system of education." In paragraph 5 on page 352 the reference to "Riggs Hospital" should read "Rigshospitalet," and in the same paragraph "Karl Institute" should read "Karolinska Institut."

Marriages

HAROLD FREDERICK ZIPRICK, Los Angeles, to Mrs. Marjorie A. Albert in Glendale, Calif., May 7.

FRANK B. TAYLOR to Mrs. M. Pearl Guynes, both of Madison, Wis., in Nashua, Iowa, May 28.

RUSSELL G. SMITH to Miss Mildred Lehrmann, both of Pittsburgh at Miami, Fla., April 20.

WILLIAM A. COYER, Elkton, Va., to Miss Margaret Isabella O'Keeffe of Grundy, April 18.

H. WARD RANDOLPH to Mrs. Lucy Taylor O'Neale, both of Richmond, Va., April 23.

FLOYD J. WALTER, Chambers, Neb., to Miss Geraldine Dick of Detroit, April 22.

IRVING BAYER to Miss Effie Abrams, both of Long Beach, N. Y., recently.

Deaths

Elmer Grant Horton, Columbus, Ohio; born in Horton Hill, N. Y., May 22, 1868; Ohio Medical University, Columbus, 1906; professor of hygiene and physical culture at the Wabash College, Crawfordsville, Ind., from 1893 to 1895; instructor in hygiene at the University of Pennsylvania from 1896 to 1898; in 1902 joined the faculty as an assistant professor of hygiene at his alma mater, which in 1907 merged with the Starling Medical College to form Starling-Ohio Medical College, where he was professor of pediatrics until 1912; in 1914, when the college became known as Ohio State University College of Medicine, he was made an assistant professor of pediatrics, serving in this capacity until 1924, when he was promoted to professor; later clinical professor and chairman of the department of pediatrics, retiring in 1939 with the title of emeritus professor; honorary life member and past president of the Columbus Academy of Medicine; member of the American Academy of Pediatrics and the American Medical Association; specialist certified by the American Board of Pediatrics; bacteriologist and chemist for the state board of health laboratories from 1898 to 1907 and health commissioner of Columbus from 1907 to 1909; member of the Franklin County Board of Health from 1928 to 1933; served on the staffs of the White Cross Hospital, Grant Hospital, University Hospital and Children's Hospital; died recently, aged 81.

Frederick Emil Abbott, Erie, Pa.; Hahnemann Medical College and Hospital of Philadelphia, 1921; member of the American Medical Association; on the staffs of Hamot and St. Vincent's hospitals; died May 8, aged 55.

Lewis Maitland Allen ♂ Winchester, Va.; University of Maryland School of Medicine, Baltimore, 1896; formerly on the faculty of his alma mater; served during World War I; city health officer; president of the Farmers & Merchants National Bank; on the staff of the Winchester Memorial Hospital; died May 2, aged 74, of carcinoma.

Samuel Howard Arthur, Jefferson, Iowa; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1893; surgeon for the Chicago & North Western Railroad; also a graduate in dentistry; died April 28, aged 86.

Henry Weston Benjamin, Park Ridge, Ill.; Rush Medical College, Chicago, 1933; member of the American Medical Association and the Connecticut State Medical Society; formerly managing director of the New Britain (Conn.) General Hospital; died May 3, aged 46, of bronchopneumonia and malignant hypertension.

Herbert M. Best ♂ Lapeer, Mich.; Detroit College of Medicine, 1901; county coroner; died April 27, aged 73, of carcinoma of the prostate with metastases.

Francis Abbott Birch, White Plains, N. Y.; New York Homeopathic Medical College and Hospital, New York, 1905; died May 10, aged 68.

James Ruben Blitch, Savannah, Ga.; University of Georgia Medical Department, Augusta, 1895; member of the American Medical Association; died February 13, aged 88, of auricular fibrillation.

Maximilian David Bloomfield ♂ Philadelphia; Jefferson Medical College of Philadelphia, 1905; for many years on the staff of St. Joseph's Hospital; died in the University of Pennsylvania Hospital May 5, aged 65.

James L. Brannen, Greeley, Neb.; John A. Creighton Medical College, Omaha, 1901; county physician; for many years secretary of the school board; died April 23, aged 79.

Frank Thomas Budd, New York; Columbia University College of Physicians and Surgeons, New York, 1896; formerly affiliated with the U. S. Public Health Service; served during World War I; died May 4, aged 76, of coronary thrombosis.

Frederick De Sales Chappelle ♂ Hughesville, Md.; University of Maryland School of Medicine, Baltimore, 1905; past president of the Medical and Chirurgical Faculty of Maryland; affiliated with the Physicians Memorial Hospital in La Plata; died May 4, aged 67, of cerebral hemorrhage.

Maurice Herbert Cohn ♂ Fort Worth, Texas; Vanderbilt University School of Medicine, Nashville, Tenn., 1917; served during World War I; died April 23, aged 53.

Thomas Matthew Cole, Albany, Ga.; L. R. C. P., of Edinburgh, L. R. C. S., of Edinburgh, L. R. F. P. & S., of Glasgow, 1940; member of the American Medical Association; served during World War II; died recently, aged 47.

Cassius Clay Cottle ♂ Los Angeles; Rush Medical College, Chicago, 1889; died April 28, aged 83.

Albion Barnard Cross, Crowley, La.; Medical Department of Tulane University of Louisiana, New Orleans, 1906; member of the American Medical Association; past president of the Acadia Parish Medical Society; past president of the Acadia Parish School Board; for many years president of the Acadia Parish Tuberculosis Association; served during World War I; died in the Baptist Hospital, New Orleans, April 22, aged 67, of arteriosclerotic heart disease and pulmonary infarction.

Carroll Church Davis, Marshall, Texas; Medical Department of Tulane University of Louisiana, New Orleans, 1910; member of the American Medical Association; served during World War I; member of the staff of the Texas and Pacific Railway Employees Hospital, where he died April 18, aged 63, of cardiac decompensation.

Edward Spence DePuy, Oakland, Calif.; Medical Department of the University of California, San Francisco, 1894; member of the American Medical Association; for many years on the staff of the Merritt Hospital, where he died May 3, aged 77.

John Jacob Dominick, Prosperity, S. C.; Medical College of the State of South Carolina, Charleston, 1900; for two terms member of the state house of representatives; served as mayor of Prosperity; died in Columbia (S. C.) Hospital April 19, aged 71, of carcinoma of the colon.

Robert Fish Dowell, Tulsa, Okla.; Missouri Medical College, St. Louis, 1881; also a pharmacist; died April 22, aged 89.

William Wallace Duncan, Aliceville, Ala.; Birmingham Medical College, 1900; member of the American Medical Association; died April 14.

Louis Reuben Edleson, Columbus, Ga.; University of Louisville (Ky.) Medical Department, 1907; member of the American Medical Association; served during World War I; died in the City Hospital April 7, aged 66.

William Lewis Ely, Fredericktown, Ohio; Cleveland Medical College, Homeopathic, 1893; died April 30, aged 83, of carcinoma.

Julius Theodore Elz ♂ St. Louis; St. Louis University School of Medicine, 1920; member of the American Academy of Ophthalmology and Oto-Laryngology; specialist certified by the American Board of Ophthalmology; on the staffs of St. Louis City, St. Anthony's and Lutheran hospitals; died April 22, aged 53, of uremia.

John Berlin Fitts ♂ Chattanooga, Tenn.; University of Georgia Medical Department, Augusta, 1927; died April 17, aged 49.

Frank Pierce Fitzgerald, London, Ohio; Medical College of Ohio, Cincinnati, 1884; died May 9, aged 91.

Alexander Vaughan Forrester, Detroit; McGill University Faculty of Medicine, Montreal, Quebec, Canada, 1924; member of the American Medical Association; affiliated with Highland Park (Mich.) General Hospital; died May 10, aged 51.

Harold Elmer Foster, Fort Mead, S. D.; Syracuse University College of Medicine, 1909; specialist certified by the American Board of Psychiatry and Neurology; served during World War I and World War II; manager of the Veterans Administration Hospital; died April 19, aged 64.

Abram E. Frantz, Wilmington, Del.; Hahnemann Medical College and Hospital of Philadelphia, 1882; formerly secretary of the state board of health and executive officer; at one time member of the Homeopathic Medical Society Examining Board; served as a member of the city board of education; died April 30, aged 90.

John White Gainey, Fayetteville, N. C.; Jefferson Medical College of Philadelphia, 1917; served during World War I; died in the Veterans Administration Hospital April 23, aged 54, of pneumonia.

William J. Gaudineer, New York; University of the City of New York Medical Department, New York, 1878; on the staff of St. Luke's Hospital; died May 6, aged 93, of cerebral hemorrhage.

Frank Roebling Geyser, East Elmhurst, N. Y.; Fordham University School of Medicine, New York, 1909; served during World War I; died in April, aged 65.

Upton Wright Giles ♂ New Orleans; Tulane University of Louisiana School of Medicine, New Orleans, 1916; on the staff of the Baptist Hospital; died in St. Petersburg, Fla., April 26, aged 57, of nephrosclerosis.

Felix Eloir Girard, Lafayette, La.; Medical Department of Tulane University of Louisiana, New Orleans, 1893; served as mayor; died May 2, aged 79, of arteriosclerotic heart disease.

Arnold Jarrett Given, Rensford, W. Va.; Medical College of Virginia, Richmond, 1927; member of the American Medical Association; served during World War I and World War II; died in Charleston May 3, aged 53.

Robert William Gover, Petersburg, Va.; University College of Medicine, Richmond, 1899; served during World War I; affiliated with the Central State Hospital, where he died April 19, aged 70, of cerebral arteriosclerosis.

Alfred Weston Gwinnell, Boston; Tufts College Medical School, Boston, 1911; member of the American Medical Association; served during World War I; died May 3, aged 70.

Eliott Moriarty Hague, Buffalo; University of Pennsylvania Department of Medicine, Philadelphia, 1897; for many years practiced in Rochester, where he was a member of the staff of the Genesee Hospital; died May 6, aged 79.

Wayman Belton Harpole, Maben, Miss.; Memphis (Tenn.) Hospital Medical College, 1909; member of the American Medical Association; died in Houston May 7, aged 69.

Thomas George Harris ♂ West Milford, W. Va.; University of Pennsylvania Department of Medicine, Philadelphia, 1903; died in a hospital at Clarksburg May 7, aged 73.

Gerhard Hecht ♂ Endicott, N. Y.; Friedrich-Wilhelms-Universität Medizinische Fakultät, Berlin, Prussia, Germany, 1926; certified by the National Board of Medical Examiners; affiliated with the Ideal Hospital; died May 2, aged 47.

Oliver Perry Henry, Mount Sterling, Ky.; Vanderbilt University School of Medicine, Nashville, Tenn., 1917; member of the American Medical Association; past president of the Montgomery County Medical Society; formerly member of the city board of education and county health officer; served overseas during World War I; died in St. Joseph Hospital, Lexington, April 30, aged 59.

John Harold Hershey ♂ Roseburg, Ore.; University of Toronto Faculty of Medicine, 1924; served as associate clinical professor of surgery at the University of Oregon Medical School in Portland; fellow of the American College of Surgeons; at one time practiced in St. Louis, where he was on the faculty of St. Louis University School of Medicine, on the staffs of St. Louis University Hospitals and Firmin Desloge Hospital; affiliated with the Veterans Administration; died March 6, aged 52.

Thomas Aldhelm Hogan, Altadena, Calif.; Rush Medical College, Chicago, 1903; on the staff of St. Luke's Hospital in Pasadena; died March 25, aged 71, of cardiac insufficiency.

Horatio Budd Hollifield, Washington, D. C.; University of Maryland School of Medicine, Baltimore, 1882; Hahnemann Medical College and Hospital of Philadelphia, 1889; died in Emergency Hospital April 26, aged 87, of cerebral thrombosis.

John Thomas Hosey, Palatka, Fla.; Memphis (Tenn.) Hospital Medical College, 1903; past president of the Putnam County Medical Society; served during World War I; died April 23, aged 70, of pulmonary tuberculosis.

Reid Owen Howser ♂ Oak Park, Ill.; Northwestern University Medical School, Chicago, 1909; past president of the Aux Plaines Branch of the Chicago Medical Society; on the staff of the West Suburban Hospital; died May 17, aged 66, of coronary occlusion.

Dwight Fenn Johnson ♂ Newark, N. Y.; Cornell University Medical College, New York, 1903; past president and secretary of the Wayne County Medical Society; health officer of the town of Arcadia; served as trustee on the board of education; died April 24, aged 70, of coronary sclerosis.

Christopher Johnston, Durham, N. C.; Johns Hopkins University School of Medicine, Baltimore, 1926; member of the American Medical Association; assistant professor of medicine at the Duke University School of Medicine; on the staffs of the Duke and Watts hospitals; died March 10, aged 48.

Charles Hollister Judd, Summerville, S. C.; University of Pennsylvania Department of Medicine, Philadelphia, 1897; for many years practiced in Detroit, where he was emeritus professor of gynecology and obstetrics at the Wayne University College of Medicine and on the staffs of St. Mary's, Deaconess, Harper, Providence, Florence Crittenton and Woman's hospitals; fellow of the American College of Surgeons; died May 11.

Charles Butcher Kaighn ♂ Atlantic City, N. J.; Jefferson Medical College of Philadelphia, 1914; member of the American College of Radiology; specialist certified by the American Board of Radiology; served during World War I; past president of the Atlantic County Medical Society; on the staff of the Atlantic City Hospital; died May 13, aged 57.

John Clarence Kincaid, Columbus, Ind.; Eclectic Medical College of Indiana, Indianapolis, 1906; member of the American Medical Association; served during World War I; on the staff of the Bartholomew County Hospital; died May 8, aged 69.

Howard Pendleton Kirtley, Salt Lake City; Rush Medical College, Chicago, 1904; member of the American Medical Association; fellow of the American College of Surgeons; past president of the Utah State Medical Association; served during World War I; on the staff of St. Mark's Hospital; died May 5, aged 71.

Herman Harry Levin, Lancaster, Pa.; St. Louis University School of Medicine, 1937; member of the American Medical Association and of the American Society of Anesthetists; served during World War II; affiliated with the Lancaster General Hospital, where he died May 4, aged 36, of coronary thrombosis.

Daniel Carel Longaker, Philadelphia; University of Pennsylvania Department of Medicine, Philadelphia, 1881; member of the American Medical Association; specialist certified by the American College of Surgeons; died April 30, aged 90, of carcinoma of the bladder.

James Donley McClure, Wilkesburg, Pa.; Western Pennsylvania Medical College, Pittsburgh, 1892; member of the American Medical Association; died May 5, aged 83.

Carl Esselstyn McCombs, New York; Cornell University Medical College, New York, 1909; member of the American Public Health Association; for many years a member of the staff of the Institute of Public Administration; died May 6, aged 66.

Caleb Scattergood Middleton, Biloxi, Miss.; Hahnemann Medical College and Hospital of Philadelphia, 1892; died April 29, aged 80.

Homer Pease Mix, Benton Harbor, Mich.; the Hahnemann Medical College and Hospital, Chicago, 1880; at one time health officer, president of the village and president of the board of education in Highland, Wis.; died May 9, aged 97, of bronchopneumonia.

Spurgeon Boone Moore, Portsmouth, Va.; Medical College of Virginia, Richmond, 1918; formerly member of the city council; served during World War I; died May 2, aged 57, of coronary thrombosis.

John Lawrence O'Brien ♂ New York; Yale University School of Medicine, New Haven, 1925; on the staff of St. Francis Hospital; died in Buffalo May 3, aged 51, of coronary occlusion.

Robert Joseph O'Brien, Watervliet, N. Y.; Albany (N. Y.) Medical College, 1904; formerly director of the National Bank of Watervliet; died in St. Mary's Hospital, Troy, April 13, aged 72, of uremia and toxemia.

Silas Robert Posey ♂ Lititz, Pa.; Jefferson Medical College of Philadelphia, 1911; member of the school board; served during World War I; for many years director of the Farmers National Bank; died in the Lancaster (Pa.) General Hospital May 5, aged 69.

Warren Winfield Preston, Montrose, Pa.; Hahnemann Medical College and Hospital of Philadelphia, 1907; member of the American Medical Association; died May 8, aged 69.

William Henry Price ♂ Stony Ridge, Ohio; Toledo Medical College, 1897; served during World War I; president of the Farmers Savings Bank; died May 6, aged 82, of cardiovascular renal disease.

Oney Carstaffen Raines, St. Louis; St. Louis College of Physicians and Surgeons, 1897; died May 3, aged 72, of carcinoma.

Love William Raney, Houston, Texas; University of Texas School of Medicine, Galveston, 1911; member of the American Medical Association; died May 5, aged 75, of injuries received when the automobile in which he was driving was struck by a truck.

Charles Francis P. Ritchie ♂ South Portland, Maine; McGill University Faculty of Medicine, Montreal, Quebec, Canada, 1902; specialist certified by the American Board of Psychiatry and Neurology, Inc.; served in the Canadian Army Medical Corps during World War I; medical examiner for the Selective Service during World War II; formerly on the staff of Jacksonville State Hospital in Jacksonville, Ill.; died in Maine General Hospital, Portland, May 1, aged 70, of pulmonary embolus and coronary occlusion.

Andrew C. Roche ♂ Calumet, Mich.; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1903;

veteran of the Spanish-American War; formerly member of the state board of registration in medicine; on the staff of the Calumet Public Health in Laurium; died April 25, aged 73, of coronary occlusion.

Walter Curtis Roller, Van Wert, Ohio; Cincinnati College of Medicine and Surgery, 1898; served during World War I; died in Dayton February 15, aged 78.

Lewis Jones Rutledge • McComb, Miss.; University of Tennessee College of Medicine, Memphis, 1921; died in the Baptist Memorial Hospital, Memphis, Tenn., April 25, aged 63.

Edwin Sauter, St. Louis; Marion-Sims College of Medicine, St. Louis, 1897; died April 17, aged 77, of coronary sclerosis.

Otto Raman Scott, Chrisman, Ill.; Starling Medical College, Columbus, 1898; district health examiner for the state of Illinois from 1933 to 1939; died April 22, aged 77, of bronchiectasis.

Ralph Justin Sewall, San Diego; University of Minnesota College of Medicine and Surgery, Minneapolis, 1895; served during World War I; died May 7, aged 75.

George Wallace Sharshon • Phoenixville, Pa.; Hahnemann Medical College and Hospital of Philadelphia, 1925; school physician; affiliated with Phoenixville Hospital; died April 9, aged 50, of coronary thrombosis.

Archibald O. Shaw, Ashland, Wis.; Rush Medical College, Chicago, 1902; died in Fort Meyers, Fla., in May, aged 81.

Joseph Pardoe Shearer • Washington, D. C.; Johns Hopkins University School of Medicine, Baltimore, 1917; fellow of the American College of Surgeons, formerly associate clinical professor of surgery at the Georgetown University School of Medicine; served during World War I; affiliated with National Homeopathic Hospital, Providence Hospital, St. Elizabeth's Hospital and the Doctors Hospital, where he died April 4, aged 55, of pericardial tamponade.

Irving Prescott Sherman, Brimfield, Mass.; New York Homeopathic Medical College and Hospital, New York, 1894; died May 6, aged 76, of heart disease.

Harrison Greenleaf Sloat, Fishkill, N. Y.; New York Homeopathic Medical College and Hospital, New York, 1901; veteran of the Spanish-American War; served overseas during World War I; for many years affiliated with the Veterans Administration; died April 30, aged 70.

Nathan Israel Slutsky • Brooklyn; Cornell University Medical College, New York, 1907; fellow of the International College of Surgeons; on the staff of the Beth Moses Hospital; died in the Jewish Hospital May 12, aged 64.

Edmond Clayton Smith, Cleveland; Eclectic Medical College, Cincinnati, 1881; died April 30, aged 92.

Lillian Richardson Smith, Harwich, Mass.; Tufts College Medical School, Boston, 1917; member of the American Academy of Pediatrics; served as director of the bureau of maternal health and child hygiene for the Michigan State Department of Health; died April 13, aged 63, of cerebral hemorrhage.

Bernard Sork, Philadelphia; Medico-Chirurgical College of Philadelphia, 1911; died April 30, aged 59 of coronary occlusion.

George Herbert Stagner, Edmond, Okla.; Eclectic Medical University, Kansas City, Mo., 1905; formerly a member of the state board of medical examiners; served overseas during World War I; died in the Veterans Administration Hospital, Amarillo, Texas, April 25, aged 72.

Paul Staman, Uniontown, Pa.; St. Louis University School of Medicine, 1933; member of the American Medical Association; killed near Canton, Ohio, April 18, aged 40, in an automobile accident.

Mary Ella Thompson Stevens, Detroit; University of Michigan Homeopathic Medical School, Ann Arbor, 1888; at one time affiliated with Grace Hospital; formerly member of the board of directors of the Detroit House of Correction, where she had been superintendent; died April 15, aged 85, of bronchopneumonia.

Earle Clement Stevenson • Gothenburg, Neb.; George Washington University School of Medicine, Washington, D. C., 1906; an officer during World War I; served as city physician and as a member of the board of education; died in Veterans Administration Hospital, Lincoln April 3, aged 70, of arteriolar nephrosclerosis.

Frederick Eugene Stockton • Birmingham, Ala.; Medical Department of Tulane University of Louisiana, New Orleans, 1911; specialist certified by the American Board of Dermatology and Syphilology; served during World War I; affiliated with

Children's, Hillman and St. Vincent's hospitals; died April 12, aged 65, of cerebral hemorrhage due to hypertension and arteriosclerosis.

Frederick H. Strauss, Milwaukee; Milwaukee Medical College, 1897; died in the Deaconess Hospital April 22, aged 76.

William Antoine L. Styles, Flushing, N. Y.; McGill University Faculty of Medicine, Montreal, Quebec, Canada, 1905; died in Stratford, Conn., April 13, aged 66, of heart disease.

Samuel O. Sublette, Versailles, Ky.; Pulte Medical College, Homeopathic, Cincinnati, 1893; Hospital College of Medicine, Louisville, Ky., 1896; first president of the Farmers' Bank of Mortonsville; member of the American Medical Association; died April 20, aged 79, of senility.

John Albert Sullivan • Tucson, Ariz.; Albany (N. Y.) Medical College, 1910; fellow of the American College of Surgeons; decorated twice for bravery during World War I; formerly practiced in Pittsfield, Mass., where he was on the staff of the Hillcrest Hospital; formerly affiliated with the Plunkett Memorial Hospital in Adams, Mass., and the Fairview Hospital in Great Barrington, Mass.; died in the Mayo Clinic, Rochester, Minn., April 15, aged 63, of hepatic insufficiency.

Willard Hamilton Sweet Sr., • Peekskill, N. Y.; Albany (N. Y.) Medical College, 1892; affiliated with the Ossining (N. Y.) Hospital; on the staff of the Peekskill Hospital, where he was president of the board; died April 24, aged 78, of cerebral accident.

Harry Arthur Tash, Butte, Mont.; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1912; served on the staff of Murray Hospital; died April 21, aged 71.

Harwood Arthur Taylor, Mullens, W. Va.; Ohio State University College of Medicine, Columbus, 1929; served during World War II; died April 19, aged 44, of acute nephritis.

Moses Thorner, Bakersfield, Calif.; Columbia University College of Physicians and Surgeons, New York, 1898; member of the American Medical Association; fellow of the American College of Surgeons; formerly on the faculty of Indiana Medical College, School of Medicine of Purdue University, Indianapolis; affiliated with Cottage and St. Francis hospitals in Santa Barbara; died April 20, aged 75, of cerebrovascular hemorrhage.

Richard Elmer Tomlin, Ocean Grove, N. J.; Hahnemann Medical College and Hospital of Philadelphia, 1889; died April 20, aged 83, of heart disease.

John Wesley Tope • Oak Park, Ill.; Rush Medical College, Chicago, 1909; fellow of the American College of Surgeons; affiliated with West Suburban Hospital and Oak Park Hospital, where he died April 30, aged 64, of coronary thrombosis.

Benjamin John Voigt, Elgin, Ill.; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1910; member of the American Medical Association; served during World War I; on the staffs of St. Joseph's Hospital and Sherman Hospital, where he died April 22, aged 68, of perforated duodenal ulcer with subphrenic abscess.

Frederick E. Ward • Easton, Pa.; Medico-Chirurgical College of Philadelphia, 1906; served as a member of the city council and for many years as medical examiner for the school district; died May 4, aged 66.

Clifton Michael Waugh • Tarkio, Mo.; Rush Medical College, Chicago, 1902; first president of the Nodaway-Atchison-Gentry-Worth Counties Medical Society; during World War I contract surgeon for the Students Army Training Corps at Tarkio College; for many years city health officer; examiner in his area of the Civil Aeronautic Authority; died in Rochester, Minn., April 21, aged 72.

Daniel E. Weber, Cambria, Wis.; Milwaukee Medical College, 1910; health officer; died in St. Joseph's Hospital, Beaver Dam, May 7, aged 64, of bronchogenic carcinoma.

J. Cornelius Weber, Olney, Ill.; Missouri Medical College, St. Louis, 1899; affiliated with the Olney Sanitarium; died May 3, aged 73, of anoxemia of brain and chronic myocarditis.

Victor Leasure Wetherby, Welch, W. Va.; Medical College of Virginia, Richmond, 1912; member of the American Medical Association; past president of the McDowell County Medical Society; died April 23, aged 62, of coronary thrombosis.

Christian George Yaeger, Philadelphia; University of Pennsylvania Department of Medicine, Philadelphia, 1895; member of the American Medical Association; died in the Jefferson Hospital May 4, aged 76, of cerebral thrombosis.

Abram Frank Ziegenfuss, Philadelphia; Hahnemann Medical College and Hospital of Philadelphia, 1879; died in the Temple University Hospital May 6, aged 93.

Foreign Letters

ITALY

(From Our Regular Correspondent)

FLORENCE, May 15, 1949.

Hemorrhagic Diseases

At the Ninth National Congress of Hematology, held in Naples, Professor Baserga discussed hemorrhagic diseases. He started with the period in which knowledge of the essential facts was acquired.

The speaker discussed the concepts of coagulation and showed himself more in favor of the recent American methods than the Swiss. He referred to his personal contributions concerning the importance of the thrombocytes, the function of calcium and the function of naphthoquinone.

He suggested a classification of the hemorrhagic diseases on a physiopathologic basis by distinguishing the changes in the thrombinogenetic factors, the changes in the fibrinogenetic factors, the formation of the thrombus and its attachment to the wall of the vessels, and finally the changes in the basal factors.

By examining some diseases belonging to the first group of his classification, i. e., those due to changes in the thrombinogenetic factors, the speaker analyzed the hemorrhagic diseases resulting from impairment of the mechanism of acceleration of coagulation (hemophilia); those resulting from hypoprothrombinemia (of the hepatogenous type; of the type due to drugs); those due to changes in the thromboplastin (presence of autothromboplastin or deficiency of thromboplastin arising from the thrombocytes, as it happens in Werlhof's disease), and changes in calcium.

The hemorrhagic diseases which depend on changes in fibrinogenesis can be linked to an excess of autothrombin or to conditions of hyperheparinemia of shock or of myelosis.

The speaker discussed particularly the pathogenesis of Werlhof's disease, in which the deficiency consists in the insufficient formation of thrombin and in which the factor of coagulation is of greater importance than the vasa factor.

In the discussion which followed, Professor Lunedei demonstrated the presence of dysergia, not of true allergy, in Werlhof's disease; Professor Torioli emphasized the splenic factor in Werlhof's disease, and he called attention to the occurrence of many types of this disease entity. This concept was approved by Professor Baserga.

Fractures of the Mandible

Surgical treatment of the mandible was discussed at the Surgical Society of Naples under the chairmanship of Professor Dominici.

Da Fazio has made a clinical contribution to this study demonstrating a new apparatus for reduction and fixation which he had constructed especially for the surgical treatment of fractures of the mandible, in the absence of the original Anglo-American apparatus for external fixation. He then reported 3 typical cases of fracture of the mandible treated by him at the Ospedale dei Pellegrini (Pilgrims' Hospital) in Naples.

Giardino, on the contrary, did not favor the surgical method of treatment; he stated that in the treatment of fractures of the mandible analogous results may be obtained with more

simple, nonsurgical methods which may not induce complications, which are often associated with surgical treatment. According to Giardino, the teeth represent the natural means of applying the forces which are intended for reduction and fixation of the bone fragments and, as a rule, it is not convenient to replace this technic by other means the application of which implies surgical procedures associated with bleeding in an area which is exposed easily to infection. According to the speaker, surgical treatment of fractures of the mandible has limited indications in fractures of the mandible deprived of teeth and in fractures of the angle resulting in the smallest stump deprived of teeth and consequently deprived of the natural means of anchorage. Therefore, he emphasized, one should not generalize such therapeutic orientation which, according to the speaker, would signify a return to the past.

Chiariello, on the contrary, stated that the procedure recommended by Professor De Fazio should have its proper place among the modern methods of treatment of fractures of the mandible but with the understanding that it should not be practiced in all cases, but rather limited to those in which the customary methods will not very likely warrant a complete success. In those cases the employment of the method may be much facilitated by the immediate use of penicillin.

Renal Depuration of Blood

At the Congress of the Italian Society of Pharmacology, Professor Santi, University of Padua, reported on the pharmacology of the kidney; he demonstrated that during the last years research in this field has made considerable progress as a result of the application of exact methods of study of the activity of the kidneys, based on the concept of "clearance."

By this term has been indicated the capacity of the kidney to clear completely, and within a short time, a certain volume of the plasma of the blood from a substance which can be eliminated by renal route.

The basis of this theory is the exact determination, practiced principally with insulin, of the volume of the ultrafiltrate, which in the unit of time passes through the capillary membrane separating the blood from the urine. The knowledge of the velocity of the glomerular filtration allows to determine the behavior of the substance in examination during its elimination, i. e., whether it may be ultrafiltered only by the glomeruli or whether it may be excreted or reabsorbed by the tubules.

In this manner the investigations concerned with the elimination of the drugs by renal route have received a vigorous impulse, and the exact answer was that, in many cases in which this new method of study was employed, it has been demonstrated that finally instruments of research have been discovered which are adaptable to the task of following the course of a substance or a drug through the anatomic and functional structures of the kidney. Thus the variations of the velocity of elimination of the free form and of the acetylated form of sulfonamide drugs may find an exhaustive explanation, as well as the great speed with which, as an example, the penicillin, the iodopyracet and the p-aminohippuric acid leave the organism. The theoretical and practical inferences derived from the application of this method always are of greatest interest; they are indispensable in order to understand the intimate mechanism of the action of the diuretic drugs.

The experimental results demonstrated that the majority of the diuretics (mercurials, xanthine) have a predominant effect on the tubules, by preventing the reabsorption of water.

Correspondence

TOXIC DRUGS AND ACCIDENTS

To the Editor:—A study is being made in the Department of Pharmacology and Toxicology of the University of Rochester School of Medicine and Dentistry, under the direction of Dr. Harold Hodge, to determine to what extent the effects of therapeutic drugs and exposure to toxic chemicals contribute to the high death and disability rates due to accidents. This study is part of a wider consideration of the medical aspects of accident control, and is concerned particularly with the problem of injuries and poisonings which occur in homes and on farms. There is special emphasis on the etiology of accidents to children between the ages of 1 and 20 years, since accidents are the leading cause of death in this age group, and second only to congenital malformations as a cause of permanent disability.

In dealing with industrial and traffic accidents some degree of mechanical and legal control is possible. In homes and on farms, where the accident rate is highest, the most authoritative influence is that of the practicing physician.

It has been shown statistically that about 20 per cent of the total population have most of the accidents. There is also considerable evidence to show that many of these accident-prone persons are suffering from physical or emotional disorders which can be diagnosed and treated clinically. The baffling problem of accident control may well find its solution in the offices of private practitioners.

A request is being made to doctors to help in the study described. The immediate need is for case histories of the following types:

1. Records of patients who have had accidents while under the effects of medications such as antihistaminics, anticonvulsants, barbiturates, sulfonamide drugs, insulin, bromide, atropine and procaine hydrochloride.

2. Records of patients who have had accidents after exposure to toxic chemicals such as carbon tetrachloride and naphtha.

3. Records of patients who have suffered liver or kidney damage after exposure to toxic chemicals. There is special interest in case histories of such damage after exposure to carbon tetrachloride used for dry cleaning, as a solvent or in water mark detectors by stamp collectors.

4. Records of patients who have had repeated small or serious injuries because of some physical disorder or disability such as limited hearing, defective vision, orthopedic impairment, epilepsy (slight petit mal or psychomotor attacks), heart failure and diabetes.

Assistance in obtaining this material will be most valuable and greatly appreciated. Please address communications to: Marion Gleason, Department of Pharmacology and Toxicology, University of Rochester School of Medicine and Dentistry, 260 Crittenden Boulevard, Rochester, N. Y.

PSYCHOSOMATICS

To the Editor:—I must point out evidences of loose writing in the otherwise excellent paper "Personality in Arterial Hypertension," by Gregory Gressel and others (*THE JOURNAL*, May 21, p. 265). I refer to the words ". . . other accepted 'psychosomatic affections' (asthma, ulcer, colitis)," and again, repeated later in the paper, ". . . did not have one of the more common accepted psychosomatic disorders (asthma, ulcer, etc.)."

Such glib statements and loose writing create the false breach between psychiatrists and allergists, wholly unwarranted, and produce a false impression on the reader. Hundreds of allergists in this country treat bronchial asthma successfully using the tools of organic medicine; these allergists, too, are aware of the psychosomatic relevance in many of their patients.

Certainly, there are psychosomatic factors present in all cases of asthma; in some it is, perhaps, a major factor. Yet there are many cases in which the emotional factor is minimal and, perhaps negligible. The interrelationship between the psychic and organic etiologic factors in bronchial asthma is very apparent and has been recognized for many years. Recently, Harris and I (*Neuropsychiatric Factors in Allergic Disease, M. Arts & Sc. 2: 119* [Oct.] 1948) have clarified this problem and have pointed out their relative importance. Perhaps the best study of psychic factors in bronchial asthma is that of Thomas French and Franz Alexander (French, T. L., and Alexander, F.: *Psychogenic Factors in Bronchial Asthma, Psychosomatic Medicine Monographs*, New York, Paul B. Hoeber, 1941, vol. 4). In the 27 cases studied and reported by French and Alexander a complete allergy workup was done by Rappoport with the findings that the patients were all allergic in the organic sense.

There is no question in the mind of any experienced allergist that there is a psychosomatic aspect in allergy—in many cases rather pronounced—but to consider bronchial asthma as a typical example of an "accepted psychosomatic affection" is misleading, especially to the physician who is treating a patient with asthma due wholly to ragweed pollen in the air. I, for one, have on numerous occasions produced an attack of asthma by giving an overdose of pollen extract. Also, on several occasions, have been able to produce an attack by emotional suggestion.

I am sure that Dr. Gressel accepts the fact that immunology plays a role in the production of asthma, as does pulmonary infection and as does emotional conflict, and that he does not mean to imply that bronchial asthma is purely a psychosomatic disease, as one might infer from the article.

NORMAN SHURE, M.D., Los Angeles.

SANDY CREEK PREFERS THE VOLUNTARY WAY

To the Editor:—The following article is being quoted word for word as it appeared in a local newspaper, *The Watertown Times*, on Wednesday, May 4, 1949.

NEW DOCTOR

As I see it in the Sandy Creek News: A new doctor is coming in July and a new dentist about the same time; we got a barber in Sandy Creek as well as one in Lacona, so our hair doesn't grow down our necks, and it goes to show you what can be done if a bunch of fellows really get busy and try to put something over.

I reproduce the item in the hope that it may be copied by newspapers all over the country, because in its few short lines there is a world of implication. In a very unassuming and straightforward manner it proclaims that the United States citizen when he becomes a community force, on even the smallest village level, can think for himself, act and take care of his needs in a very efficient manner. As shown in the above article he not only will farm, work in a factory and buy consumer goods but also get his hair cut, his teeth fixed and be provided with even more medical care. (The small village of Sandy Creek in Oswego Co., N. Y., had one physician but wanted another one—its own decision, made as such and fulfilled.) And, miracle of all miracles, he sees to it that he has these benefits without the benighted help of the Washington bureaucrat. We should be very much buoyed up in spirit as a result of these facts and feel that perhaps the American public individually and as a group will continue to care for themselves—unless of course a federal law is passed to the effect that we must give up our liberties entirely and be taken care of.

MARK L. HERMAN, M.D., Adams, N. Y.

Medical Examinations and Licensure

COMING EXAMINATIONS AND MEETINGS

NATIONAL BOARD OF MEDICAL EXAMINERS

NATIONAL BOARD OF MEDICAL EXAMINERS: *Parts I and II*. Various Centers. Sept. 12-14. Exec. Sec., Mr. E. S. Elwood, 225 S. 15th St., Philadelphia 2.

EXAMINING BOARDS IN SPECIALTIES

AMERICAN BOARD OF ANESTHESIOLOGY, INC. *Written*. Various Centers. July 15. *Oral*. Oct. 16-20. Sec., Dr. Curtiss B. Hickcox, 745 Fifth Ave., New York 27.

AMERICAN BOARD OF INTERNAL MEDICINE: *Written*. Oct. 17. Asst. Sec.-Treas. Dr. W. A. Werrell, 1 Main St., Madison 3, Wis.

AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY, INC. *Part I*. Various Centers. Feb. 3. Final date for filing application is Nov. 5. Sec., Dr. Paul Titus, 1015 Highland Bldg., Pittsburgh.

AMERICAN BOARD OF OPHTHALMOLOGY: St. Louis, Oct. 15-19; Boston, December. Sec., Dr. S. J. Beach, 56 Ivie Rd., Cape Cottage, Maine.

AMERICAN BOARD OF ORTHOPAEDIC SURGERY. *Part II*. New York City. Feb. 9-10. Final date for filing application for Part II is Aug. 15. Address: Sec.-Treas., Dr. Harold A. Sohfeld, Room 1856, 122 S. Michigan Ave., Chicago.

AMERICAN BOARD OF OTOLARYNGOLOGY: Chicago, Oct. 4-7. Sec., Dr. D. M. Lierle, University Hospital, Iowa City.

AMERICAN BOARD OF PATHOLOGY: Chicago, Oct. 7-8. Final date for filing application is Sept. 1. Sec., Dr. Robert A. Moore, 507 Euclid Ave., St. Louis.

AMERICAN BOARD OF PEDIATRICS: *Oral*. Cleveland, Sept. 16-18; New York City, Oct. 21-23; Chicago, Dec. 9-11. Sec., Dr. John McK. Mitchell, 6 Cushman Road, Rosemont, Pa.

AMERICAN BOARD OF PLASTIC SURGERY: Examinations are given in June and November of each year in the home town of applicants. Sec.-Treas., Dr. Louis T. Byars, 400 Metropolitan Bldg., St. Louis, Mo.

AMERICAN BOARD OF PREVENTIVE MEDICINE AND PUBLIC HEALTH: *Parts I and II*. New York, Oct. 22-24. Final date for filing application is July 22. Sec., Dr. Ernest L. Stebbins, 615 N. Wolfe St., Baltimore.

AMERICAN BOARD OF PSYCHIATRY AND NEUROLOGY, INC. *Special Examination*. Chicago, Oct. 24-25. Final date for filing application is July 15. December, New York City. Sec. Dr. F. J. Braceland, 102-110 Second Ave., S.W., Rochester, Minn.

AMERICAN BOARD OF SURGERY: *Written*. Various Centers, October 26. Final date for filing applications is July 1. Sec., Dr. J. Stewart Rodman, 225 S. 15th St., Philadelphia.

AMERICAN BOARD OF UROLOGY: *Written*, December. *Oral and Clinical*. Chicago, Feb. 11-15. Final date for receipt of case histories is Sept. 1, 1949. Sec., Dr. Harry Culver, 7935 Sunnyside Road, Minneapolis 18.

BOARDS OF MEDICAL EXAMINERS

ALASKA: * Juneau, Sept. 6. Sec., Dr. W. M. Whitehead, Box 140, Juneau.

COLORADO: * *Endorsement*. Denver, July 5. Sec., Dr. W. W. King, 831 Republic Bldg., Denver.

CONNECTICUT: * *Examination*. Hartford, July 12-13. Secretary to the Board, Dr. Creighton Barker, 258 Church Street, New Haven.

DELAWARE: Dover, July 12-14. Sec., Dr. J. S. McDaniel, 229 South State St., Dover.

DISTRICT OF COLUMBIA: * *Examination*. Washington, Nov. 14-15. Sec., Dr. G. C. Ruhland, 4130 E. Municipal Bldg., Washington.

GUAM: *Endorsement*. Agaña, Last Friday of each month. Sec., Capt. C. K. Youngkin, Dept. of Public Health, Guam, % F.P.O., San Francisco.

HAWAII: * *Examination*. Honolulu, July 11-14. Sec., Dr. S. E. Doolittle, 881 S. Hotel St., Honolulu.

IDAHO: Boise, July 11-13. Sec., Miss Estella S. Mulliner, Bureau of Occupational Licenses, 355 State House, Boise.

MAINE: Augusta, July 5-6. Sec., Dr. Adam P. Leighton, 192 State St., Portland.

MASSACHUSETTS: *Written*. Boston, July 12-15. Sec., Dr. George L. Schadt, 413 E. State House, Boston.

MONTANA: Helena, Oct. 3-5. Sec., Dr. Otto G. Klein, First National Bank Bldg., Helena.

NEVADA: Carson City, Nov. 7. Sec., Dr. George H. Ross, 112 N. Curry St., Carson City.

NEW HAMPSHIRE: Concord, Sept. 8-9. Sec., Dr. J. S. Wheeler, 107 State House, Concord.

NEW MEXICO: * Santa Fe, Oct. 10-11. Sec., Dr. Charles J. McGoey, Coronado Bldg., Santa Fe.

NORTH DAKOTA: * *Written*. Grand Forks, July 5-7. *Reciprocity*. Grand Forks, July 8. Sec., Dr. C. J. Gaspel, Grafton.

OREGON: * *Examination*. Portland, July 7-9. *Reciprocity*. Portland, July 22. Exec. Sec., Mr. Howard I. Bobbitt, 609 Failing Building, Portland.

PENNSYLVANIA: *Examination*. Philadelphia and Pittsburgh, July. Acting Sec., Mrs. B. G. Steiner, 351 Education Bldg., Harrisburg.

PUERTO RICO: San Juan, Sept. 6-10. Sec., Dr. Luis Cueto Coll, Box 3717, Santurce.

RHODE ISLAND: * *Examination*. Providence, July 7-8. Chief, Mr. Thomas B. Casey, 366 State Office Bldg., Providence.

SOUTH DAKOTA: * *Examination*. Pierre, July 19. Sec., Dr. G. J. Van Heuvelen, Capitol Bldg., Pierre.

UTAH: *Examination*. Salt Lake City, July 13-15. Sec., Dept. of Registration, Miss Rena B. Loomis, 324 State Capitol Bldg., Salt Lake City.

WASHINGTON: * Seattle, July 18-20. Sec., Mr. Edward C. Dohm, Department of Licenses, Olympia.

WEST VIRGINIA: Charleston, July 7-9. Commissioner, Public Health Council, Dr. N. H. Dyer, State Capitol, Charleston 5.

* Basic Science Certificate required.

BOARDS OF EXAMINERS IN THE BASIC SCIENCES

ALASKA: Juneau, Aug. 28. Sec., Dr. C. Earl Albrecht, Box 1931, Juneau.

ARKANSAS: *Examination*. Little Rock, Oct. 4. Sec., Mr. L. E. Gebauer, 1002 Donaghey Bldg., Little Rock.

DISTRICT OF COLUMBIA: Washington, Oct. 24-25. Sec., Dr. G. C. Ruhland, 4130 E. Municipal Bldg., Washington.

FLORIDA: *Examination*. Gainesville, Nov. 5. Sec., Mr. M. W. Emmel, University of Florida, Gainesville.

IOWA: Des Moines, July 12. Sec., Dr. Ben H. Peterson, Coe College, Cedar Rapids.

MICHIGAN: *Examination*. Detroit and Ann Arbor, Oct. 14-15. Sec., Miss Eloise LeBeau, 101 N. Walnut St., Lansing 15.

NEBRASKA: Omaha, Oct. 4-5. Director, Bureau of Examining Boards, Mr. Oscar F. Humble, Room 1009, State Capitol Bldg., Lincoln 9.

OREGON: Portland, Sept. 3 and Dec. 3. Sec., Mr. Charles D. Byrne, State Board of Higher Education, Eugene.

RHODE ISLAND: *Examination*. Providence, Aug. 10. Administrator of Professional Regulation, Mr. Thomas B. Casey, 366 State Office Bldg., Providence.

TENNESSEE: Memphis, July 8-9. Sec., Dr. O. W. Hyman, 874 Union Ave., Memphis 3.

WASHINGTON: Seattle, July 13-14. Sec., Department of Licenses, Mr. Edward C. Dohm, Olympia.

WISCONSIN: Milwaukee, Sept. 24 and Dec. 3. Sec., Prof. W. H. Barber, Ripon College, Ripon.

Medical Motion Pictures

FILM REVIEWS

Lumbar Sympathectomy. Some Clinical Applications and Physiological Principles, PMF 5076. 16 mm., color, sound, 1,100 feet (1 reel), showing time thirty-two minutes. Prepared in 1948 by and produced by the United States Army. Procurable on loan from the Army Surgeon of the Army Area in which the request originates.

This film illustrates the various applications of lumbar sympathectomy. It gives a demonstration of the types of condition likely to be benefited by this procedure. Selection of patients in whom sympathectomy might be considered is then shown. Diagnostic tests are made of which the most important is procaïnization of structure to be removed in the contemplated sympathectomy. Contents deal only with conditions involving the lower extremities, so that the clinical diagnostic block is directed to the lumbar chain. The adequacy of the block is judged by skin temperature and oscillometric studies. Skin resistance tests are not used. With a satisfactory procaine block the intended result from lumbar sympathectomy can be foreseen. Unfortunately, cases are seen in which sympathectomy gives far better results than can be anticipated by the block.

The actual operative procedure is well demonstrated; the anterolateral approach with the patient lying on his side over the kidney rest is used. A bilateral operation is done in two stages. The muscle splitting and the muscle cutting variations are shown through the incision, which extends from the tip of the twelfth rib downward and forward toward the umbilicus and to the outer border of the rectus muscle. Details of removal of the sympathetic chain are clear.

By animated drawings, the sympathetic impulses traveling over the various paths in the nervous system are presented with considerable imagination. Anatomic and physiologic defects produced by removal of certain portions of the chain are clearly shown. Vasoconstrictor drugs such as epinephrine and nicotine are reviewed, with the effects produced before and after sympathectomy. The animation clearly fixes the mechanisms of the nervous impulses in the mind. An ordinary anatomic demonstration on the cadaver is also shown.

Various conditions usually considered amenable to sympathectomy are presented in simple terms. This able film can be highly recommended for teaching purposes to general practitioners and senior medical students. It should crystallize in their minds some of the indications for this operative procedure and also the results likely to be obtained in properly selected cases.

Photography is superior in every respect.

How to Avoid Muscle Strains. 16 mm., black and white, sound, 550 feet (1 reel), showing time fifteen minutes. Prepared in 1949 and procurable on loan or purchase from Bray Studios, Inc., 729 Seventh Avenue, New York 19.

This excellent film employs views of a living model in action and also animated drawings to illustrate the mechanics of muscular activity, especially in the lifting of heavy loads. The diagrams beautifully show the analogy between the three types of lever studied in physics and certain familiar arrangements of bones and muscles in the human body. It then shows the correct and incorrect ways of lifting objects and illustrates the effects of overstrain on the vertebral column. A concluding section deals with the difficult subject of hernias. This part is less detailed and less accurate and the relation of hernia to strain is given much more emphasis than would represent current opinion among insurance statisticians and industrial hygienists. It is to be hoped that the authors will expand this last section into a more detailed and critical film which would be amply justified by the great importance of hernia today.

This film is recommended for industrial groups, first aid classes in health education, adult groups and physical education classes as an introduction to applied anatomy. The film consists of a combination of animation and straight photography which ranges from good to excellent. The narration is satisfactory. The model used is well chosen.

Bureau of Legal Medicine and Legislation

MEDICOLEGAL ABSTRACTS

Food and Drug Acts: Admissibility of Evidence of Consensus of Medical Opinion.—The defendants were charged with introducing, or delivering for introduction, into interstate commerce misbranded drugs. From a verdict of guilty, the defendants appealed to the United States Court of Appeals, seventh circuit.

Section 331 (a) of the Food and Drug Act prohibits the introduction into interstate commerce of any drug that is adulterated or misbranded. It is misbranded according to Section 352 (a) if its "labeling is false or misleading in any particular." The term labeling is defined in Section 321 (m) to mean "all labels and other written, printed, or graphic matter (1) upon any article or any of its containers or wrappers, or (2) accompanying such article." The printed matter involved in this suit consisted of a letter signed by one of the defendants, a leaflet and a circular.

The defendants contended that the misbranding must occur in the labels used and that the labels must accompany the drug into interstate commerce; that there was nothing in the three items of printed matter used in this case that informed the patient how the medicine was to be used; that the ingredients of the medicine were not given in the literature; that no therapeutic claim was made for it, nor did any statement appear that it was efficacious in the treatment of diabetes, except as to results had in prior cases.

The circumstances in which the drug and the literature were introduced or delivered for introduction into interstate commerce varied, said the court, but the general pattern was the same. A prospective patient, living outside of Indiana, would address a letter of inquiry to the defendants' clinic and, in response thereto, receive the printed circular and sometimes the form letter. The patient would thereafter attend the defendants' clinic, and, while there, would receive the leaflet containing diet recommendations and, in some instances, also receive a copy of the circular. Before leaving, the patient would have delivered

to him, or defendants would later ship to him, a three months' supply of the drug. The United States Supreme Court has already held, said the court of appeals, that the phrase "accompanying such article" is not restricted to labels that are on or in the article or package that is transported and has no specific reference to package, containers or their contents. Furthermore, it plainly includes what is contained within the package whether or not it is "upon" the article or its wrapper or container and the advertising matter need not travel with the drug. Since in this case, continued the court, it appears that the printed matter was used in the sale of the drug, that it did advertise and explain the use to be made of the drug and that the drug and the printed matter did move from Indiana to a point outside of the state, we are impelled to hold that the printed matter was "labeling" within the meaning of the Act.

The defendants also contended that the representations made in the labeling were expressions of opinion that they honestly believed. They argued that "this is a repeat of the constant quarrel existing in the medical profession as to what is proper and what is improper in the treatment of disease"; that a difference of judgment among medical men as to the best course or method of treatment does not tend to prove that either party is wholly wrong or wholly right; and that all this case reflects is that certain physicians believe in one course of treatment and other physicians believe in another course of treatment. In this case, said the court of appeals, the issue left to the jury was whether or not the labeling was false and misleading in that the statements in the printed matter represented, suggested and created in the mind of the reader, and led him to believe, that the drug was efficacious in the cure, mitigation or treatment of diabetes. The labeling represented that "there is real hope for the diabetic, and the possibility of recovery; . . . This hope is presented in the form of a method and a treatment, which is free from prolonged or continuous dieting . . . This consideration is invited in terms of what actually has been accomplished in a large number of cases of relief and recovery . . . In the majority of cases the patient resumes a normal diet within two or three weeks after beginning the treatment."

To show the ineffectiveness of the treatment, there was presented the testimony of patients who had been treated at the clinic and had subjected themselves to the recommended home treatment, as well as the testimony of relatives of former patients who had undergone the treatment and subsequently died. Each of these histories was supported by competent medical testimony. A diabetic person receiving competent medical care, taking insulin and on a regulated diet, with his disease under control, was induced to enter the clinic for the prescribed period. In accordance with the defendants' recommendations, he decreased his dosage of insulin, or discontinued it, and substituted the defendants' treatment. After subjecting himself to the defendants' treatment, he experienced results that commonly follow uncontrolled or improperly treated diabetes. The serious and irreparable injuries that followed included diabetic coma, permanent eye injuries and gangrene resulting in amputation. Outstanding medical authorities who were specialists in the treatment of diabetes testified that the treatment used and recommended by the defendants would have no effect in the treatment of diabetes; that it was worthless and absolutely of no value. These experts testified that the opinions expressed by them represented the consensus of medical opinion of the authorities on diabetes; that insulin was the only drug known to be effective in the treatment of diabetes; that a proper diet and exercise must be integrated with the dosage of insulin; and that the patient must be educated to look after his condition. We have previously held, said the court of appeals, that a consensus of medical opinion is a question of fact and provable as such. It has also been held that the conflict of medical opinion concerning the effectiveness of a drug likewise presents a question of fact. Since it is not necessary, in a prosecution under the Act, to prove guilty knowledge or wrongful intent, we think the jury's finding that the labeling was false and misleading was supported by substantial evidence.

The defendants' other contentions were also overruled, and the judgment of guilty was accordingly affirmed. *Rehearing denied January 3, 1949. United States v. Kaadt, 171 F. (2d) 600 (1948).*

Current Medical Literature

AMERICAN

The Association library lends periodicals to members of the Association and to individual subscribers in continental United States and Canada for a period of three days. Three journals may be borrowed at a time. Periodicals are available from 1938 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 18 cents if three periodicals are requested). Periodicals published by the American Medical Association are not available for lending but can be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

American Journal of Pathology, Ann Arbor, Mich.

25:1-186 (Jan.) 1949

- *Pure Granulomatous Nocardiosis: New Fungus Disease Distinguished by Intracellular Parasitism. Description of New Disease in Man Due to Hitherto Undescribed Organism, *Nocardia Intracellularis*, N. Sp., Including Study of Biologic and Pathogenic Properties of This Species. J. T. Cuttino and Anne M. McCabe.—p. 1.
- Nonlipid Reticulo-Endotheliosis: Letterer-Siwe's Disease. Report of 3 Cases. E. L. Schafer.—p. 49.
- Nature of Double-Contoured and Stratified Intracellular Bodies in Sarcoidosis (Boeck-Schaumann). G. Teilum.—p. 85.
- Histogenesis of Clear Cell Papillary Carcinoma of Skin. Y. Liu.—p. 93.
- *Primary Amyloidosis, with Report of 6 Cases. D. C. Dahlin.—p. 105.
- Topography of Chronic Gastritis in Otherwise Normal Stomachs. R. Hebel.—p. 125.
- Destruction of Cartilage Cells in Newborn Rat by Brief Refrigeration, with Consequent Skeletal Deformities. R. O. Scow.—p. 143.
- Effect of Diet During Pregnancy on Incidence of Congenital Hereditary Diaphragmatic Hernia in Rat. Failure to Produce Cystic Fibrosis of Pancreas by Maternal Vitamin A Deficiency. Dorothy H. Andersen.—p. 163.

Granulomatous Nocardiosis, a New Fungus Disease.—

Cuttino and McCabe report the case of a 34 month old girl whose illness began with anorexia, nausea, vomiting and progressive loss of weight about four and a half months before her death. Shortly after the onset a mass, thought to be a lymphosarcoma, was noted in the abdomen. A transfusion and five treatments of high voltage roentgen therapy were administered. Roentgen therapy was discontinued because of unfavorable reaction, and the child was admitted to Duke Hospital for an exploratory operation. An enlarged inguinal node was removed and showed complete alteration of its architecture with proliferation of the macrophages. The cytoplasm of these macrophages appeared foamy and granular. Inasmuch as they resembled Gaucher's cells, a lipodystrophy was considered. Ziehl-Neelsen stain demonstrated that these cells contained massive numbers of an acid-fast bacilliform organism. A second biopsy showed a lesion of essentially the same type. The organism was isolated in pure culture. On protoscopic examination irregular ulcers were observed. A biopsy of one of these ulcers showed proliferation of macrophages containing many acid-fast organisms. The patient grew progressively weaker despite supportive measures, and died. The authors describe studies on the etiologic agent and stress that the morphologic, cultural and biochemical characteristics of this organism justify its designation as a new species to which the name *Nocardia intracellularis*, n. sp., has been given. This organism is assigned to the genus *Nocardia*, family Actinomycetaceae. The disease produced by this organism in man is a pure form of granulomatous inflammation, characterized by phagocytosis of the pathogen by reticuloendothelial cells and proliferation of these cells. In the spleen and lymph nodes the proliferation of macrophages is of such proportion as to displace completely the normal structure. *Nocardia intracellularis*, n. sp., produces a nonlethal disease in guinea pigs, rats and mice. The reaction produced in the experimental animal differs sharply from the reaction in man.

Primary Amyloidosis.—Dahlin says that of the 44 cases of amyloid disease in which necropsy was performed at the Mayo Clinic during the twenty-five year period 1922 through 1946, 7 were examples of primary systemic amyloidosis. In an eighth case necropsy was done in 1947. Six of these patients were men and 2 were women. Their ages varied from 40 to 75 years, the average being 56 years. The interval between the onset of

symptoms and death varied from eight months to four years. The 6 cases demonstrate the remarkable diffuse involvement of mesodermal structures in this disease. The distribution of amyloid differs from that usually described for secondary amyloidosis, especially in the constancy of involvement of the heart and the frequency of involvement of striated muscle, lungs and small blood vessels throughout the body. The cases in which involvement of the spleen, adrenal glands, liver and kidneys occurred demonstrate that amyloid distribution of the so-called secondary type is overlapped in primary systemic amyloidosis. The clinically important lesions were cardiac in 3 cases, which is in conformity with the findings in the majority of reported cases of primary systemic amyloidosis. In the 2 cases in which primary hepatic disease was simulated, the association of signs of hepatic disease and of renal disease is noteworthy. Macroglia was absent in 5 of the cases. The author concludes that this symptom does not have the diagnostic importance for primary systemic amyloidosis ascribed to it in the literature. The identity of the homogeneous, amorphous, pink-staining material seen in sections stained with hematoxylin and eosin should be confirmed by the use of special stains. In these 6 cases the amyloid showed definite metachromasia with methyl violet. The affinity of amyloid for congo red in primary amyloidosis was not as great as that observed in secondary amyloidosis. The van Gieson connective tissue stain is valuable in differentiating amyloid from hyaline or collagenous connective tissue of similar density. Biopsy of affected organs is the only certain diagnostic procedure in the cases in which the amyloid lacks affinity for intravenously injected congo red.

American Journal of Surgery, New York

77:1-136 (Jan.) 1949

- Osteoid Osteoma. B. L. Coley and N. Lenson.—p. 3.
- Triple Arthrodesis. P. C. Rizzo and O. Lehmann.—p. 10.
- *Treatment of Fractures of Forearm with Intramedullary Pins. W. G. Stuck and M. S. Thompson.—p. 12.
- Fractures of Neck of Astragalus. W. J. Foley.—p. 19.
- Use of Quaternary Ammonium Compound for Surgical Scrub. H. Swan, R. I. Gonzalez, A. Harris and others.—p. 24.
- Colectomy. H. L. Skinner and R. R. Smith.—p. 38.
- *Disadvantages of Dicumarol with Special Reference to Therapeutic Inadequacies. C. P. Artz, Mary Martin and R. S. McCleery.—p. 47.
- Common Non-Vascular Nevi and Their Treatment. A. J. Delario.—p. 53.
- Treatment of Peritonitis with Parenteral Streptomycin and Penicillin. B. Schaff, J. G. Spendlove and J. W. Todd.—p. 63.
- Transthoracic Total Gastrectomy for Carcinoma of Stomach. I. J. Vidgoff.—p. 68.
- Control of "Intractable Pain" by Spinal Ganglia Block. A. L. Soresi.—p. 72.
- Complete Ligation of Abdominal Aorta for Aneurysm by Spiral Method: Case Controlled by Aortography. A. Prudente.—p. 79.
- Use of Continuous Non-Absorbable Buried Suture Throughout in Operative Procedure. J. T. Gilbert.—p. 93.
- Method for Suturing Short Pulmonary Vein. A. Lambert.—p. 97.

Intramedullary Pins for Fractures of Forearm.—Stuck and Thompson emphasize that complicated fractures of the forearm in which it is impossible to correct the displacement usually require open reduction with some type of internal fixation. The use of removable intramedullary wires and pins seems to offer a happier solution to internal fixation than anything that has been tried thus far. The technic of insertion of intramedullary wires and pins has now become well standardized. Advantages of intramedullary fixation of fractures of the radius and ulna are: (1) only a small incision is required; (2) there is only slight bleeding at the time of the operation and therefore little shock; (3) there is little dissection of the periosteum from the fracture fragments; (4) danger of infection is minimized because of the smaller wound; (5) the probability of union of the fracture is increased because the pins hold the fragments together even though some absorption of the bone ends takes place. In 19 cases in which they have treated fractures of the shaft of the bones of the forearm by the use of intramedullary wires and pins they have had only 2 failures. In general when the fragments were well reduced the wires provided perfect fixation with a minimum of interference with bony union. Solid bony union was seldom present in less than three months. Intramedullary wires or pins probably should not be used in compound fractures because of the danger of introducing infection into the

marrow cavity of the bones. In old fractures with malunion or nonunion, wires are useful for supporting bone ends after osteotomy and bone graft operations.

Disadvantages of Dicumarol.—According to Artz and his associates many clinics employ dicumarol[®] as the anticoagulant of choice in the treatment of intravascular thrombosis, chiefly because of its low cost and oral effectiveness. Disadvantages of its use such as delayed effect, necessity of daily prothrombin determinations and tendency to evoke hemorrhage have been well recognized. A study of their cases of thromboembolism leads the authors to emphasize certain other pitfalls encountered when dicumarol[®] therapy is employed. They found that too often the unpredictable response of the patient to dicumarol[®] makes it difficult to maintain the prothrombin level in the suggested therapeutic range of 10 to 30 per cent of normal and even when a prophylactic prothrombin depression has been maintained within the therapeutic range, thrombosis may occur. They cite 2 patients with thrombosis in whom the thrombotic process extended in spite of a dicumarol[®]-induced hypoprothrombinemia of less than 30 per cent of normal. A transfusion of whole blood to rectify excessive depression of plasma prothrombin by dicumarol[®] may increase the coagulability of the blood sufficiently to allow thromboembolism to occur. The dicumarol[®] effect, as evidenced by the Quick prothrombin test, may be most inaccurate if determined on blood containing moderate amounts of heparin on the end point of the test. They feel that although dicumarol[®] has been the popular anticoagulant for several years, the newer preparations of heparin in a gelatin menstruum may prove safer and more dependable.

Annals of Internal Medicine, Lancaster, Pa.

30:1-248 (Jan.) 1949

- Changing Viewpoint About Congestive Failure. I. Starr.—p. 1.
Achlorhydria and Peptic Ulcer: Further Study of Role of Peptic Activity in Pathogenesis and Course of Peptic Ulcer. W. E. Ricketts, W. L. Palmer, J. B. Kirsner and Anna Hamann.—p. 24.
Problems in Natural History of Poliomyelitis. A. B. Sabin.—p. 40.
Androgen Therapy. W. O. Thompson.—p. 55.
Physiologic Effects of Physical Therapy. G. M. Piersol.—p. 69.
Use of Anticoagulants in Treatment of Diseases of Heart and Blood Vessels. I. S. Wright.—p. 80.
Certain Clinical Aspects of Application of Water Balance Principles to Heart and Kidney Disease. F. R. Schemm.—p. 92.
Clinical Observations with Fagarine. D. Scherf, A. M. Silver and L. D. Weinberg.—p. 100.
Xanthomatous Biliary Cirrhosis (Clinical Syndrome). H. E. MacMahon and S. J. Thannhauser.—p. 121.

Archives of Dermatology and Syphilology, Chicago

58:1-94 (July) 1948

- Linear Scleroderma: Association with Abnormalities of Spine and Nervous System. L. Rubin.—p. 1.
External Use of "Carbitol Solvent," "Carbitol" and Other Agents. W. M. Meisinger.—p. 19.
Tinea Capitis Due to Combined Infection with Microsporum Audouini and Microsporum Lanosum: Report of Case. K. Loewenthal.—p. 27.
Treatment of Early Syphilis with Penicillin in Oil and Wax. A. Heyman.—p. 34.
Keratosis Pilaris Rubra Atrophicans Faciei. H. Hecht.—p. 41.
Aminophylline as Antipruritic Agent: III. Comparison with Certain Other Theophylline Salts. E. Epstein.—p. 47.
Familial Urticaria Due to Cold. F. G. Witherspoon, C. B. White, J. M. Bazemore and H. Hailey.—p. 52.
Salicylanilide Therapy in Tinea Capitis. I. M. Felsher.—p. 56.
Use of Vitamin A in Treatment of Cutaneous Diseases: Relation to Estrogen and Vitamin B Complex. Frances Keddie.—p. 64.
Lichen Urticatus Syndrome as Manifestation of Sensitivity to Bites from Various Species of Arthropods. L. Goldman.—p. 74.

Archives of Ophthalmology, Chicago

40:1-100 (July) 1948

- Studies in Experimental Ocular Tuberculosis: XI. Effect of "Promin" and "Promizole" in Experimental Ocular Tuberculosis in Normal Rabbit. A. C. Woods and E. L. Burk.—p. 1.
Granular Cell Myoblastoma of Orbit. J. H. Dunnington.—p. 14.
Experimental Investigation of Pathogenicity of Diphtheroids Isolated from Human Conjunctiva. C. Weiss, M. C. Shevsky and Isabella H. Perry.—p. 23.
Contaminated Ophthalmic Ointments. L. Lehrfeld and E. J. Donnelly.—p. 39.
Clinical Experiments with New Ways of Influencing Intraocular Tension: I. Effect of Rice Diet. F. W. Stocker, L. B. Holt and J. W. Clower.—p. 46.
Tumors of Optic Nerve: Long Survival in 3 Cases of Intracranial Tumor. N. Posner and G. Horrax.—p. 56.

Archives of Surgery, Chicago

57:613-762 (Nov.) 1948

- *Aortic Embolism. W. D. Holden.—p. 613.
Histologic Basis for Acidity in Gastric Disease. L. W. Guiss and F. W. Stewart.—p. 618.
*Distribution of Gastric Changes Accompanying Gastric Cancers in Various Locations. L. W. Guiss and F. W. Stewart.—p. 624.
Campodactyly. B. Schaff and P. W. Schafer.—p. 633.
Present Day Treatment of Postoperative Duodenal Fistula. J. Rékai.—p. 637.
Orthopedic Surgery in the Army Air Forces During World War II: I. Introduction and Internal Derangements of Knee. J. V. Luck, H. M. A. Smith, H. B. Lacey and A. R. Shands Jr.—p. 642.
*Patella Cubiti: New Method of Treatment for Its Avulsion. J. Sachs and G. Degenshein.—p. 675.
Intraperitoneal Rupture of Urinary Bladder Complicating Fracture of Pelvis: Technics of Repair. R. K. Ratliff and A. S. Isaacson.—p. 681.
Clinic on Disease of Biliary Tract. F. Glenn and Staff.—p. 686.
Gastric Resection for Duodenal Ulcer. W. Walters and E. R. Taylor.—p. 697.
Review of Urologic Surgery. A. J. Scholl, F. Hinman, E. Crowley and others.—p. 699.
Chronic Arthritis. J. G. Kuhns.—p. 729.
Conditions Involving Knee Joint. R. K. Ghormley and others.—p. 743.
Conditions Involving Foot and Ankle. E. D. W. Hauser.—p. 752.

Aortic Embolism.—Holden reports the case of a man, aged 50, who, one hour before admission, complained of severe pain in the lower portion of the back and abdomen, which proceeded into the lower extremities within a few minutes. His extremities became numb, cold and mottled blue and white. Within one-half hour, complete anesthesia developed from the mid thighs distally. The patient was taken to the operating room and given 14 mg. of weighted tetracaine hydrochloride intrathecally. A suprapubic incision was made. The patient was placed in the Trendelenburg position and the intestines packed into the upper abdominal cavity. Exposure of the aorta and the common iliac arteries showed no pulsations below the first centimeter of each common iliac artery. At these sites the vessels were distended, and rubbery intraluminal masses were palpable. The right common iliac artery was occluded by means of a small rubber tube above the palpable mass. The external and internal iliac arteries were similarly occluded below the mass. A 1 cm. longitudinal incision was then made in the common iliac artery over the mass. A 3.3 by 1 cm. organized embolus was lying free in the vessel and was easily extruded. The rubber tubes on the internal and external iliac arteries were loosened, and blood flow was obtained. The tube above on the common iliac artery was then loosened and a gush of blood obtained. An attempt was made to milk the embolus in the left common iliac artery back into the aorta and then into the right side: It could not be dislodged without undue trauma. The tubes on the right side having been retightened, the opening was closed. Before closure was completed, the lumen was filled with isotonic solution of sodium chloride. The same procedure was performed on the left side. On the eleventh postoperative day the patient's respiratory rate became rapid, and an electrocardiogram showed extension of the previous myocardial infarct. On the twelfth postoperative day, he became cyanotic and dyspneic. Peripheral vascular collapse occurred, and he died. At necropsy a recent embolus in a small pulmonary arterial branch in the lower lobe of the right lung was found. No thrombi were observed at the suture lines in the iliac arteries, and the arteries of both lower extremities were patent. The author stresses that postoperative thrombosis or embolism elsewhere should be treated as vigorously as the primary embolism. The patient whose extremity may be preserved by embolectomy should not be denied the opportunity.

Gastric Changes Accompanying Gastric Cancers in Various Locations.—The material collected by Guiss and Stewart was divided into seven groups: Group A was a control group of 48 "normal" stomachs. Group B consisted of 92 gastric specimens containing carcinoma arising in the pyloric portion. Group C was made up of 67 specimens of carcinoma of the fundus excluding the "surgical cardia." Group D was composed of 46 carcinomas of the "surgical cardia" of the stomach. Group E consisted of 32 consecutive stomachs resected for duodenal ulcer. Group F included 19 specimens of peptic ulcer located in the pyloric area. Group G was a group of 20 stomachs resected for peptic ulcer of the fundus gland area. It was found that the mean age at which cancer develops in the various areas

of the stomach is the same. The average stomach of "normal" persons reaching the cancer age (40 to 79) shows a mild generalized chronic atrophic gastritis, with perhaps a slight intensification in the pylorus. Cancer of the stomach, with the exception of cancer of the cardia, is associated with a generalized chronic atrophic gastritis of moderate degree, the gastritic changes being of equal intensity throughout the stomach without regard to the location of the cancer. Although the chronic atrophic gastritic changes found in the presence of carcinoma of the cardia might be expected to be more severe in the fundus than in the pylorus, since chronic atrophic gastritis is usually felt to be associated with the presence of carcinoma, the amount actually present is not significantly increased over that found in the "normal" stomachs of persons in the same age group and is definitely less than that found in carcinoma of the body of the stomach. Duodenal ulcer has little or no influence on the gastric mucosa. Prepyloric peptic ulcers are associated with a mild atrophic chronic gastritis limited to the pyloric mucosa. The presence of a peptic ulcer on the fundus gland area is associated with a generalized chronic atrophic gastritis of the whole stomach indistinguishable from that seen in carcinoma of the stomach.

Patella Cubiti.—According to Sachs and Degenshein, patella cubiti is a condition of the elbow wherein a patella-like bone lies proximal to the olecranon process within the investments of the triceps tendon. The patient with patella cubiti is asymptomatic except for mild limitation of extension. Discovery of this anomaly is usually coincidental. In avulsion of a patella cubiti the patient usually gives a history of an extension force on the elbow, followed by pain and inability to extend it. On palpation, a moderate-sized bony fragment may be felt posterior to the lower end of the humerus. Roentgenograms reveal a sesamoid bone which, when avulsed, lies perhaps 1 to 2 cm. proximal to the olecranon; when not avulsed, it lies immediately proximal to the olecranon and articulates with it. The most important (roentgenologic) diagnostic feature is the fact that the combined measurement of the ulna and the sesamoid is greater than that of the opposite normal ulna or, in the case of a bilateral patella cubiti, longer than would be expected from the length of the related radius. This diagnostic feature will help differentiate patella cubiti from traumatic fractures or from avulsions of the olecranon process, with which it is sometimes confused. In the case herein reported the authors used a screw to approximate the sesamoid with the head of the olecranon.

Arizona Medicine, Phoenix

6:1-92 (Jan.) 1949

- *Current Status of Routine Chest X-Raying in General Hospitals of the United States: September, 1948. W. H. Oatway Jr.—p. 23.
Polyps of Colon and Rectum. W. H. Daniel and G. C. Tyler.—p. 30.
Treatment of Menstrual Disorders in General Practice. Broda O. Barnes.—p. 33.
Treatment of Epidemic Diarrheas on Navajo Reservation. I. Frank.—p. 35.

6:1-84 (Feb.) 1949

- Acute Complications of Fractures. W. H. Bickel.—p. 15.
Vagotomy and Ulcer Problem. P. Thorek.—p. 20.
Surgical Management of Varicosities in Lower Extremity. J. B. Littlefield.—p. 25.
Acute Obstructive Laryngotracheobronchitis: Management from Standpoint of General Practitioner and Pediatrician. A. H. Neffson.—p. 32.

Routine Roentgen Examination of Chest in Hospitals.—Oatway has made a survey of the current program of routine roentgen examination of the chest in general hospitals of the United States. The roentgen examination of outpatients and new admissions to hospitals is established as one of the best ways to find tuberculosis and other chest lesions. A progressive increase in usage was noted on previous occasions—in 1935 the method was being tried out; in 1938, no hospital was known to have a regular program; in 1943, 56 hospitals reported use of the method. In early 1948 a hospital association found that 889 institutions of all sorts (of the 6,600 registered) had reported routine roentgen examination of newly admitted patients. The present survey, made in August 1948, included data only from general hospitals. Information was requested from the state health departments (42 of which have tuberculosis control directors) and certain other qualified sources. Admin-

istration was said to be harder to arrange than financing. The number of general hospitals with an active program of roentgen examination of the chest was 247. Numerous other hospitals either have equipment or a plan. The word "routine" is a misnomer, since only a portion of the patients are included in many hospitals. Use of the method is increasing, but it must be extended to more hospitals and a higher percentage of registrants to approach its real value.

Cancer Research, Baltimore

8:397-448 (Sept.) 1948

- Hormonal Imbalances in Tumorigenesis. W. U. Gardner.—p. 397.
Influence of Sex Hormones on Mammary Tumors Induced by 2-Acetaminofluorene. A. Cantarow, J. Stasney and K. E. Paschkis.—p. 412.
Early Changes in Experimentally Produced Adenomas and Adenocarcinomas of Stomach. E. L. Howes and J. R. de Oliveira.—p. 419.
Tumor Immunity in Mice, Induced with Lyophilized Tissue, as Influenced by Tumor Strain, Host Strain, Source of Tissue, and Dosage. G. D. Snell, A. M. Cloudman and Elizabeth Woodworth.—p. 429.
Effect of Cold and of Beef Spleen Extract on dbrB Mouse Tumor Cells as Shown by Growth of Transplants into dba Mice and by Cytologic Examination. Eileen W. E. Macfarlane, N. G. Schmock and L. V. Nadeau.—p. 438.

Florida Medical Association Journal, Jacksonville

35:421-454 (Jan.) 1949

- Bronchogenic Carcinoma: Report of Three Cases. K. A. Morris and W. C. Sumner.—p. 421.
Program of Diabetes Demonstration Unit in Jacksonville and Duval County. M. J. Ford.—p. 426.
Superior Laryngeal Neuralgia. C. C. Grace.—p. 428.
*Present Management of Nonspecific Urinary Infections. A. J. Butt.—p. 430.
Pericardial Celomic Cyst: Case Report. J. L. Gouaux, H. J. Jensen and H. G. Morin.—p. 435.

Management of Urinary Infections.—Butt stresses that adequate clinical and bacteriologic evaluation is essential in the treatment of urinary infections. Removal of any obstruction which impedes the free flow of urine is essential for the full therapeutic benefit to be derived from chemical or antibiotic agents. Relatively small doses of sulfonamide compounds are adequate, but the combination of multiple sulfonamide compounds is more efficient and is not accompanied by any increase in renal complications. Penicillin is of greatest value in the treatment of coccic infections. It is of little value in bacillary infections and is useless in tuberculous infections. Streptomycin is valuable in the treatment of infections due to gram-negative bacilli and in the treatment of genitourinary tuberculosis. Adequate dosage of antibiotic agents should be instituted in order to preclude possible resistance to these antibiotics. The combined use of antibiotics and chemotherapeutic agents may be indicated in mixed infections. Precautions must be taken to avoid untoward sequels from sulfonamide compounds and antibiotics.

Journal of Allergy, St. Louis

20:1-86 (Jan.) 1949

- Quantitative Immunologic Studies with Allergens: I. Colorimetric Absolute Methods in Analysis of Factors Influencing Precipitation of Ragweed Pollen Extracts and Homologous Rabbit Antisera. S. C. Bukantz, Mary C. Johnson and S. Hampton.—p. 1.
Id.: II. Deterioration of Ragweed Pollen Extracts as Measured by Precipitation, Neutralization, and Protein Nitrogen Analysis. Prevention of Deterioration by Glycerin. S. F. Hampton, S. C. Bukantz and Mary C. Johnson.—p. 19.
Histamine Antagonists: Comparative Study of Their Effect on Histamine and Allergic Skin Wheals. E. Schwartz and J. Wolf.—p. 32.
Extracts of Molds Grown on Synthetic Media. F. W. Bieberdorf and J. W. Argabrite.—p. 50.
Skin Sensitivity to Streptomycin. S. W. Simon.—p. 56.
Effects of Benadryl on Systemic Manifestations of Cold Hypersensitivity. J. E. Rothschild.—p. 62.
Evaluation of Conjunctival Testing in Extrinsic Respiratory Allergy. L. E. Abram.—p. 66.
*Intranasal Application of Buffered Tripeleppamine (Pyribenzamine) Solution in Allergic Rhinitis: Preliminary Report. J. Brem and J. Zonis.—p. 70.

Intranasal Application of Tripeleppamine in Allergic Rhinitis.—Brem and Zonis used a buffered solution of tripeleppamine hydrochloride for topical application in 81 patients with allergic rhinitis and obtained satisfactory results in 90 per cent of the patients. Early in the study a 2 per cent solution of tripeleppamine was used, but it was soon replaced

with a 0.5 per cent solution, because the stronger solution caused local discomfort. No serious local or general effects were noted. Topical therapy was effective when antihistaminic drugs orally administered could not be tolerated because of drowsiness and other distressing symptoms. The local effect is temporary and the usual therapeutic measures are necessary.

Journal of Clin. Endocrinology, Springfield, Ill.

8:1013-1150 (Dec.) 1948

- Studies in Growth. I. Interrelationship Between Pituitary Growth Factor and Growth-Promoting Androgens in Acromegaly and Gigantism. II. Quantitative Evaluation of Bone and Soft Tissue Growth in Acromegaly and Gigantism. L. W. Kinsell, G. D. Michaels, Choh Li and W. E. Larsen.—p. 1013.
- Absorption and Excretion of Chorionic Gonadotropin Administered Intramuscularly in Women. J. T. Bradbury and W. E. Brown.—p. 1037.
- Excretion Studies on Thiouracil and Its 6-Benzyl, 6-n-Propyl and 6-Methyl Derivatives in Man. D. A. McGinty, E. A. Sharp, W. A. Dill and R. W. Rawson.—p. 1043.
- Methylthiouracil in Treatment of Hyperthyroidism. E. P. McCullagh and W. T. Strridge.—p. 1051.
- Prolonged Methylthiouracil Treatment in Thyrotoxicosis. Results After Cessation of Treatment. E. Meulengracht and K. Kjerulf-Jensen.—p. 1060.
- Variations in White Blood Cells Following Oral Administration of Glucose to Diabetics and Nondiabetics. J. W. Jailer, Dorothy T. Marks and P. A. Marks.—p. 1074.
- Constitutional Precocious Puberty in the Female and Its Control by Androgens: Preliminary Report. S. C. Freed and Minnie B. Goldberg.—p. 1081.
- Ethinyl Estradiol. K. W. Thompson.—p. 1088.

Journal of Nervous and Mental Disease, New York

109:1-94 (Jan.) 1949

- Disturbance of Dermatokinesthesia in Cerebral and Spinal Diseases. L. Halpern.—p. 1.
- Hypno-Synthesis: Hypnosis as Unifying Interpersonal Experience. J. H. Conn.—p. 9.
- Neurologic Syndromes in Typhus Fever. E. Herman.—p. 25.
- Successful Treatment of Obsessive Compulsive Neurosis with Narcosynthesis Followed by Daily Electro-Shocks. S. M. Korson.—p. 37.
- Electroencephalogram in Scleroderma. R. M. Taylor and B. L. Pacella.—p. 42.
- Rhythmic Palatopharyngeal Myoclonus: Review, Case Report and Significance. M. M. Stern.—p. 48.
- Poliomyelitis: I. Bulbar Poliomyelitis: Neurophysiological Interpretation of Clinicopathological Findings. J. R. Brown and A. B. Baker.—p. 54.

Journal of Neurophysiology, Springfield, Ill.

12:1-80 (Jan.) 1949. Partial Index

- Return of Sensation After Experimentally Produced Lesions in Sciatic Nerve of Cat. I. C. Sherman, E. L. Tigay, A. J. Arieff and M. A. Schiller.—p. 1.
- Acetylcholine and Convulsive Activity. J. Hyde, S. Beckett and E. Gellhorn.—p. 17.
- Effects of Direct and Reflex Nerve Stimulation on Exocrine Secretory Activity of Pancreas. A. Kuntz and C. A. Richins.—p. 29.
- Relation of Pain Sensory Threshold to Form of Mechanical Stimulus. G. H. Bishop.—p. 51.

Journal of Neurosurgery, Springfield, Ill.

6:1-96 (Jan.) 1949

- Neurosurgery Yesterday, Today and Tomorrow. W. Penfield.—p. 6.
- Tantalum Cranioplasty: Review of 106 Cases in Civilian Practice. E. C. Weiford and W. J. Gardner.—p. 13.
- Study of 211 Patients with Verified Glioblastoma Multiforme. L. Davis, J. Martin, S. L. Goldstein and M. Ashkenazy.—p. 33.
- Arterial Anomalies of Spinal Cord. J. A. Epstein, A. J. Beller and I. Cohen.—p. 45.
- *End-Results of Surgery for Ruptured Lumbar Intervertebral Disks: Follow-Up Study of 327 Cases. G. Spurling and E. G. Grantham.—p. 57.
- *Selective Cortical Undercutting as Means of Modifying and Studying Frontal Lobe Function in Man. Preliminary Report of 43 Operative Cases. W. B. Scoville.—p. 65.

Results of Surgical Treatment of Ruptured Intervertebral Disk.—Spurling and Grantham sent questionnaires concerning the results of their operations for ruptured lumbar intervertebral disk to 363 patients operated on during the eight year period ending in March 1947. The 327 replies that were received represent 90 per cent response. The 80 patients who took advantage of the opportunity for a follow-up examination offered in the questionnaire constituted a control group in that they served as a check on the reliability of the answers given by the whole group. Forty per cent of the patients who replied to the questionnaire could be regarded as completely cured, while another 39 per cent had more or less satisfactory

results. In the remaining 21 per cent the results were only fairly successful or operation had to be regarded as a failure. More than 85 per cent of the patients were able to return to their previous occupations, while only 2.2 per cent were unable to work at all. The disproportionately large number of less than satisfactory results in the patients receiving compensation was noteworthy. This series of cases shows the high proportion of cures and of satisfactory functional results that can be secured with a simple operation on the ruptured disk. Spinal fusion is therefore regarded as contraindicated at the original operation. It is recommended that it be reserved as a secondary procedure for those cases in which persistence of symptoms warrants additional surgery.

Cortical Undercutting for Modifying Frontal Lobe Function.—According to Scoville a technic of cortical undercutting has been devised which makes it possible to detach certain areas of the frontal cortex by making a line of cleavage at the relatively avascular junction of gray and white matter. Cortical undercutting constitutes a method of producing discrete cortical lesions without interference with the blood supply to adjacent areas of the brain. Three areas have been selected for cortical undercutting: partial Brodman's areas 9 and 10, the orbital surface and the cingulate gyrus. Forty patients have undergone cortical undercutting for the treatment of mental disease, and 3 patients have undergone undercutting for intractable pain. There was 1 death directly caused by the operation. Early isolated seizures have occurred in 3 patients, 2 of these having orbital undercutting. One late seizure occurred during a hypoglycemic episode. Few gross physical, visceral or autonomic sequelae have followed even the undercutting of the orbital and cingulate gyrus areas. Prolonged stupor as described by Ward did not occur in patients undergoing cingulate gyrus undercutting, although they were temporarily more somnolent than either the "9 and 10" or "orbital" patients. All were ambulatory and able to eat within twenty-four hours. The 3 patients suffering from intractable pain have been initially benefited after cortical undercutting of areas 9 and 10, especially in the relief of anxiety, addiction and anticipation and memory of pain. The duration of relief has not yet been determined. The author feels that the therapeutic results justify further investigation.

Mental Hygiene, Albany, N. Y.

33:1-176 (Jan.) 1949. Partial Index

- The National Committee for Mental Hygiene Looks Ahead. G. S. Stevenson.—p. 1.
- Dynamic Forces in International Relations. A. H. Leighton.—p. 17.
- General Principles of Federal Program for Mental Hygiene. L. A. Scheele.—p. 25.
- How the National Mental Health Act Works. J. V. Lowry.—p. 30.
- Thoughts Arising from Preliminary Survey of State Programs. A. Z. Barhash and Mary C. Bentley.—p. 40.
- *Responsibility of Local Community for Mental-Health Program. S. Whitman.—p. 51.
- Perspective on National Health Planning. Q. Howe.—p. 61.
- Community Education Through Press, Radio, Films and Drama. Nina Ridenour.—p. 71.
- Research in Mental Health in National Perspective. W. C. Menninger.—p. 78.

The Local Community and Mental Health.—Whitman stresses that the battle for mental health is a primary responsibility of the locality. While the state and the federal government have the over-all planning job, they can meet but a fraction of the needs. The local organization has the responsibility of promoting the development of their own resources. The local organization in Cleveland started with the improvement of conditions in the state mental hospital and the improvement of human relations. It reaffirmed the logic of promoting the training of psychiatric and auxiliary personnel; the need to develop psychiatric wards in general hospitals, to strengthen and expand child guidance and related social services, to encourage and strengthen psychiatric service in the school systems, in the courts and in industry. To provide guidance on such and other technical questions, the administrative heads of the major psychiatric facilities in Cleveland rallied to the request for a psychiatric advisory council. This group has made valuable contributions in community planning. The author stresses the importance of encouraging the application of mental hygiene principles to everyday living.

New England Journal of Medicine, Boston

240:119-160 (Jan. 27) 1949

- Involvement of Ileum in Chronic Ulcerative Colitis. F. J. McCready, J. A. Bagen, M. B. Dockerty and J. M. Waugh.—p. 119.
Cancer of Lower Large Bowel: Results in 100 Cases. I. M. Webber.—p. 127.
Repeated Nephrotic Episodes with Normal Urine, Serum Protein and Cholesterol in Edema-Free Intervals. H. A. Derow.—p. 131.
Medical Military Science. A. S. Benenson.—p. 135.
Antibacterial Chemotherapy (Continued). A. Goldstein.—p. 137.
Diffuse Myeloma of Bone Marrow. Amyloidosis of Liver, Spleen and Kidneys. Superimposed Bence-Jones Proteinuria, Kidney?—p. 147.
Carcinoma of Colon, with Probable Perforation. Generalized Peritonitis. Nephrosclerosis.—p. 150.

240:161-202 (Feb. 3) 1949

- Further Experiences with Injured Bile Ducts: New Method of Repair. F. H. Lahey.—p. 119.
Recent Impressions of Medical Practice in Great Britain. W. H. Sweet.—p. 168.
*Effect of Sulfanilamide on Salt and Water Excretion in Congestive Heart Failure. W. B. Schwartz.—p. 173.
Lutembacher's Syndrome Associated with Subacute Bacterial Endocarditis: Report of Case. E. R. H. Kurz and I. Fischer.—p. 178.
Antibacterial Chemotherapy. A. Goldstein.—p. 180.
Acute Pancreatitis, with Retroperitoneal Abscess Formation.—p. 189.
Bronchiogenic Carcinoma, Right Middle Lobe, with Metastases to Pleura, Liver and Adrenal Glands.—p. 193.

Sulfanilamide for Salt and Water Excretion.—Schwartz presents the histories of 3 patients with severe congestive heart failure who were confined to bed or chair and who were fed a diet containing 2,000 calories and 300 mg. of sodium. Daily fluid intake was constant. Digitalis was continued, but no ammonium chloride, mercurials or sodium-containing medications were permitted. Sulfanilamide was administered in amounts (4 to 6 Gm. per day) that were designed to keep the serum level at about 12 mg. per hundred cubic centimeter. All patients showed an increase in sodium and potassium excretion within the first twenty-four hours of sulfanilamide administration. The 2 patients in whom it was possible to continue the drug for a seven day period maintained a high daily output of sodium in the urine which was four to five times the control value and exhibited a loss of weight that correlated with the increase in sodium output. The pH of the urine increased. At the same time there was a sharp fall in carbon dioxide-combining power of the serum accompanied by an increase in chloride. These changes can best be explained by an inhibition of carbonic anhydrase in the renal parenchyma with retention of hydrogen ions and concomitant diminution of sodium reabsorption. The author feels that sulfanilamide is too toxic for prolonged or routine use. Other sulfonamide compounds that are also inhibitors of carbonic anhydrase are under investigation in an effort to find a compound less toxic than sulfanilamide.

Northwest Medicine, Seattle

48:1-76 (Jan.) 1949

- *Continuous Peridural and Caudal Analgesia in Surgery and Early Ambulation. J. G. P. Cleland.—p. 26.
The Menace of Socialized Medicine. J. W. Cline.—p. 34.
What is the Future of Prepaid Medicine? H. E. Nichols.—p. 38.
Headache, Tics and Neuralgias of the Head. F. L. Reichert.—p. 39.
Carcinoma of Body and Tail of Pancreas: Report of 3 Cases of Cancer of Tail. J. M. Bowers.—p. 42.
Disruption of Abdominal Aorta. F. B. Packard and W. C. Scott.—p. 46.
Heart Disease; Its Significance and Plans for Control. R. L. King.—p. 48.

Peridural and Caudal Analgesia and Early Ambulation.—Cleland describes a technic for segmental continuous peridural analgesia by means of an indwelling ureteral catheter placed at the center of the nerve involved in the operation. This method provides an excellent operating anesthesia with muscular relaxation for as long as may be desired; it makes early ambulation painless and easy; it prevents postoperative complications and depression caused by general anesthesia or narcosis; it makes ambulation effective earlier than is possible with other types of anesthesia or narcosis and thus prevents more effectively postoperative complications influenced by early ambulation. It also prevents postoperative pulmonary complications which are caused by reflex inhibition of the diaphragm and associated muscles of respiration. The method promotes healing

in leg amputations by maintaining collateral circulation at a maximum; it corrects postoperative gastrointestinal symptoms of dysfunction—e. g., a certain type of "gas pains."

Ohio State Medical Journal, Columbus

45:25-99 (Jan.) 1949

- *Outbreak of Newcastle Virus Disease in Tuscarawas County, Ohio. T. F. McGough.—p. 25.
Recent Advances in Research and Treatment of Multiple Sclerosis. I. M. Scheinker.—p. 27.
Recent Advances from Study of Multiple Sclerosis. C. D. Aring.—p. 31.
Personal Observation on Treatment of Multiple Sclerosis. H. D. McIntyre.—p. 34.
Treatment of Venous Thrombosis with Heparin in Gelatin. C. Artz.—p. 37.
Asthma Due to Bacterial Allergy: Identified by Tissue Culture and Treated by Desensitization. H. Blatt and F. A. Nantz.—p. 40.
New Developments in Treatment of Cancer. J. L. DeCourcy.—p. 43.
Homologous Serum Jaundice: Case Report. A. C. Hemphill and T. D. Kinney.—p. 47.

Newcastle Virus Disease in Human Beings.—McGough presents observations on 10 patients who, after eating chicken, had symptoms indicative of Newcastle virus disease. Nausea, vomiting, fever, malaise, anorexia, abdominal pain, lumbar pain and headache were the usual symptoms. The neutralization index confirmed the clinical diagnosis in all 8 of the patients in whom it could be carried out. The index ranged from 100 to 17,400. Epidemiologic studies carried out on 3 of the patients suggest that the incubation period of Newcastle virus disease varies from two and one-half to five or more days. Considering the fact that the suspected chickens or chicken parts were in all instances stated to have been "thoroughly cooked," it might be well to investigate other possible preventive measures where gross appearance is not sufficient to forewarn a prospective cook or diner that the chicken has had Newcastle virus disease (avian pneumoencephalitis). If this disease should continue to cause human morbidity it might be worth while to require certification of poultry by an accredited inspector before such poultry could be sold as food.

Psychiatry, Washington, D. C.

11:325-428 (Nov.) 1948

- Special Logic of Schizophrenic and Other Types of Autistic Thought. S. Arieti.—p. 325.
Notes on Experiment in International Multiprofessional Cooperation. A. Querido.—p. 349.
Multidisciplinary Methods in Retrospect. E. F. O'Doherty.—p. 355.
Speech Disturbances: Case for Wider View of Paraphasias. S. J. Baker.—p. 359.
Mental Hygiene in Industry. W. Line.—p. 367.
Psychiatry, Education, and UNESCO "Tensions Project." H. S. Sullivan.—p. 371.
Tough and Easy Cultures: Conceptual Analysis. J. Arsenian and Jean M. Arsenian.

Rocky Mountain Medical Journal, Denver

46:89-176 (Feb.) 1949

- Cancer in Infancy and Childhood. P. Rosenblum.—p. 109.
Medical Care of Tuberculosis by State of Colorado. E. N. Chapman.—p. 115.
Carcinoma of Colon. K. B. Castleton.—p. 119.
Brucellosis Problem: Safeguarding Our Citizens from Disease. G. W. Stiles.—p. 124.
Allergic Nasal Syndrome. L. P. Coakley.—p. 125.
Clinical Study of Auricular Flutter. G. P. Smith and J. E. Welden.—p. 130.

South Carolina Medical Assn. Journal, Florence

45:1-28 (Jan.) 1949

- One Hundred Years. O. B. Chamberlain.—p. 1.
Saddle Block Anesthesia in Obstetrics: Report of 235 Consecutive Cases. R. F. Zeigler Jr.—p. 4.
Technic of Saddle Block Analgesia in Obstetrics. W. M. Bryan Jr.—p. 9.
*Use of Pentothal as General Anesthetic in Vaginal Delivery. R. B. Scurry.—p. 10.

Use of Thiopental During Delivery.—Scurry has recently begun to use thiopental sodium as a general anesthetic for vaginal delivery. He has delivered 18 patients under thiopental anesthesia with satisfactory results. He chose this drug because of the ease of preparation and administration, rapidity and pleasantness of induction, lack of effect on uterine musculature and safety to mother and baby.

FOREIGN:

An asterisk (*) before a title indicates that the article is abstracted. Single case reports and trials of new drugs are usually omitted.

British Journal of Surgery, Bristol

War Surgery Supplement No. 2. Pages 271-374. 1949

- War Injuries of Extremities and Their Treatment in Forward Areas. F. A. R. Stammers.—p. 274.
Missile Wounds Involving Bone. R. Furlong and J. M. P. Clark.—p. 291.
Early Treatment of Penetrating Wounds of Joints. J. C. Scott.—p. 310.
War Injuries of Peripheral Nerves. H. J. Seddon.—p. 325.
War Injuries of Peripheral Arteries. J. J. M. Brown.—p. 354.

British Medical Journal, London

1:123-164 (Jan. 22) 1949

- Hemolytic Disease of the Newborn: Criteria of Severity. P. L. Molli-son and Marie Cutbush.—p. 123.
Chemoprophylaxis of Experimental Filariasis in Cotton-Rat. W. E. Kershaw, J. Williamson and D. S. Bertram.—p. 130.
Infected Intervertebral Disk After Lumbar Puncture. L. L. Bromley, J. D. Craig and A. W. L. Kessel.—p. 132.
*Cough Fracture of Ribs. R. C. Cohen.—p. 133.
Cough Fracture in Late Pregnancy. J. W. Paulley, D. H. Lees and A. C. Pearson.—p. 135.
Lymphoblastic Leukemia Treated with Urethane. D. Pullen.—p. 137.

Cough Fracture of Rib.—Cohen presents the histories of 7 tuberculous women, ranging in ages between 18 and 35, in whom "spontaneous" fracture of ribs occurred. Some gave a history of pain following violent expiratory effort as in coughing or sneezing. These cases and others reported show that it is possible for ribs to fracture as a result of respiratory effort. Cases are easily missed if roentgenograms of the chest are not carefully examined and the condition borne in mind. The mechanism of such fractures is difficult to determine. Primary tuberculous osteitis of ribs is generally believed to be so uncommon that it is unlikely to be the basic cause. There was no evidence of it in the reported cases, though it is conceivable that areas of bone rarefaction may occur in a rib adjacent to a cold abscess arising from a caseous tuberculous gland. The apparently high incidence in tuberculous subjects suggests a possible constitutional effect on bone structure, but it must also be remembered that such subjects are repeatedly getting roentgen examinations of the chests, and the lesion is therefore more likely to be discovered. The most reasonable explanation of these fractures seems to be the violent action on the ribs occurring during the expiratory effort of a cough or sneeze. Diminished use of the thoracic musculature in a patient confined to bed for long periods may lead to a mild degree of decalcification and be a contributory factor.

Glasgow Medical Journal

30:1-42 (Jan.) 1949

- *Histology of Endometrium in Functional Uterine Hemorrhage: Analysis of 1,000 Cases and Review of Literature. A. M. Sutherland.—p. 1.
Note on Certain Ocular Phenomena of Post Encephalitic Parkinsonism. J. Crow.—p. 29.
Bilateral Pulmonary Relaxation in Case of Pregnancy and Tuberculosis. J. P. McIntyre.—p. 35.

The Endometrium in Functional Uterine Hemorrhage.

—Sutherland made an analysis of the histologic features in 1,000 cases of abnormal uterine bleeding in the absence of gross pelvic pathology, all patients with bleeding after the menopause being excluded. In 139 instances organic pathologic lesions of the endometrium were found. Chronic endometritis occurred in 110 cases, uterine polypi in 11 cases, tuberculosis in 10 cases and malignant disease in 8 cases. These figures demonstrate the necessity for routine diagnostic curettage in all cases of presumed functional bleeding, irrespective of age. In the remaining 861 cases no organic pathologic conditions of the endometrium were found. Endometrial hyperplasia occurred 265 times, endometrial atrophy 10 times, irregular shedding of the endometrium 13 times and irregular ripening of the endometrium 26 times. In the remaining 547 specimens the endometrium appeared normal. In 9 of the organic group and 48 of the functional group the endometrium was examined

on more than one occasion. Attempts to correlate the histologic appearances with the type of bleeding and with the findings on pelvic examination failed to demonstrate any relationship. The authors conclude that almost any type of abnormal uterine bleeding can occur from any type of endometrium and that an attempt at diagnosis of functional bleeding without histologic examination of the endometrium is unjustifiable.

Indian Medical Gazette, Calcutta

83:399-444 (Sept.) 1948. Partial Index

- Large Pheochromocytoma of Adrenal Gland. M. R. Subba Rao and T. B. Menon.—p. 401.
Plasma Proteins in Peptic Ulcer. V. K. N. Menon, B. Naganna and K. Janaki Bai.—p. 403.
*Pneumonic Plague and Its Treatment. P. M. Wagle and M. K. Bedarkar.—p. 406.
Cerebral Symptoms in Benign Tertian Infection. G. S. Mohapatra.—p. 412.

Treatment of Pneumonic Plague.—Wagle and Bedarkar give an account of 24 patients with pneumonic plague, who were treated with different drugs during the last ten years. It was found that combined treatment with streptomycin and antiplague serum with or without sulfamerazine gave the best results. Five of the 6 who received combined treatment recovered.

Journal Obst. & Gynaec. of Brit. Empire, Manchester

55:725-856 (Dec.) 1948

- Functioning Tumors of Ovary, with Special Reference to Pathology and Histogenesis. E. Novak.—p. 725.
Primary Carcinoma of Vagina. S. Way.—p. 739.
Etiology of Eclampsia. J. C. Beker.—p. 756.
Obstructed Labor Due to Septate Vagina. H. R. Arthur.—p. 766.
New Contrast Medium (Rayopake) for Hysterosalpingography. A. Sharman.—p. 770.
Rhesus Factor Isoimmunization and Hemolytic Disease of Newborn. N. W. Philpott.—p. 774.
Massive Lymphangioma of Fetal Trunk and Shoulders Causing Distocia: Report of Case. R. B. Mitchell and D. B. Stewart.—p. 787.
Calcium and Phosphorus Metabolism in Pregnancy (A Survey Under War and Post-War Conditions): VI. Postnatal Findings. E. Obermer.—p. 791.
Normal Pregnancy in Case of Thrombosis of Inferior Vena Cava. J. F. Foulkes.—p. 798.
Dysgermioma Ovarii (Report of Case). H. Sobhi and H. K. Toppo-zada.—p. 803.

Lancet, London

1:87-130 (Jan. 15) 1949

- Late Social Results of Prefrontal Leukotomy. R. Ström-Olsen and P. M. Tow.—p. 87.
Macrocytic Anemia in Central Africans in Relation to Ancylostomiasis and Other Diseases. H. Lehmann.—p. 90.
Streptomycin in Human Plague Compared with Other Treatments. P. V. Karamchandani and K. S. Rao.—p. 96.
Experimental Pancreaticogastrostomy. C. A. Wells and D. Annis.—p. 97.
*Penicillin and Carinamide in Resistant Subacute Bacterial Endocarditis. C. H. Stuart-Harris, J. Colquhoun and J. W. Brown.—p. 99.
*Resistance to Tumor Growth in Rats Fed on Vitamin-B Complex. G. N. Scott.—p. 102.
Rapid Determination of Urinary Pregnenediol: Comparison of Two Methods. G. I. M. Swyer.—p. 104.

Penicillin and Carinamide in Endocarditis.—Stuart-Harris and his associates report the successful use of combined penicillin and carinamide therapy in 2 cases of subacute bacterial endocarditis in which there had been relapse after repeated courses of penicillin alone. In a third patient a brief course of carinamide during penicillin therapy for bacterial endocarditis caused clinical improvement, which had not occurred with penicillin alone. These cases indicate that carinamide is an important adjuvant to penicillin therapy in subacute bacterial endocarditis. The effect seems to be due to the high serum penicillin levels obtained by this combined therapy.

Vitamin B Complex and Resistance to Tumor Growth.—Scott describes experiments which demonstrated that the addition of vitamin B complex to the diet of rats, which were fed with hospital scraps, increased their resistance to the growth of Jensen's rat sarcoma. In many of the rats treated with vitamin complex the tumors eventually disappeared, and the average volume about three weeks after inoculation was often less than a quarter of the volume of the tumors in the controls.

A similar effect was obtained with a sarcoma originating in bone. Rats on a diet of hospital scraps with no additional vitamin B appeared well nourished and free from disease and had no signs of vitamin B deficiency.

1:131-170 (Jan. 22) 1949

- Medicine in the New Social Order. F. Fraser.—p. 131.
 *Dextran as Plasma Substitute. G. Thorsén.—p. 132.
 *Dextran as Plasma Substitute. J. P. Bull, C. Ricketts, J. R. Squire and others.—p. 134.
 Effects of Agenesis of Flou on Man. A. Elithorn with assistance of Doris M. Johnson and M. A. Crosskey.—p. 143.
 Morbidity and Feeding in Infancy. F. Charlotte Naish.—p. 146.
 Clinical Estimation of Basal Metabolic Rate: RP Index. E. Bene.—p. 147.

Dextran as Plasma Substitute.—Thorsén states that dextran now in use in Sweden as a substitute for plasma is a 6 per cent solution of polydispersoid glycoside polymer. Most of its molecules have been given a molecular weight conforming to that of albumin, with 0.9 per cent of sodium chloride added to it. Its viscosity lies between that of blood and that of plasma, and its specific gravity somewhat exceeds that of human plasma. It is free of virus, does not lead to the formation of antigens and contains almost no nitrogen. Dextran has been given to 5,000 patients. Up to 4 liters have been given to some patients. The substance has been found valuable in the treatment and prevention of shock. At the author's hospital it has been given routinely for the prevention of shock during major operations. The incidence of postoperative complications was higher in a series of controls, in whom corresponding amounts of isotonic sodium chloride solution were given. The substance is totally eliminated from the body and is nontoxic. It is very useful as a substitute for blood and plasma in cases in which an increase in blood volume or in colloid osmotic pressure is desired.

Dextran as a Plasma Substitute.—Bull and others present the experiences with dextran in Britain. It is possible to prepare dextran with a range of molecular size similar to that of the plasma proteins. The solution is well tolerated as an infusion, is not pyrogenic, toxic or antigenic. Such dextran, after infusion into animals and man, is only slowly removed from the plasma over about a week. Dextran has proved efficacious as a plasma substitute in burns, and has produced a sustained increase in the venous return in patients with surgical shock or hemorrhage. The dextran under trial contained an appreciable proportion of material of such a molecular size that it passed the glomerular filter and could be recovered from the urine. In defining a specification for dextran for intravenous use it is desirable to keep to a minimum the proportion of dextran of low molecular weight. It is probably also important to define the upper limit of molecular size. There is still doubt about the ultimate fate of dextran in the body, and, because of this, it cannot yet be unreservedly recommended for widespread use. It has not been shown to produce harmful effects on the tissues, and further investigation is recommended.

Medical Journal of Australia, Sidney

1:1-28 (Jan. 1) 1949

- Bacteriologic Diagnosis of Salmonella Infections. I. M. Mackerras and M. J. Mackerras.—p. 1.
 Pain and the Surgeon. A. E. Coates.—p. 3.
 Mastoiditis in Infancy. R. S. W. Thomas.—p. 8.
 Medico-Legal Problems Based on Experience at the Morgue. K. M. Bowden.—p. 12.
 Occult Blood in Feces: Benzidine Test. H. W. Linn.—p. 15.

1:29-56 (Jan. 8) 1949. Partial Index

- Science and Politics. J. Latham.—p. 29.
 Outbreak of Gingivo-Stomatitis Amongst Australian Troops in Japan. R. Dunlop.—p. 33.
 Nervous Child. D. G. Hamilton.—p. 41.

Practitioner, London

162:1-88 (Jan.) 1949. Partial Index

- Medical Treatment of Peptic Ulcer. D. T. Davies.—p. 10.
 Diet in Peptic Ulcer. E. Meulengracht.—p. 19.
 Surgical Treatment of Peptic Ulcer. A. H. Visick.—p. 25.
 Vagotomy in Treatment of Peptic Ulcer. W. Walters.—p. 33.
 Instructions for Patient with Dyspepsia. C. M. Fletcher.—p. 51.
 Dietetic Treatment of Obesity. I. A. Anderson.—p. 61.

Tubercle, London

30:1-24 (Jan.) 1949

- Viability of Freeze-Dried BCG Cultures. J. Ungar.—p. 2.
 BCG Vaccination of Indian Infants in Saskatchewan. R. G. Ferguson and A. B. Simes.—p. 5.
 Need for BCG Vaccination in Infants. Dorothy Stopford Price.—p. 11.
 *Tuberculous Pericarditis as Forerunner of Generalized Miliary Tuberculosis. J. Goldstein.—p. 14.

30:25-47 (Feb.) 1949

- Study of Tuberculous Pleural Effusion in Children and Adults. Nelly Landau.—p. 26.
 Two Cases of Spontaneous Hemothorax. M. Walton.—p. 35.
 Tuberculosis Survey of a Suspected School Group. J. T. N. Roe.—p. 39.

Tuberculous Pericarditis as Forerunner of Generalized Miliary Tuberculosis.—According to Goldstein, tuberculous pericarditis has in the past been regarded as a rather rare disease, but in the light of recent experience it would seem that it is not so uncommon as was once supposed. In a recent paper Kopelman contended that all cases of pericarditis where there are no enlargement of the heart, no murmurs suggestive of valvular involvement and no rheumatic manifestations should be considered as potentially tuberculous unless proved otherwise. With the advent of streptomycin such a standpoint assumes even greater significance. The author presents the case of a girl aged 16, who had miliary tuberculosis in which the first obvious symptoms were those of tuberculous pericarditis. The fact that treatment with streptomycin resulted in a remission and brought about a complete disappearance of roentgenologic and clinical signs gives some hope that the cases of tuberculous pericarditis in the course of a miliary dissemination are those which would benefit most by the use of streptomycin. To give the patient the best chance of remission, early diagnosis would seem to be essential. A short survey of current and early literature has been given to stress the fact that tuberculous pericarditis should be suspected more often than it has been hitherto.

Acta Medica Scandinavica, Stockholm

132:99-199 (Dec. 8) 1949. Partial Index

- Contribution to Knowledge of Arteriovenous Fistulas. E. Ask-Upmark.—p. 105.
 Time of Diazo Reaction in Laboratory and Clinic. H. Deenstra.—p. 109.
 *Sex Hormones and Leukemia. A. Videbaek.—p. 124.
 Influence of Immune Hemolysis on Red Blood Corpuscles in Vivo and Vitro. C. Wasastjerna.—p. 132.
 Social Importance of Rheumatic Diseases in Sweden. F. Bohman.—p. 150.
 Experiments on Treatment of Hemophilia with Mercury. F. R. Bárány.—p. 161.
 Studies on Serum Proteins in Hepatitis: III. Serum Protein Variations in Chronic Hepatitis and Clinical Course of Disease. M. Björneboe.—p. 170.

Sex Hormones and Leukemia.—According to Videbaek, reports in the literature indicate that inbred strains of mice usually exhibit a higher incidence of leukemia in females than in males and that estrogens accelerate leukemia, whereas androgens inhibit its development. The author made a study of the incidence of and mortality from spontaneous leukemia in 2,766 mice of the inbred strain AKA. The mice were left untreated and observed until they died spontaneously. He gained the impression that in females there are factors accelerating leukemia or else there are in the males factors delaying the development of leukemia. Correspondingly, hyperplasia of the thymus gland is found more often and at an earlier age in the females. Reviewing observations on human subjects, the author finds that there is a difference in sex ratios in the various forms of leukemia. Acute leukemia in children is more frequent in girls during the first year of life, but later shows a higher frequency in boys. Chronic lymphogenous leukemia is about twice as common in men, whereas chronic myelogenous leukemia is slightly more common in women. A study by the author in 1947 on 310 unselected cases of human leukemia gave a corresponding result, revealing the following sex ratios: men/women: for chronic lymphogenous leukemia 74/53, for chronic myelogenous leukemia 33/46 and for acute leukemia 53/49. The disease proved to occur at almost the same age in men and women. The reason why man does not exhibit the same conditions as mice of inbred strains is probably that in man it is a question

of other types of leukemia. In addition, experimental investigations emphasize the importance of the genetic constitution, which is fairly constant in the same strain of mice, whereas it is extremely varied from one human being to another.

Arch. des Maladies de l'Appareil Digestif, Paris

37:661-836 (Nov.-Dec.) 1948

*Two Progressive Forms of Cancer of Stomach Based on Study of 205 Cases of "Habitual" Cancer and on 50 cases of "Debutant" Cancer: Cancer with Rapid Course and Cancer with Slow Course; Statistical Study of Average Age of Patients with These Two Varieties; Present Balance of Results Obtained with Method of "Precocious" Diagnosis by Clinical Features Combined with Roentgenologic Examination. A. Lambling and J. Guillard.—p. 661.

Treatment of Ulcers of Stomach and of Duodenum by Nicotinic Acid Chloride. K. Herfort.—p. 690.

Two True Cysts of Tail of Pancreas. L. Courty.—p. 697.

Two Progressive Forms of Cancer of Stomach.—Lambling and Guillard compared the symptoms, lesions and course of cancer of the stomach in 205 patients, 114 men and 91 women, whose average age was 54 years and 5 months, with those in 50 patients, 31 men and 19 women, whose average age was 45 years and 5 months, thus presenting a difference of nine years in age. The authors suggest a dualistic concept of cancer of the stomach according to which two progressive forms of cancer of the stomach must be distinguished: 1. The "habitual" cancer comprising 80 per cent of all the cases of cancer of the stomach. The tumor has a vegetative and infiltrating tendency, its clinical signs, in the absence of pain, are not very characteristic in nearly 50 per cent of the cases, the maximum duration of its course being one year in 69 per cent of the cases. 2. Cancer resembling ulcer, comprising 20 per cent of all the cases of cancer of the stomach. In these cases of pseudoulcerous clinical type the anatomic lesions remain limited for a long time, and in the majority of them their course may take years. These two different clinical types of cancer are individualized by the average age of the patients affected, being 57 years and 5 months in those with "habitual" cancer, and 45 years and 5 months in those with "debutant" cancer. In the great majority of cases of cancer of the stomach only those resembling ulcer have been diagnosed by clinical features combined with roentgenologic examination in time to make surgical intervention effective; the "habitual" cancer is recognized too late, emphasizing the urgent need for a biologic test of cancer.

Klin. Monatsbl. für Augenheilkunde, Stuttgart

113:209-304 (No. 3) 1948. Partial Index

Sources of Error in Measuring Diastolic Pressure in Retinal Arteries According to the Method of Bailliar. O. Freusberg and E. Weigelin.—p. 209.

Vascular Studies with Ophthalmoscope and Slit Lamp: I. Observations on Pulsation of Retinal Veins. D. Schulte.—p. 220.

Changes in the Eye Grounds (Degeneration of the Macula) During Starvation. G. Winkler.—p. 231.

*Involvement of Eyes in Poliomyelitis: Experiences During Epidemic in Berlin in 1947. R. Collin and W. L. Bassenge.—p. 255.

Involvement of Eyes in Poliomyelitis.—Collin and Bassenge made ophthalmologic studies on 40 patients who had received treatment in the "iron lung" in the course of the epidemic of poliomyelitis in Berlin in 1947, in which a total of 2,300 cases were reported. Seventy other patients with poliomyelitis, who did not require treatment in the "iron lung," were also given a thorough examination of the eyes. The ophthalmologic examination was repeated at regular intervals, so that it was often possible to observe the appearance and rapid disappearance of symptoms. A third group of 40 patients, who had persistent spinal paralysis after an attack of poliomyelitis, were examined for late eye symptoms. Three and one-half months was the time that had elapsed after the acute attack. Involvement of the eye is not a rarity in poliomyelitis. Nuclear and supranuclear paralysis of the facial nerve, ptosis, abducens paralysis and paralysis of the internal rectus muscle of the eye were observed. There is a good prospect that these types of paralysis will subside. In the cases of poliomyelitis in which lesions exist in the upper part of the spinal cord, involvement of the sympathetics may produce disturbances in the pupils. The majority of the patients who required treatment in the iron

lung showed signs of stasis in the retinal vessels and in the optic papilla. Although optic neuritis was not encountered during this epidemic, it may be expected to occur. The authors believe that in patients with obscure paralysis of some of the cerebral nerves, poliomyelitis should be considered. It is advisable to hospitalize these patients, not only to prevent further spread of the poliomyelitis, but also because special care may become necessary, since the lesion is close to the respiratory center.

Nederlandsch Tijdschrift v. Geneeskunde, Amsterdam

92:3915-3988 (Nov. 27) 1948. Partial Index

Investigations on Suppressive Action of Paludrine in Tertian Malaria. S. Kloppe.—p. 3922.

Potassium Exchange During Treatment of Diabetic Coma. A. F. Willebrands, J. Groen and M. Frenkel.—p. 3929.

*Chamber Form of Ulcer in Roentgenogram of Duodenal Bulb. N. J. Schulte, C. L. H. Majoor and J. J. Suren.—p. 3940.

Microscopic Diagnosis of Rabies. S. J. W. Tanamal.—p. 3949.

Chamber Form of Duodenal Ulcer.—Schulte and his associates point out that Deelman, who had made detailed studies on the morphogenesis of duodenal ulcer, found that there are some ulcers which form a chamber. He believes that this type of ulcer begins with a sort of split defect in the duodenal mucosa that reaches down to the muscularis and spreads between the mucosa and the muscular layer of the duodenal wall. The defect burrows deeper into the mucosa, and thus a chamber is formed. Suren found a high incidence of these ulcers with chamber formation in patients who had undergone primary gastric resection on account of perforation of a gastric ulcer (22 of 32 cases). Schulte and his co-workers watched for the chamber formation in 251 patients with duodenal ulcer and in 165 of whom roentgenoscopy disclosed a typical niche. Of the 7 ulcers that showed chamber formation in the roentgenogram, 1 perforated during the roentgenologic examination. The authors feel that since the ulcers that show chamber formation have a decided tendency to perforate, surgical treatment would be advisable in these cases.

92:3989-4064 (Dec. 4) 1948. Partial Index

Macrocytic Anemia Due to Nutritional Factors. P. B. van Steenis.—p. 3990.

Hypothesis on Pathogenesis of Malignant Tumors. N. H. D. Schöyer.—p. 3998.

*Vaginal Extirpation of Uterus. H. Hoyng.—p. 4008.

Audiology a New Aid in Otology. H. C. Huizing.—p. 4017.

*Reduction of Essential Hypertension During Pregnancy. A. Löwenberg.—p. 4021.

Vaginal Extirpation of Uterus.—Hoyng stresses the advantages of vaginal over abdominal hysterectomy in cases of benign or malignant tumors of the uterus. The primary mortality, the pain and subjective disturbances and the postoperative disturbances are all less with the vaginal method. The hazard of carcinoma in the stump is avoided and the formation of cicatricial hernia is obviated. The period of hospitalization is shorter. The author reviews results obtained in 200 vaginal hysterectomies performed by himself or his assistants since August 1945. None of these patients died as the result of the operation. The author stresses that the method is simple, and he hopes that it will find a wider application so that the permanent results, particularly in carcinoma, can be judged better.

Reduction of Essential Hypertension During Pregnancy.—Löwenberg presents the case of a woman, aged 40, who had hypertension. During pregnancy her blood pressure returned to normal, but it increased again to hypertensive values after the birth of her baby. Commenting on this observation the author says that other investigators have observed that if pregnancy develops during hypertension either the elevated blood pressure persists, preeclampsia or eclampsia develops or the blood pressure decreases. This latter possibility, which was observed in the woman whose history is presented here, is the least likely of the three possibilities. The author believes that the rapid return of the hypertension after delivery suggests that mechanical rather than chemicohumoral factors

are responsible for the change in blood pressure during pregnancy. Some authors have suggested that an arteriovenous diversion in the placental vessels leads to a reduction of the peripheral resistance, which in turn may cause a reduction in blood pressure.

92:4141-4216 (Dec. 18) 1949. Partial Index

- *Treatment of Acute Pancreatitis. A. A. van Puyvelde.—p. 4150.
- Renal Glycosuria During Pregnancy in Patients with Hypothyroidism. J. C. de Wit.—p. 4155.
- *Heterosexual Hormones in Treatment of Spontaneous Bone Fractures Resulting from Carcinomatous Metastases. C. van Gelderen.—p. 4165.
- Specific Changes in Liver in Patients with Erythema Nodosum. C. van Beek and A. J. C. Haex.—p. 4171.
- Shortened Esophagus (Bachy-Esophagus). D. P. R. Keizer.—p. 4185.

Treatment of Acute Pancreatitis.—Van Puyvelde describes the treatment of acute pancreatitis on the basis of 4 case histories. He performs a laparotomy in order to inspect the bile passages and to provide temporary external drainage for the bile. Following the operation he administers penicillin and institutes measures to prevent irritation of the pancreas. Nutrition is provided by the parenteral rather than the enteral route, and stimulation of the pancreas by the hydrochloric acid of the stomach is reduced by medication and by aspiration of the gastric secretion through a nasal tube. Insulin is administered to guard against stimulation of the internal secretion of the pancreas.

Heterosexual Hormones for Fractures Resulting from Metastases.—Van Gelderen presents the histories of 2 women in whom spontaneous fractures resulted from bone metastases caused by carcinoma of the breast. One had a fracture of the humerus, the other of the leg. After proper fixation of the fractures, the women were given injections of testosterone propionate, one of them 50 mg. daily and the other 100 mg. three times a week. Consolidation of the fractures took place within nearly normal time. The author concludes that this is further proof of the favorable results obtained with heterosexual hormones in the presence of skeletal metastases from "sexual" carcinomas.

Nordisk Medicin, Stockholm

40:2189-2244 (Nov. 26) 1948. Partial Index

- Pathogenesis of Pulmonary Tuberculosis. R. Høyer Dahl.—p. 2196.
- *Sequels of Epidemic Parotitis with Meningoencephalitis. Vera Oldfelt.—p. 2200.
- Roentgen Diagnosis of Lungs for Silicosis. R. Steinert and B. Moe.—p. 2205.
- Ulcer Disease in Older Persons. L. Abramson.—p. 2206.
- *Neuroblastomas. A. Tho.—p. 2211.
- Hemiosiderosis of Lungs in Mitral Stenosis. S. Aarseth.—p. 2216.
- Penicillin Treatment in Scarlet Fever. K. V. Svennerfos.—p. 2218.

Sequels of Epidemic Parotitis with Meningoencephalitis.—Of 75 patients (25 children, 50 adults) with mumps and meningoencephalitis, 15 (3 children, 12 adults) were found on a follow-up three to five years later to have permanent after-effects. One child had total unilateral deafness; another, severe epilepsy, and an adult, vestibular dizziness. In the other cases the sequels, though milder, gave constant annoyance. There were various eye and ear symptoms, symptoms of neurasthenic kind in some cases and endogenous obesity in 1 case. There were also 5 doubtful cases. Oldfelt says that the late prognosis seems to be less favorable in the cases with distinct symptoms of encephalitis in the acute stage. No relation was seen between the cell count in the cerebrospinal fluid in the acute stage and the frequency of after-effects.

Neuroblastomas.—In the 3 cases of neuroblastoma reported in children aged between 1 and 6 with typical localization in the adrenal medulla, the clinical picture was dominated by cranial metastases. Tumor cells demonstrated in the bone marrow and roentgenologically established metastases to the bone system facilitated the diagnosis. Death from cachexia occurred after two and a half to six months. Tho says that in differential diagnosis myeloblastic leukemia is first to be considered; the clinical picture together with the sternal puncture and roentgen picture as a rule clarifies the situation. In 2 of the cases signs of lively blood regeneration with high reticulo-cyte count were found; in leukemia there is most often little

tendency to blood regeneration. Wilms' tumor seldom leads to bone metastases; urography, often positive in this tumor, is usually negative in neuroblastoma. Ewing's tumor is rare in patients aged under 4. Metastases generally give the first and characteristic symptoms in neuroblastomas. The tumors are radiosensitive. In Farber's series of 40 patients 10 are living after three to eight years, and Farber would revise the earlier hopeless view of the prognosis. Irradiation cannot hinder the development of metastases, which may be latent several years, but they also are radiosensitive. Irradiation of skeletal metastases has not prevented recurrence.

40:2245-2300 (Dec. 3) 1948. Partial Index

- *Occurrence of Types of Diphtheria Bacilli in Bergen and Their Significance. J. Bøe and T. M. Vogelsang.—p. 2253.
- Acute Salicylic Acid Intoxication. R. Grelland and P. Ahnfelt-Andersen.—p. 2258.
- Hemochromatosis and Primary Carcinoma of Liver. V. Posborg Petersen.—p. 2262.
- Gastric Ulcer in Cinchophen Poisoning. M. Eiken.—p. 2264.
- Myositis Ossificans Monstrosa. T. Rasmussen.—p. 2266.
- Hypersensitivity to Streptomycin. P. Helms.—p. 2268.

Occurrence of Types of Diphtheria Bacilli in Bergen and Their Significance.—The diphtheria epidemic which took place in Bergen in 1941 reached its peak in 1943-1944 and gradually receded. Bøe and Vogelsang ascribe to diphtheria vaccination, made compulsory for school children in 1942, the gradual definite shift in the age distribution of the patients; the disease occurred with practically unchanged frequency in the age group up to 5, declined among school children and appeared increasingly often among adults, especially those over 30. They state that *Corynebacterium diphtheriae mitis* dominated in Bergen before the epidemic and continued fairly regularly throughout the epidemic; *C. diphtheriae intermedius* was the most frequent type in 1944, and, after the peak, *C. diphtheriae gravis*, not known in Bergen before the epidemic, became the dominating type and in early 1948 was the only type found. A similar shift has been seen in several other places. Simultaneously with the final change in the dominating type the disease took on a graver character. The *gravis* bacillus type persisted longer than the other types in the throats of patients and carriers. The considerably longer duration of convalescence in the cases of the *gravis* type may explain the change in dominating type and also the persistence of this type after the terminated epidemic. The occurrence of more than one diphtheria bacillus type in patients with diphtheria or of different types on repeated examinations is attributed to cross infection, which, though without special effect on the patient's health, prolongs the length of hospitalization and increases the danger of infection.

40:2301-2356 (Dec. 10) 1948. Partial Index

- Treatment of Febrile Abortions. S. Kjelland-Mjrdre.—p. 2306.
- *So-Called Reflex Calculus Anuria in Light of Experimental and Clinical Studies of Ureterorenal Obstruction. H. B. Wulff.—p. 2312.
- Results of Cholecystostomy. After-Examination of 80 Patients. B. Strandberg and E. Ingemann Jensen.—p. 2315.
- Effect of Prophylaxis with Vitamin K on Hemorrhage in Childbirth. H. Korallus.—p. 2320.
- Extirpation of Spleen in Splenomegalic Panhematopenia. I. Lundholm.—p. 2322.
- Epidemic Myalgia. Ø. Friestad.—p. 2325.
- Instrumental Aids in Surgery of Hand. E. Moberg.—p. 2328.
- Psychiatric Departments in Hospitals. B. J. Lindberg.—p. 2342.

So-Called Reflex Calculus Anuria in Light of Experimental and Clinical Studies of Ureterorenal Obstruction.—Wulff says that the results of clinical investigations in 2,400 cases of renal or ureteral calculi, in over 1,500 of which urography was carried out during the attack of renal or ureteral stone colic or immediately afterward, and extensive experiments on renal-ureteral obstruction together with oncometric studies testify against the likelihood of clinical occurrence of a ureterorenal or renal reflex mechanism produced by impulses arising from the passage of ureteral stones or other acute ureteral obstruction and causing a real anuria on the contralateral side. In extremely rare cases a combination of factors might possibly cause a reflex anuria.

Revista Española de Pediatría, Madrid

4:437-540 (July-Aug.) 1948. Partial Index

*Nanism and Mitral Stenosis in Members of Family. M. Schachter.—p. 471.

Acute Meningitis Caused by "Hemophilus Influenzae" Cured by Streptomycin. V. Sanchis Bayarri, J. Alcon and A. Garcia.—p. 514.

Nanism and Mitral Stenosis in Members of Family.—Association of congenital mitral stenosis and nanism in members of the same family with normal development of the genital organs is unusual. Schachter reports this association in 4 of a family of 6 living members. Those with the abnormality were the maternal grandmother, the mother and two sons, whereas the father and the youngest child were normal. The father and his family were normal. There was neither syphilis nor alcoholism in any of the members of the family. The genital organs were normal in all the members of the family. The author believes that in these cases the combined abnormality was of chromosome origin.

Revue de la Tuberculose, Paris

12:793-992 (No. 11 & 12) 1948. Partial Index

Practical Value of Culture of Koch's Bacillus in Diagnosis of Pulmonary Tuberculosis. F. Bezançon, P. Braun and A. Meyer.—p. 805.
Attempt to Interpret the Cutaneous Allergy in Tuberculosis. F. Parodi.—p. 818.

*Severe Hemorrhages Associated with Extrapleural Pneumothorax; Their Significance and Treatment. M. Bérard and Hermann.—p. 824.

*New Method of Determining Streptomycin-Sensitivity or Streptomycin-Resistance of Bacillus Tuberculosis. P. Hauduroy and W. Rosset.—p. 834.

Hemorrhage Combined with Extrapleural Pneumothorax.—Bérard and Hermann report 580 patients, 180 men and 400 women, in whom an extrapleural pneumothorax was induced. A severe hemorrhage occurred in 34 of these patients, 20 men and 14 women. It was fatal in 7 patients. It did not prevent an effective and satisfactory collapse of the lung in the great majority of the cases. The hemorrhage may occur immediately after the intervention or within the first few hours and may be either mechanical, due to a spurting vessel, or of vasomotor origin, with the blood spreading like a sheet over the pocket which has been formed by stripping of the pleural layers. The mechanical hemorrhage occurs less frequently than that of vasomotor origin. These primary hemorrhages should be distinguished from the "delayed-early" hemorrhages which occur within thirty-six to forty-eight hours after the intervention and which never have a mechanical cause. Treatment of primary hemorrhage consists of puncture for removal of the blood, followed by profuse hot lavage combined with an injection of epinephrine. Repeated intervention may be required if bleeding recurs, or in cases in which removal of the blood is impossible because of clot formation. Partial axillary thoracotomy should be performed in most of the cases of "delayed-early" hemorrhage in which massive clots may prevent evacuation by means of trocar and lavage or by intercostal drainage. Transfusions and oxygenation should be employed for treatment of hemorrhage of both types.

Titration of Streptomycin.—Hauduroy and Rosset report a new method for determining the development of resistance of tubercle bacilli to streptomycin, since the classical methods used for the sensitivity determinations are too cumbersome, requiring one and a half to two months for reliable results. The technic devised by the authors consists in incubating three series of tubes in which Löwenstein's solid medium has been introduced: the first series is that of the control tubes which had been inoculated with sputum, pleural pus or pleural fluid; the second series is that in which dilutions of streptomycin with concentration of 5,000 micrograms per cubic centimeter are added to the medium, to be then inoculated with the pathologic material; the third series differs from the second only in that the concentration of the added streptomycin dilution is 500 micrograms per cubic centimeter. The new procedure was tested on pathologic material of 20 patients and the results were compared with those obtained with the aid of a liquid (Dubos) medium. A strain growing in the liquid medium in the presence

of 10 micrograms per cubic centimeter but not in the presence of 100 cc. [sic] grew in the solid medium in the presence of 500 micrograms per cubic centimeter but was prevented from growth in the presence of 5,000 micrograms per cubic centimeter, thus confirming the parallelism of the two methods. More qualitative than quantitative results may be obtained with the solid medium technic at the end of a fifteen days period. These results should be subsequently verified by titration according to the technic of adding dilutions of streptomycin to liquid mediums.

Strahlentherapie, Berlin

77:323-484 (No. 3) 1948. Partial Index

Experiences in Treatment of Uterine Carcinoma: Report on Cases Treated 1935 to 1939. F. Gauwerky.—p. 325.

Irradiation of Carcinoma of Esophagus. J. Borak.—p. 349.

*Regression of Cutaneous Manifestations of Tuberculosis During Progressive Pulmonary Tuberculosis. K. W. Kalkoff and F. Ehrling.—p. 359.

Clinical Contribution to Therapy of Boeck's Sarcoid. H. Schuster.—p. 371.

Action of Urethane on Spleen of Mice. W. Lorenz.—p. 375.

Effect of Interrupted Roentgen Irradiation on Reticulocyte Count in Mice. J. G. Heeren.—p. 383.

*Roentgen Therapy in Gastric Ulcer. A. Hedfeld.—p. 387.

Favorable Effects of Roentgen Therapy in Progressive Cases of Rheumatoid Arthritis. J. Borak and H. K. Taylor.—p. 455.

Cutaneous and Pulmonary Manifestations of Tuberculosis.—Kalkoff and Ehrling present 2 patients with lupus vulgaris and 2 patients with Boeck's sarcoid in whom the specific skin lesions healed spontaneously, while the pulmonary tuberculosis showed a decided exacerbation. The authors discuss whether the progression of the pulmonary process under these conditions could be ascribed to the abolishment of the immunizing effect on the part of cutaneous tuberculosis. They feel that this possibility is contraindicated by the fact that there is a high mortality from pulmonary tuberculosis among patients with lupus vulgaris who have active skin lesions. That it is specifically the skin which modifies pulmonary tuberculosis is contradicted by the fact that tuberculosis of the eyes and joints likewise has been known to be accompanied by a favorable course of a coexisting pulmonary tuberculosis. The etiology of lupus vulgaris also militates against an active effect of pulmonary tuberculosis. Lupus develops as the result of a certain reactive status, but it does not produce this reactive status, which may have a favorable effect on the existing pulmonary tuberculosis. It is a sequel, not a cause, of this condition. When the reactive status changes, which may become manifest in a changed sensitivity tuberculin, spontaneous healing of the lupus lesions and an exacerbation of the pulmonary tuberculosis may result.

Roentgen Therapy in Gastric Ulcer.—Hedfeld stresses the importance of psychologic factors in the pathogenesis of gastric ulcer and points out that during the last ten or fifteen years there have been attempts to influence certain pathologic processes by irradiating elements of the sympathetic nervous system. He has used this treatment since 1935 in more than 800 patients. He applies the roentgen rays to the celiac plexus first through an abdominal field of 8 by 10 cm. and then through a dorsal field at the same level. The irradiation of both fields is repeated, and later the dorsal segments of the fifth to the twelfth thoracic vertebrae are irradiated, because the innervation of the gastric area originates here. The irradiation is produced with 200 kilovolts, 15 milliamperes and a 0.5 cm. copper filter. The skin distance is 40 cm., and 40 per cent of the unit skin dose of 760 roentgens is applied at each session. As a result of this treatment the pains subside. Ulcers that had been demonstrated by roentgenoscopy show at control examinations, from four to eight weeks later either complete healing, in the majority of cases, or great reduction of the niches. Some of the patients remained free from recurrences for several years. If symptoms persist a new course of roentgen treatments is given, but not before an interval of at least two months has elapsed. The patients were not given a special diet. Various other disorders of neurosympathetic origin may prove amenable to this form of functional roentgen therapy.

Book Notices

Neoplasms of Bone and Related Conditions: Their Etiology, Pathogenesis, Diagnosis, and Treatment. By Bradley L. Coley, M.D., Attending Surgeon, Bone Tumor Department, Memorial Hospital for Cancer and Allied Diseases, New York. Cloth. Price, \$17.50. Pp. 765, with 622 illustrations. Paul B. Hoeber, Inc., Medical Book Department of Harper & Brothers, 49 E. 33d St., New York 16, 1949.

Coley has prepared an exhaustive treatise on neoplasms of bone and related conditions based on the large material of the Memorial Hospital for Cancer and Allied Diseases and his extensive experience as attending surgeon of that institution.

The early chapters deal with the classification and proper approach to the study of neoplastic disease, including etiology, diagnostic surveys and blood chemistry studies of neoplastic and other related diseases of bone. Benign tumors are dealt with first, including osteomas, chondromas, hemangiomas and myxomas, and a number of allied conditions, as bone cysts, are correlated, especially from the standpoint of differential diagnosis. Primarily malignant tumors of bone are discussed in great detail with respect to etiology, diagnosis and treatment. Brief consideration is given both to benign and malignant tumors involving bone by extension, and to metastatic tumors involving bone. Under bone tumors in special localities, those of the skull, jaw, thoracic wall, pelvis, vertebra and hands and feet are dealt with. There are valuable chapters on radiation therapy and the effects of radiation on normal bone, including the production of sarcoma. Endocrine diseases, Paget's disease, infections and trauma are discussed in relation to the etiology of bone neoplasms.

Many valuable illustrations have been included, and the literature has been well reviewed. Medical students and practitioners should find this book most helpful.

Dental Caries: Mechanism and Present Control Technics as Evaluated at the University of Michigan Workshop. Edited by Kenneth A. Esslick, A.M., D.D.S., Professor of Dentistry (Dentistry for Children) in the School of Dentistry and Professor of Public Health Dentistry in the School of Public Health, Ann Arbor, Michigan. Cloth. Price, \$5. Pp. 234, with 11 illustrations. C. V. Mosby Co., 3207 Washington Blvd., St. Louis 3, 1948.

This book is a comprehensive report of a conference of nineteen lecturers and one hundred and fourteen other research leaders primarily interested in dental caries. The conference was sponsored in September 1947 by the Schools of Public Health and Dentistry at the University of Michigan. Six evaluating committees appraised all available information with the following conclusions:

Caries is a disease of the teeth caused by acids resulting from the action of micro-organisms on carbohydrates decalcifying the inorganic portion followed by disintegration of the organic substance of the tooth. Caries is made possible by (1) a plaque which is an organic nitrogenous mass containing multitudes of micro-organisms firmly adhering to the teeth; (2) anatomic characteristics; (3) position and arrangement of the teeth and (4) dental appliances. Lactobacilli are the only micro-organisms showing significant increase in caries. Lactic acid is always present in a caries lesion. Pregnancy and lactation are not a cause of caries. Sickness or nutritional deficiency seem to have no significant bearing on caries. Toothbrushing only removes accessible plaque and does not prevent reformation. Plaque returns from one to four days after dental prophylaxis. However, both toothbrushing and prophylaxis lower the acid level in the mouth. Chewing gum or lozenges do not seem to reduce or stimulate the number of acidogenic bacteria even when they contain anticaries agents, such as synthetic vitamin K or sodium fluoride. Brushing technic is far more important than the dentifrice in the removal of plaque. Dentifrices containing an abrasive are most effective. Dibasic ammonium phosphate dentifrices reduce the count of oral lactobacilli, but there is no evidence or clinical demonstration of their reduction of incidence of caries. Penicillin or other antibiotics have not demonstrated reduction of caries in human beings. Lactobacillus counts are lower in areas where the communal water contains fluorine. Reduction in

caries of 40 per cent has been observed in children whose teeth are topically treated with a 2 per cent solution of sodium fluoride. Vitamins A and C seem to have no effect on incidence of caries. Hanke's experiments with vitamin C were never corroborated. Vitamin D is valuable in formation of hard dental structures. Minerals are no aid against caries on fully formed teeth. Milk is the best and sufficient source of calcium during formation of tooth structures. American diet is good except for the large consumption of sugars. Harmful effects of sugars are not reduced by additions of either vitamins or minerals. All evidence points to the conclusion that the effect of currently available dentifrices is transitory. Brushing the teeth, dental prophylaxis, topical fluorine treatments for children and restrictions of refined or natural sugars are the only known effective aids in caries control.

Phylogenesis of the Ear. By Louis Guggenheim, M.D., Associate Professor of Otolaryngology, University of Southern California, Los Angeles. Cloth. Price, \$12.50. Pp. 277, with 196 illustrations. Murray & Gee, Inc., Culver City, California, 1948.

There is no adequate text of the phylogenesis of the ear. Nor is there any work similarly devoted to the embryology of the ear in man which is acceptable to otologists.

For forty years the author has devoted as much time as possible to the gathering of information on the development of the ear from the lowest forms of life up to man. This has, of necessity, meant much laborious study of the periodical literature of the world. It can be surmised that this was often difficult to obtain and presented, among other things, problems of translation.

The author calls attention to the striking similarity of all mammalian ears; he points out the descent of the ear from the balancing vesicle of the Coelenterates long before a definite organ of hearing arose. The functions of hearing and equilibrium have been closely connected from the beginning, and this is no accident, for both are dependent physiologically on their ability to sense motion; either, as in the case of the acoustic organ, as sound waves or, as in the case of the static labyrinth, as body movement. The author leads us forward in this fascinating story from simple beginnings in the lowly jelly fish to the complicated neuroepithelial mechanism of Corti's organ in the mammal.

All this is remarkably well done, and notably illustrated. No otologist would want to be without it. All must look forward with anticipation to its promised companion work, a detailed embryologic study of the hearing organ in man.

The Story of Scabies. Volume I: The Prevalence (Civil and Military), Prevention and Treatment of Scabies, and the Biology of Acarus Scabiei, from the Earliest Times to the Beginning of World War II. By Reuben Friedman, M.D., Associate Professor of Dermatology and Syphilology, Temple University School of Medicine, Philadelphia. Foreword by Carroll S. Wright, M.D., Professor of Dermatology and Syphilology, Temple University School of Medicine. Cloth. Price, \$7.50. Pp. 468, with 114 illustrations. Froben Press, Inc., 1776 Broadway, New York 19, [1949].

This interesting volume is concerned with the prevalence (civil and military), prevention and treatment of scabies from the earliest times to the beginning of the last war. This book is the first one of a series of four volumes on the subject of scabies to be published by the author. It incorporates many of his previously published works in the field.

The history of scabies constitutes a fascinating chapter in the annals of medicine, and it is well described and profusely illustrated in this book. The chapter mentioning Napoleon's affliction with scabies is one of many historical observations and studies presented in an interesting fashion. Too many histories, medical and otherwise, are merely chronologic compilations of events, whereas this story of scabies is both readable and entertaining and yet scholarly and analytic. The clinical and photomicrographic illustrations have been carefully chosen and well reproduced. Several individual plates showing the itch mite and burrows produced by its invasion of the skin are excellent.

Four volumes on the various aspects of scabies are placing undue emphasis on a comparatively unimportant problem.

Although scabies is one of the most common skin diseases of man, it does not seem of sufficient importance to merit such exhaustive study. Yet the discovery of the itch mite marked the establishment, for the first time in the history of medicine, of a definitely known cause for any of the diseases of man. This book constitutes an original contribution to the dermatologic literature and is a welcome addition to the annals of medical history.

Psychodynamics and the Allergic Patient. By Harold A. Abramson, M.D., F.A.C.A., Associate Physician for Allergy, the Mount Sinai Hospital, New York. [Including] Panel Discussion. An Official Publication of the American College of Allergists. Cloth. Price, \$2.50. Pp. 81, with 10 illustrations. The Bruce Publishing Company, 2642 University Ave., St. Paul 4, Minn.; Box 1586, Minneapolis, 1948.

This small volume comprises a panel discussion on the relationship of psychogenic factors and allergic manifestations, conducted at Atlantic City on June 8, 1947, as part of the program of the annual meeting of the American College of Allergists. In the first chapter, of 12 pages, Dr. Abramson presents photostatic and other excerpts from texts as far back as the seventeenth century or earlier in support of his thesis of the importance of psychogenic and emotional aspects as causes of asthma and hay fever. Many of these old writings are, of course, stray observations without much of the kind of evidence demanded nowadays in support of any concept. Others are veritable superstitions. Most of these records antedate the development of modern chemistry, immunology, bacteriology or even pathology, and our knowledge of specific causes of disease. The second chapter by Dr. Abramson consists of 23 pages discussing his major thesis. In the main the author follows the usual line of proponents of the idea, who claim that emotional and psychic elements can be the major and only factor in producing manifestations which resemble those produced by allergy. Some of the case reports presented in support of this view do not meet the requirements of complete scientific proof.

The panel discussion, participated in by about a dozen contributors, varies in tone from almost complete faddism to almost total nonbelief in the psychosomatic point of view. Among the most satisfactory of the discussions are those of Dr. Frank Fremont-Smith and Dr. M. Murray Peshkin. Dr. Fremont-Smith emphasizes the fact that since allergy is a physiologic change it is expected to be conditioned by nervous stimuli, and in this way it does not differ from other diseases. Dr. Peshkin presents a practical common sense discussion of the relationship between psychic and somatic factors which he says are generally known and appreciated by good practitioners. He stresses the effect of the disease (such as chronic asthma) on the emotional and psychic state of the child. Dr. Rudolf L. Baer presents a clearcut statement of his attitude. While admitting the influence of the nervous system on dermatoses, he states flatly that he has never seen a case of urticaria, atopic dermatitis or eczema in which psychic factors have been a major cause. One of the bits of advice worth remembering is, "One of the worst and most frequent mistakes made in evaluating psychosomatic factors in dermatoses is to say that if one cannot find causal allergenic factors, the causal factor must be psychic."

This book is only what it purports to be—a panel discussion—and is worthy of reading by experienced allergists and other physicians whose maturity will protect them from hasty impressionism.

Textbook for Almoners. By Dorothy Manchée, Almoner, St. Mary's Hospital, London. With a foreword by Sir Alfred B. Howitt, C.V.O., M.D., President, Institute of Almoners. Cloth. Price, \$7.50. Pp. 466, with 55 illustrations. The Williams & Wilkins Company, Mt. Royal & Guilford Aves., Baltimore 2, 1947.

Except for a brief summary of the development of medical social work in English hospitals and of the present status of practice and education, this is an enormously detailed handbook for the guidance of students and practitioners. Although directed to the practicing almoner, its tone is that of the preceptor, and the content is presented in an informal and elementary style. Instructions range from details regarding day by day job performance (including how to write letters) to specific guidance

in such basic functions as "cooperating with the medical staff." Fully half the book is devoted to summary descriptions of the social agency services and social security benefits on which the hospital social worker may need to draw to secure necessary assistance for her patients. A concluding section defines and describes the diseases most likely to be encountered by a medical social worker with specific instruction regarding the kinds of social service the patient may require.

Presumably this compilation was needed and will have value for the practicing hospital almoner in England. The fact that material of this sort has been so painstakingly accumulated attests to a need which has been met in the United States for many years through the publication of local directories of social agencies, "The Social Work Year Book" and specific agency manuals. One can, however, visualize the young almoner in the "single-handed post" turning gratefully to this compendium for information, as well as the wise counsel of a more experienced colleague.

Perhaps the point of chief significance in this careful guide is the sharp contrast implicit between medical social practice in England and in the United States. Although in certain respects similarities are evident in the approach and in the stated functions of the English hospital almoner, the fact that a volume of this sort is considered necessary points to a lack of progress that is somewhat surprising in view of the interest that has been manifested in England in the teaching of social medicine and in the correlation of social and medical research.

To the American student of medical social work—whether physician, hospital administrator or social worker—this book is valuable chiefly in revealing problems common to social work practice in any country in the development of a sound program of service in a hospital or health agency. Unfortunately these comparisons are implicit only, as there is no attempt to analyze the practice, formulate principles or offer more than general standards to guide the profession in its continued expansion. The careful analyses characteristic of studies of medical social work in the United States are absent in this text, which draws primarily on the experience of the author to set forth a somewhat motley array of precepts and procedures.

Human Embryology and Morphology. By Sir Arthur Keith. Sixth edition. Cloth. Price, \$10. Pp. 690, with 578 illustrations. The Williams & Wilkins Co., Mt. Royal & Guilford Aves., Baltimore 2, 1948.

The author presents the material in a survey form, and as such it may be of some use to medical students, particularly in view of the author's notes and references to original articles cited at the end of each chapter. However, because of the simple content and superficial manner of presentation, it would seem better suited for use in premedical courses, such as comparative anatomy. This book would serve to supply fundamental facts to the reader, but could not be considered as a satisfactory reference book. Numerous chapters have been revised over previous editions, and these alterations have served to bring the book fairly up to date. The figures are uniformly simple, and in this light the book lacks the impressiveness and perhaps the accuracy of its American counterparts.

Critical Studies in Neurology. By F. M. R. Walshe, M.D. F.R.S., Physician to University College Hospital, London. [Reprinted from Brain and British Medical Journal.] Cloth. Price, \$4.50. Pp. 256, with 16 illustrations. The Williams & Wilkins Co., Mt. Royal & Guilford Aves., Baltimore 2, 1948.

This book is well constructed from a pedagogic standpoint. It is impossible to give a brief résumé of the body of the book, which is a critical analysis of current teaching concerning the motor and sensory systems. That the author sometimes draws erroneous conclusions is not surprising, since he depends largely on data derived from the observations of others. Previous reviews have, on occasion, protested the author's erroneous statements in another field in which he lacked personal experience. But erroneous conclusion does not invalidate the quest. It may and should lead to correction of the data. The thesis of this book is valid and timely. It should be required reading for every young physician who is thinking of specializing in the field of clinical neurology, whether medical or surgical.

Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. THEY DO NOT, HOWEVER, REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS, BUT THESE WILL BE OMITTED ON REQUEST.

TREATMENT OF TRACHOMA

To the Editor:—What are the details of modern treatment for trachoma? What is the prognosis in such therapy?

Harry J. Weber, M.D., Pakistan, Asia.

ANSWER.—Internal administration of a sulfonamide drug for an adequate period is generally accepted as the treatment of choice in trachoma. A level of at least 3 mg. per hundred cubic centimeters of blood should be maintained for fourteen days unless complete healing of the cornea has not occurred in that time. Infiltrates and punctate fluorescein-staining areas of the cornea should have disappeared before treatment is discontinued. Three to four grams of a sulfonamide compound by mouth daily is usually adequate. Healing of all stages of active trachoma usually occurs without other therapy.

The treatment of healed trachoma is the treatment of complications and is usually surgical.

HEREDITARY DEAFNESS AND MUTISM

To the Editor:—What are the possibilities of transmission of deafness and mutism by a young man whose brother is a deaf mute? His paternal great grandmother had a deaf and mute offspring. Otherwise the family history is normal. May his fiancée safely marry him?

M.D., Pennsylvania.

ANSWER.—Deaf-mutism consists in a profound loss of hearing early in life before speech has been learned. It may be acquired from an early childhood illness, from an intrauterine virus infection transmitted through the placenta as a result of a virus infection in the mother—German measles being the most frequent cause—or it may be due to an intrauterine cochlear damage from quinine, also transmitted through the placenta.

There remain the cases of true transmissible hereditary degenerative changes in the inner ear which are inherited as a recessive mendelian characteristic. Eliminating other causes, the fact that the patient's brother is a deaf mute suggests that the patient himself may be a carrier. According to mendelian law the chances are twice as great that he is a carrier than that he is not a carrier.

ESTROGEN IN GERIATRICS

To the Editor:—What is the status of use of estrogen in geriatrics? A physician discontinued use of estrogen in a patient age 72 whose uterus and ovaries had been removed thirty-five or forty years ago. He states that use of estrogen for over three or four weeks may cause congestion and inflammation in the pelvis. While taking the drug the patient experienced positive benefit in both physical and mental well-being and disappearance of a long-standing pruritus vulvae. Other medication, including tonics and vitamins, has not given comparable results. What ill effects could occur from the prolonged use of estrogen in prostatic cancer?

M.D., California.

ANSWER.—Estrogen, in the average standard dose, is both safe and useful. Old age is not a contraindication. As a matter of fact, it possesses almost specific value in the treatment of prostatic cancer, particularly if the cancer has metastasized. Estrogen rarely leads to congestion or pelvic inflammation. Occasionally it may cause a temporary enlargement and painful hypertrophy of the gland tissues of the female breast, which subsides with the discontinuance of the drug. Estrogen is therefore useful, efficient and harmless.

INJECTION TREATMENT OF VARICOSE VEINS

To the Editor:—What medication today is considered the safest for the injection treatment of varicose veins?

L. Edward Giovine, M.D., Woodside, N. Y.

ANSWER.—A desirable solution for the injection treatment of varicose veins is one which is nontoxic, not too viscous, not too caustic for the wall of the vessel and not productive of drug allergy. Potassium oleate, sodium ricinoleate (soricin®) and hypertonic sodium chloride solution are all useful. Far more important than the type of solution is a careful, truly intravenous injection in the horizontal position and the knowledge of contraindications to this form of therapy, which are many.

ESTROGENS IN CANCEROGENESIS

To the Editor:—Are there grounds for the belief that taking diethylstilbestrol over a period may produce cancer?

Howard N. Kingsford, M.D., Clearwater Beach, Fla.

ANSWER.—Cancer has been produced in certain cancer-susceptible strains of mice by the administration of sex hormones, including diethylstilbestrol. This subject has been thoroughly reviewed by W. U. Gardner in "Endocrinology of Neoplastic Diseases," edited by Twombly and Pack (New York, Oxford University Press, 1947). From the work of a large number of investigators it appears that three factors are necessary to induce breast cancer in mice: (1) a hereditary influence, (2) the presence of the ovary or its secretions (or exogenous hormone such as diethylstilbestrol), and (3) the milk agent. Nathanson, in the reference cited, has emphasized that estrogens are not in themselves carcinogenic, but merely provide the substrate on which an exciting agent may act.

Reports regarding the possible development of breast or uterine cancer in human females after prolonged administration of estrogens have appeared (Foote, F. W., and Stewart, F. W.: *Ann. Surg.* 121: 6-23, 1945; 121: 197-222, 1945; Allaben, G. R., and Owen, S. E.: *J. A. M. A.* 112: 1933, 1939; Auchincloss, H., and Haagensen, C. D.: *J. A. M. A.* 114: 1517, 1940; Parsons, W. H., and McCall, E. F.: *Surgery* 9: 790, 1941, and Stokes, E. M.: *West. J. Surg.* 56: 473, 1948). Proof that administration of estrogen was a direct cause of the cancer is lacking, but certainly there is the possibility that it was contributory. Nathanson points out that with the large number of women now receiving estrogens over long periods one would expect the development of more cases of cancer if the hormone were directly responsible. As in the mouse, it seems more likely that estrogens may be a factor in the production of neoplasms provided factors such as heredity and other exciting agents are already present.

CLEANSING OF WOUNDS

To the Editor:—Is the use of soap, water and peroxide combined recognized as an especially effective wound cleanser?

A. A. Ashby, M.D., Fairmont, Neb.

ANSWER.—An excellent treatise on the cleansing and treatment of wounds by W. L. Estes (*Ann. J. Surg.* 47: 369, 1940) summarizes: "Efforts to treat an open wound to promote rapid healing without infection must be directed first to the control of hemorrhage and then to the removal of all debris and devitalized tissue by irrigation with saline, but so gently, carefully, and thoroughly, as to wash out and rid the wound of every free necrotic bit, but not to damage the healthy tissue remaining. This is by far the most important element in the treatment. The most essential adjunct is debridement or excision of all the devitalized and contaminated tissue that is not free and cannot be washed out."

"Antiseptics are of value in skin disinfection, but in the treatment of the wound itself are seldom necessary, and their indiscriminate use may harm normal processes of repair. An antiseptic, however, would be an added safeguard in anaerobically or soil contaminated wounds. In this category, it is suggested that Dakin's solution may be used. An ideal antiseptic for use in open wounds should possess effective bactericidal action and be nontoxic to tissues and not interfere with or delay healing."

Since hydrogen peroxide solutions, in noncaustic concentrations, possess feeble and comparatively short germicidal activity, their greatest value probably lies in the ability of that oxidizing agent to remove dead organic matter from areas where mechanical removal would be difficult.

PEYOTE

To the Editor:—What can you tell me about peyote? I have read that it is being used by the Indians of the Northwest.

M.D. Massachusetts.

ANSWER.—Peyote is the name given to a species of cactus which contains a number of alkaloids, some resembling morphine and others acting like strychnine. The principal active ingredient is mescaline (trimethoxyphenylmethylamine). The symptoms arising from ingestion of this material, which consist of narcosis and cerebral stimulation, vary with dosage, and the state of the patient at time of consumption. The patient experiences visual symptoms consisting of constantly shifting flashes of brilliant color. Imperfect coordination of movements, retarded perception and errors in estimation of time also occur. An exaltation appears to be produced by the mescaline component; thus the action of peyote may resemble that of marihuana. Large doses depress respiration and may be fatal.

The drug is also alleged to produce analgesia localized in the pelvic region and has been used by Indian tribes in obstetrics. The principal use of the drug is in conjunction with certain ceremonial rites of the Indians.

A good discussion of the pharmacology of mescaline can be found in a paper by M. L. Tainter (*J. Pharmacol. & Exper. Therap.* 79: 42, 1943) and a discussion of its use and abuse by Indian tribes in the midwest will be found in the report of Braasch, Branton and Chesley, *THE JOURNAL*, January 22, page 220.

AMPHETAMINE POISONING

To the Editor:—A 23 year old man came to me after getting on a "cheap drunk" by swallowing the complete contents of a benzedrine® inhaler. In about three hours he states he felt numb all over, due to the racemic amphetamine, 250 mg. He had tetany and near convulsions in the following few hours. In a few days tachycardia developed, with extra systoles. He complained of inability to get his breath. A severe anxiety depression followed for several days. Eventually he improved on large doses of barbiturates and reassurance. What treatment would you use? Have fatal cases been reported?

G. A. Curry, M.D., Morgantown, W. Va.

ANSWER.—The amount of amphetamine ingested by this patient is uncertain. Although the inhalers, when packed, contain 250 mg. of the volatile racemic amphetamine base, it is possible that the inhaler may have been in use for some time and hence contained much less than the original amount. Detailed information on the misuse of amphetamines and other inhalers is provided in the comprehensive report of Monroe and Dreil, "Oral Use of Stimulants Obtained from Inhalers," (*THE JOURNAL*, Dec. 6, 1947, page 909). Individual response to the effects of amphetamine varies widely: Although collapse after large doses (30 to 450 mg.) has been reported, some patients have tolerated as much as 160 to 200 mg. a day, while several apparently normal subjects have collapsed after taking 30 mg. at one dose. Fatalities following the ingestion of amounts ranging from an estimated 40 mg. to 120 mg. have been reported by Hertzog and associates (*THE JOURNAL*, Jan. 23, 1943, page 256), Smith (*THE JOURNAL*, Sept. 9, 1939, page 1022), and Gericke (*THE JOURNAL*, Aug. 11, 1915, page 1098). Barbiturates are recognized as useful in controlling overdosage of amphetamine and related compounds.

PERSISTENT URETHRAL DISCHARGE

To the Editor:—A 36 year old white man contracted gonorrhea one year ago. He was treated with 2,400,000 units of penicillin because of persistent discharge which contained many pus cells but no organisms. He has consulted several physicians, including a competent urologist who diagnosed it as chronic prostatitis. He has received massive doses of penicillin, streptomycin, sulfonamide compounds, several injections of oxophenarsine hydrochloride and prostatic massages and has used urethral irrigations of unknown type. Since all treatment known to me had been exhausted I gave him a trial course of aureomycin, which apparently was without benefit. He still has a purulent exudate several mornings a week, but I have never found intracellular organisms. Streptomycin apparently temporarily arrests the condition, but it recurs when the drug is stopped. I would appreciate any aid you can give in the treatment of this patient.

Gale D. Johnson, M.D., Dunn, N. C.

ANSWER.—The patient who presents a persistent urethral discharge, which is nonspecific and does not respond to chemotherapeutic measures, should have a careful check of his urethra.

If there is a meatal atresia, a meatotomy should be performed. The caliber of the urethra must be established. The presence of a small urethra or of urethral strictures will require sounds. Poor drainage of the urethra is probably the cause of the urethral discharge. An infected urethral diverticulum may give such symptoms. Cystourethrograms should be made. Trichomonads are at times the cause of persistent urethritis. Finally, allergic urethritis may be present, which should be treated with antihistaminics.

RUTIN IN CORONARY DISEASE

To the Editor:—Is rutin indicated in the treatment of coronary disease? Will its continued use have a tendency to prevent future attacks?

M.D., Pennsylvania.

ANSWER.—We do not have knowledge to the effect that rutin is indicated in the treatment of coronary heart disease or that it has a tendency to prevent future attacks. Although hemorrhagic lesions in the coronary artery wall may on occasion precipitate coronary occlusion, it is probable that thrombosis is produced more often by other factors which would not be helped in any way by the administration of rutin. Since it is not possible as a rule to differentiate these etiologic factors, there is no justification at the moment for advising its routine use in coronary heart disease.

CURARE IN PARKINSONISM

To the Editor:—Please furnish information on use of curare in symptomatic treatment of Parkinson's disease.

M.D., Minnesota.

ANSWER.—Using a standardized preparation of curare (intocostin,® Squibb) Bennet (*Am. J. M. Sc.* 202: 102, 1941) found that the rigidity in Parkinson's disease is lessened as tremors disappear. The effects of the drug wear off within 2 hour and the former rigidity and tremors return. To achieve this transient result a curarizing dose had to be given which caused the patient to be unable to carry out any active movements. In order to prolong the curare effect a suspension of curare in oil has been used recently (d-tubocurarine chloride in peanut oil [Squibb]). Using this preparation Schlesinger (*Bull. New York Acad. Med.* 22: 520, 1946) found a wide disparity in response and in dosage tolerated. Tremor was effected but rigidity was partially alleviated.

Curare in aqueous solution as well as curare in oil has been used by skilled neurologists in the treatment of Parkinson's disease with disappointing results. Alarming toxic effects occurred before therapeutic results were noted. At present the atropine group of drugs is superior to curare or any of the recently reported drugs with similar action.

JOINT NOISES

To the Editor:—A former patient states: "I creak in the joints and it getting me down. It started last spring and gets worse. My joints, especially pelvic and hip joints, crunch when I move or turn over in bed. Roentgenograms are negative. My feet are getting longer all the time. What do you suggest?"

M.D., Oregon

ANSWER.—Snapping, popping, clicking or crunching of joints in which the roentgenograms are normal, has no clinical significance. Just why this should occur in certain persons is definitely known. It is most common in patients approaching middle age, but may occur occasionally in younger people. In most instances, it is intermittent and the disturbing symptom may entirely disappear with time. Unless there is pain, there is no reason for alarm. The consistency of the synovial fluid as well as the amount of this lubricating material varies from time to time in any normal person. Only patients who are introspective are bothered much by such symptoms. A statement can be verified that the feet are becoming longer; larger, the possibility of a pituitary tumor with beginning development of acromegaly should certainly be investigated.

CONSTRUCTION OF PENIS

To the Editor:—Is the construction of an artificial penis possible by amputative or partial amputation?

M.D., Massachusetts

ANSWER.—The construction of a new penis has been successfully performed by Drs. R. T. Bergman, H. Howard and I. Barnes, of Los Angeles. However, Dr. Bergman and his associates were unable to do more than construct a penis served as a water carrier; it had no active erectile function. The wimpus made by the late Reinhold Wappler was satisfactory in some cases in permitting of penetration.

The only way to enlarge the organ and make it effective by the operation of Lawsley, which consists of shortening ischiocavernosus (erector penis) muscles and the bulbocavernosus muscle with chromic ribbon gut, which permits the slightest constriction with the maximum of erection.

OBLITERATING ARTERIOSCLEROSIS

To the Editor:—A male patient aged 68, with Buerger's disease, has received intravenous injections of typhoid vaccine, without any important chills or fever, in triweekly doses of 5, 10, 20, 20, 80, 100, 200, 300, 400 and 500 million organisms. What modifications of therapy do you suggest? The patient has had tetraethylammonium in 5 cc. doses.

M.D., New York.

ANSWER.—A male aged 68 has obliterating arteriosclerosis with or without diabetes, in the overwhelming majority of cases. A diagnosis of Buerger's disease at this age would have to rest on a thirty to forty year history of vascular occlusions, attacks of migrating phlebitis and absence of arteriosclerosis in the retina, kidney or heart. Typhoid vaccine at this age may bring on acute vascular occlusions anywhere in the body. Tetraethylammonium is equally inadvisable because it may lower blood pressure and cause an extension of existing thrombotic processes at this age without sufficiently releasing vasomotor tone. The data presented do not permit a diagnosis and hence do not allow therapeutic suggestions. Consultation with men especially interested in vascular disease is suggested.

